

**FLORIDA
WATER LAW
1980**

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**WATER RESOURCES
RESEARCH CENTER**

**UNIVERSITY OF FLORIDA
PUBLICATION NO. 50**

FLORIDA WATER LAW

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Water Resources Research Center
University of Florida
OWRT Project No. B-030-FLA
Matching Grant Agreement No.
14-34-0001-7113
Publication No. 50

IN MEMORIUM

On April 23, 1980, Dean Frank Edward Maloney passed away at his home in Gainesville, Florida. The news of his sudden death caused a somber quiet to fall upon the University of Florida Law School, where classes were canceled in tribute to a beloved figure. The Florida Legislature immediately passed a concurrent resolution expressing its deep regret at the loss of one of the State's distinguished citizens.

Dean Maloney's achievements are too numerous to list in detail. He was a recognized authority on water law and environmental law for almost thirty years. His work in these fields included major authorship of A Model Water Code, on which the Florida Water Resources Act of 1972 was largely based, and scores of law review articles and technical reports.

Dean Maloney became Dean of the University of Florida Law School in 1958, and served in that capacity with distinction until stepping down in 1970 to return to full-time teaching.

He is remembered for his considerable competence and quiet strength, his quick humor and his lion's share of generosity. Dean Maloney had a host of friends in the student body, faculty, alumni, Gainesville community, State and Nation. His absence will be felt for a long time.

Numerous projects undertaken by Dean Maloney were sorely affected by his death. The preparation of this manuscript, however, was close to completion. The text before you is substantially as he last reviewed it. He had worked toward its publication for over two years and regarded this work as one of his most important endeavors. In memory of a respected colleague and close friend, the authors dedicate this book to Dean Frank E. Maloney.

ACKNOWLEDGEMENTS

The authors would like to acknowledge the substantial assistance of Stan Niego, Lynn Capehart, Richard Hamann, Peter Baker, Clinton A. Thomas and Lindy Phillips in the research and writing of this book.

The publication of this report was made possible by a loan from the Law Center Association.

The preparation of this report was supported in part by funds provided by the United States Department of the Interior, Office of Water Research and Technology as authorized under the Water Resources Research Act of 1964 as amended.

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INTRODUCTION

Many changes have taken place in Florida since the predecessor to this book, Water Law and Administration: The Florida Experience, was published in 1968. Since that time the population of Florida has increased from 5 million to almost 8 million. Many of these newcomers have settled in water deficient areas of south Florida or in the environmentally fragile regions of southwest Florida. Florida's water law has also changed significantly in the past 12 years. The 1972 Florida Water Resources Act, the 1972 Florida Land and Water Management Act and the 1974 Coastal Mapping Act are examples of new legislation at the state level. In addition, the National Environmental Policy Act of 1969, the Federal Water Pollution Control Act of 1972 and the Clean Water Act of 1977 illustrate how federal legislation has affected Florida's water resources.

This study will attempt to make a comprehensive examination of Florida water law, including both consumptive uses of water and land use activities that affect the aquatic environment.

The first chapter is concerned with common-law water rights. The reasonable use rule, by which surface water is allocated in the eastern states, is discussed in some detail. The various doctrines which govern the allocation of percolating ground water are also considered. Chapter I also takes a look at the problem of land subsidence caused by ground water pumping.

Chapter II is concerned with the multitude of state and local agencies which are responsible for the management of

Florida's water resources. This chapter begins with an analysis of the Florida Environmental Reorganization Act of 1975. The structure and powers of the Department of Environmental Regulation and the Department of Natural Resources are delineated. Other state agencies such as the Board of Trustees of the Internal Improvement Trust Fund, the Game and Fresh Water Fish Commission, and the Executive Office of the Governor are also discussed. At the local level, chapter II focuses on the various water management districts, although some attention is also given to the role of drainage districts, soil and water conservation districts, and beach and shore preservation districts.

Chapter III surveys the water allocation systems of the eastern United States and describes the statutory permit systems that have been established in many areas of the country. The primary emphasis, however, is on the Florida Water Resources Act of 1972. Some of the act's highlights, which are discussed in this chapter, are the State Water Plan, the consumptive use permit system, the reasonable-beneficial use standard, water shortage planning, and the regulatory framework for dams and impoundments. Finally, this chapter will consider the constitutional problems that may arise when existing water uses are subjected to regulation under the 1972 act.

In chapter IV the nature of common-law remedies against water pollution is reviewed. The bulk of this chapter, however, deals with the Federal Water Pollution Control Act of 1972 and the 1977 amendments to this legislation. The role of state and local government in the regulation of water quality is also

described. In addition, chapter IV considers a number of specific water quality problems. One of these is oil spill prevention and control; chapter IV gives considerable attention to the Florida Pollutant Spill Prevention and Control Act. Another area is the regulation of solid waste disposal facilities. Protection of public drinking water supplies is also covered in this chapter; both the Federal Safe Drinking Water Act and the Florida Safe Drinking Water Act are analyzed. Finally, regulation of dredge and fill activities at both the state and federal level is explored.

Diffused surface water is the subject of the next chapter. Each of the legal doctrines which govern the disposal of diffused surface water, the civil law rule, the common enemy rule, and the reasonable use rule, is examined. Chapter V also delineates the various remedies and defenses to actions which cause flooding from diffused surface water. This section concludes with a discussion of inverse condemnation and a brief survey of government programs which are intended to relieve surface water runoff problems.

The final chapter is concerned with submerged lands and water boundaries. A central concept is navigability and chapter VI analyzes both the federal and the Florida law of navigability and points out where each is applicable. The chapter also discusses the ordinary high water mark and its function in the determination of fresh water boundaries. Likewise, the concept of the mean high water line and its use in the demarcation of boundaries in tideland areas is examined. Finally, chapter VI

considers the problem of ambulatory boundaries and the doctrines of accretion, reliction and erosion.

CHAPTER I

COMMON LAW WATER RIGHTS

A. Water Law and the Hydrologic Cycle.

Scientists have long recognized that water moves in what is known as the hydrologic cycle, the recurring process through which water passes from atmospheric water vapor into liquid and solid form as precipitation, thence along or into the ground, finally returning to atmospheric water vapor by evaporation and transpiration.¹ The law, however, has classified water as if the different physical stages of water were separate and distinct, rather than interrelated parts of the hydrologic cycle. As stated in an early Florida case, this classification has generally included the following four classes of water:²

(1) [S]urface streams which flow in a permanent, distinct, and well-defined channel from the lands of one owner to those of another; (2) surface waters, however originating, which, without any distinct or well-defined channel, by attraction, gravitation, or otherwise, are shed and pass from the lands of one proprietor to those of another; (3) subterranean streams which flow in a permanent, distinct, and well-defined channel from the lands of one to those of another proprietor; (4) subsurface waters which, without any permanent, distinct, or definite channel, percolate in veins or filter from the lands of one owner to those of another.

These are the familiar classifications of what are commonly known as watercourses, diffused surface waters, distinct underground streams, and percolating ground water.

The hydrologist is quick to point out that these classes

are not distinct, but closely interrelated:

The legal classes of water, as listed above, are now known not to be separate and distinct, but to be interrelated and interdependent. The minimum flow of water in watercourses comes chiefly from ground water, whether from "defined underground streams" or "percolating" water. The maximum flow of water in watercourses also comes in part from ground water, but is likely to include a large proportion of water that was temporarily "diffused surface water." "Diffused surface waters" may include water from precipitation which has not completed the process of infiltrating into the ground or which cannot enter the ground because of impermeability of the surface layer, or because the ground is temporarily full; overland flows which may either seep into the ground elsewhere or enter a watercourse or lake or pond; the discharge from ground water reservoirs at springs or seeps; water in sloughs or escaped floodwaters in "watercourses" that have been too narrowly limited in their definition; and marshes and bogs formed by ground water where the water table rises to the surface.

Nevertheless, we will observe the traditional classifications in the following discussion of common-law water rights while at the same time remaining aware that these legal categories often obscure the underlying hydrologic relationships.

B. Contained Surface Water.

Within a country as large and diverse as the United States, with tremendous variations in the quantities of available fresh water, it is not surprising that different systems of regulating water use should have developed. While the United States, viewed in its entirety, has a

bountiful supply of water, only the eastern and particularly the southeastern United States, including Florida, is normally blessed with an ample annual rainfall. The western United States, especially that part of the country west of the Mississippi River, is much more arid, with the exception of a relatively narrow band along the northwest coast, including the western edges of the states of Washington and Oregon, and parts of Northern California.

As the United States developed, the more humid East found variations of what became known as the "riparian" system of water law suitable to its earlier needs, whereas the arid West adopted the system of water law known as prior appropriation.

1. The Prior Appropriation System.

The prior appropriation system is the primary mechanism for water allocation in the western United States.⁴ Priority and beneficial use are its fundamental characteristics. The prior appropriation doctrine provides that the appropriator is entitled to satisfy his water needs before a subsequent appropriator may divert water from the stream.⁵ The subsequent or junior appropriator also possesses a legally protected water right, but it is subordinate to that of the senior appropriator.⁶

Under prior appropriation, water rights are derived from beneficial use of the water rather than from land ownership.⁷ Not only must the use be a beneficial one,

but the methods of diverting the water, conveying it to the place of use, and applying it to the land or machinery for which it is appropriated must also be efficient under the circumstances.⁸ Appropriations are made for a definite quantity of water,⁹ usually expressed in cubic feet per second for direct diversion or in acre-feet for reservoir storage.¹⁰ Diversions are often limited to specific times of the day or week.¹¹ Moreover, administrative procedures for appropriating water invariably require the applicant to designate the proposed place of use for the water he desires to appropriate.¹² The place of use may be on nonriparian land.¹³

In the West, water rights are perpetual in duration, although they may be lost or abandoned through nonuse.¹⁴ However, several states have enacted statutes giving certain uses preferred status for purposes of allocating water during times of shortage or for choosing between simultaneous applications.¹⁵ In addition, some states give these preferred uses condemnation powers.¹⁶ Nowadays, appropriative rights usually operate within a comprehensive statutory and administrative framework. In most jurisdictions permits are issued by a state administrative agency pursuant to some form of adjudicatory process. The agency often has the power to deny or modify permit applications in order to protect senior appropriators or the public interest.¹⁷

Despite some problems with inefficient use, over-appropriation, and lack of transferability, the prior appropriation system has worked relatively well in the West. This has lead some experts to urge its adoption in the East. Since World War II at least nine eastern states including Arkansas,¹⁸ Georgia,¹⁹ Florida,²⁰ Michigan,²¹ Mississippi,²² North Carolina,²³ South Carolina,²⁴ Wisconsin,²⁵ and, most recently, West Virginia,²⁶ have considered the desirability of switching to an appropriative type system creating vested water rights, but only Mississippi has adopted such an approach;²⁷ the others have all rejected it.²⁸ Nevertheless, many eastern states, including Florida, have modified the riparian system by adopting statutory water allocation schemes which contain a number of prior appropriation features.²⁹

2. The Riparian System.

The riparian system of water law which developed in the states east of the Mississippi River, paralleled the development of the common law of England.³⁰ It is a system of water rights based on ownership of land abutting on surface watercourses, including both lakes and streams. The owners of such land are referred to as riparian owners.³¹ It continues to apply in those areas of Florida which have not implemented the consumptive use permit system authorized by the Florida Water Resources Act of 1972.³²

a. Consumptive Use Rules.

There are two doctrines that govern consumptive rights to water under the riparian system, the natural flow doctrine and the reasonable use rule.

i. The Natural Flow Doctrine.

Under the natural flow doctrine, each riparian proprietor on a watercourse is entitled to have the stream flow through his land in its natural condition, not perceptibly retarded, diminished or polluted by others.³³

This doctrine is based on the principle that the law should follow nature and that each proprietor on a stream should be entitled to have the stream continue to flow in its natural state through his land.³⁴

Consumptive uses are not entirely prohibited by the rule, but a distinction is made between "natural" and "artificial" wants or uses.³⁵ Natural uses are those necessary to sustain life and include water for bathing, drinking, household purposes, and watering animals.³⁶

The natural flow doctrine allows a riparian proprietor to use as much water as he needs for his domestic or natural uses even if this depletes the entire stream-flow.³⁷

Artificial uses are those which increase man's comfort and prosperity and include irrigation, manufacturing, power generation, mining operations, and large-scale stock watering.³⁸ Riparian landowners may divert water for artificial uses as long as there is no

material interference with the natural flow of the watercourse, but a nondomestic use which noticeably affects the natural condition of the stream creates a cause of action for a downstream owner even though he is not using the stream and suffers no actual damage.³⁹ The plaintiff is deemed to be injured by the change in the natural flow or condition of the stream and may obtain nominal damages or injunctive relief.⁴⁰ In fact, under the natural flow doctrine, the downstream owner is may be forced to institute an action in order to protect his rights against the acquisition of a prescriptive right by an upper riparian user even though the diversion is harmless under the existing circumstances.⁴¹

In the early days of the Industrial Revolution, when many mills and factories were powered by water, the natural flow doctrine ensured that the water passed down from one mill dam to the next.⁴² Under modern conditions, however, the natural flow doctrine has little utility. It prohibits many beneficial, nonharmful uses simply because they materially diminish the natural flow of the water. The natural flow doctrine also permits a riparian proprietor to play "dog in the manager;" that is, he does not use the water himself but deprives the upstream owners of its use as well. Fortunately, only four or five states still adhere to the natural flow doctrine.⁴³

ii. The Reasonable Use Rule.

The reasonable use rule is now the majority position, at least in the eastern United States. The reasonable use rule and the natural flow doctrine reflect widely divergent attitudes about man's relation to a watercourse:⁴⁴ The natural flow doctrine emphasizes the status quo of nature, whereas the reasonable use rule seeks to promote the fullest beneficial use of streams by adjacent riparian owners.⁴⁵ Under the reasonable use rule, each riparian proprietor may use the water for any beneficial purpose, provided that the intended use is reasonable with respect to the needs of other proprietors on the stream and does not unreasonably interfere with their legitimate water uses. Of course, the mere fact of benefit to the user does not establish the reasonableness of the use.⁴⁶ Moreover, neither the priority of use nor the extent of riparian frontage or riparian land are generally considered in determining reasonableness.⁴⁷ Although riparian rights are regarded as equal or correlative, each riparian user is not necessarily entitled to a proportionate share of the available water.⁴⁸ Indeed, where the water supply cannot satisfy the needs of all riparian users, some uses, otherwise beneficial, may be deemed unreasonable under the circumstances and prohibited.⁴⁹

The determination of the reasonableness of a use is a question of fact and must be resolved on a case-by-

case basis. The Restatement (Second) of Torts has identified nine factors which courts have taken into consideration in determining whether a use is a "reasonable use."⁵⁰ These are: (1) the purpose of the respective uses; (2) the suitability of the uses to the water course or lake; (3) the economic value of the uses; (4) the social value of the uses; (5) the extent and amount of the harm caused; (6) the practicality of avoiding the harm caused; (7) the practicality of adjusting the quantity of the water used by each proprietor; (8) the protection of existing values of land, investments and enterprises; and, (9) the burden of requiring the users causing the harm to bear the loss.⁵¹

Purpose

Whether a use is reasonable depends in part upon the purpose of that use. The Restatement (Second) of Torts notes, "A reasonable use must be one made for a beneficial purpose that fullfills a lawful need or desire of man."⁵² As in the case of the natural flow doctrine, courts examining the purpose of consumptive use have sometimes distinguished between natural and artificial uses.

At common law, all uses which are not natural uses are considered artificial uses and have no preferential status.⁵³ A wide variety of artificial uses, however, are potentially "reasonable" uses.⁵⁴ Use of water for

the purpose of irrigation has been considered both reasonable and beneficial.⁵⁵ Other artificial but reasonable uses⁵⁶ include use of water for fishing, swimming, recreation,⁵⁷ and manufacturing.⁵⁸

Suitability

Many courts have recognized the suitability of the watercourse as a factor in determining the reasonableness of the use. Suitability refers to the reasonableness of a use with respect to the size and character of a watercourse. Unreasonable uses may consume more water than the stream normally delivers or may impair recreational and environmental values. A new use may not be compatible with the preexisting pattern of uses.⁵⁹

Economic Values

Whether a use is reasonable often hinges on its utility and value to the user, measured in economic terms.⁶⁰ Economic value may be evident in the productivity of the use of water in irrigation or manufacturing. Economic value may also arise from the recreational or scenic uses⁶¹ of waterbodies.

Social Values

Social values, or the public interest, have weighed heavily as a factor where considerations of public health and welfare were at stake. The adverse impact on public welfare of an otherwise reasonable private use may outweigh any economic benefit produced by the use. On the other hand, a use which benefits the public as well as

the water user will have social value as well as private economic value.⁶² Courts have held that the public good is advanced by such uses as salinity control, water supply or sewage disposal.⁶³

Extent of Harm

Interference with a use may range from slight inconvenience to total destruction. Whether the interference is reasonable requires an examination of the value of the impeded use. If the harm suffered is insubstantial, a court could find the use to be reasonable.⁶⁴ Harm has been found to be substantial and unreasonable, however, where an upper proprietor attempts to reserve all of the water for his exclusive use.⁶⁵

Avoiding Harm

To allow as many water uses as possible, courts have considered whether it is practical to avoid harm either by adjusting the manner of water use or by requiring use of another water source. Efficiency and cost of adjustment to each riparian are weighed in the balance. A use which is unnecessarily wasteful or inefficient may be declared unreasonable if a change in the method of use would have avoided the harm to other riparians without substantial reduction in profitableness. In contrast, an otherwise reasonable use would be allowed to continue where an adjustment would be prohibitively costly or would render the use impractical.⁶⁶

Adjusting the Quantity

The practicality of adjusting the quantity of water used by each riparian has been another factor weighed by the courts. Where a riparian is using more water than is needed for his purpose, the entire use need not be deemed unreasonable. Rather, a reduced, reasonable quantity may be protected.⁶⁷ Similarly, courts have sometimes divided the available water among riparians according to their respective need.⁶⁸ The question of adjusting the quantity between users may become critical in times of water shortage.⁶⁹

Protection of Existing Values

According to traditional riparian doctrine, priority of use gives no superior rights in a stream.⁷⁰ Thus, priority is immaterial.⁷¹ A few courts, however, have held unreasonable a new use which destroys the value of pre-existing uses and investments in land and facilities. Protection of existing values is interrelated with consideration of the social and economic value of a use.⁷²

Burden of Loss (Compensation)

The final factor requiring the harmful use to bear the burden of loss is grounded in public policy.⁷³ The United States Supreme Court has said that "later uses with superior economic resources should not be allowed to impose costs upon smaller water users that are beyond their economic capacity."⁷⁴ Allocation of the economic burden requires consideration of whether

compensation should be paid by a new user when the decision to supplant an existing use is made. Again, the social and economic value factors are interwoven with the compensation factor. A new use has usually been viewed as unreasonable where it caused substantial, unavoidable harm to an existing, socially and economically valuable use and where the new user was able but unwilling to compensate for the harm.⁷⁵

b. Place-of-Use Restrictions

Under both the natural flow and reasonable use theories, water rights are based on ownership of riparian land, a principle which prevents nonriparian landowners from using watercourses and which has led to other use restrictions as well.

(i). Definitions of Riparian Land

Since surface water may be used only on "riparian" land,⁷⁶ the courts have developed several tests to determine whether a particular tract is riparian or not. Perhaps the most restrictive is the "source of title" test, under which riparian rights are limited to the smallest parcel held under one title in a chain of title leading to the present owner.⁷⁷ The size of a riparian tract cannot be increased by the purchase of contiguous nonriparian land,⁷⁸ and if the back portion of a riparian tract is sold it loses its riparian character.⁷⁹ Moreover, the subsequent reuniting of a severed tract with the abutting tract will not

re-establish its riparian status.⁸⁰ Thus, a riparian tract can be decreased but never increased in those jurisdictions which follow the source of title rule.⁸¹ This rule, which originated in California, tends to restrict available surface water supplies to a small group of riparian owners and has been largely confined to the western states.⁸² The rule supports the western policy of limiting riparian rights as much as possible in order to provide more water for appropriators, but it seems inappropriate for eastern states where more water is available.

The more inclusive "unity of title" rule provides that any tracts contiguous to the abutting tract are riparian, if held in common ownership, regardless of when they were acquired.⁸³ This approach permits an increase in the size of a riparian parcel by the purchase of contiguous land even though the added land had been nonriparian ever since its transfer from governmental to private ownership. Given the trend toward larger farms and landholdings in this country, application of the unity of title theory will result in a continually expanding quantity of riparian land. This rule has support in both eastern and western jurisdictions.⁸⁴

The unity of title rule appears to be a better approach for an eastern jurisdiction than the source of title test. Often a riparian owner can use water on land added to his riparian tract land without

unreasonably curtailing the amount of water available for other riparian owners. However, the failure of the unity of title rule to impose any restriction on the amount of added land which can become riparian when acquired by one riparian owner may adversely affect other riparian proprietors. Accordingly, some courts have declared that the amount of riparian land claimed under the unity of title rule must be reasonable.⁸⁵ Under this corollary, the distance of the land from the watercourse is taken into account in deciding the reasonableness of the particular water use.⁸⁶ Arguably, this affords other riparians some protection against monopolization of water by one riparian owner.

(ii). The Watershed Limitation

The concept of riparian land is further restricted in some states by the watershed limitation, which provides that any part of a tract of land which lies outside the watershed of a body of water is not riparian to it even though the tract itself borders on a natural watercourse and is otherwise riparian.⁸⁷ This watershed limitation is followed in five western states⁸⁸ and a few eastern states.⁸⁹

The watershed limitation is based on the assumption that land beyond the watershed is outside the boundaries established by nature for riparian ownership⁹⁰ and that water used on land within the watershed will eventually return to the parent body of water.⁹¹ If water is

withdrawn from one watershed and drained into another, downstream owners along the first watercourse would be damaged by diminution of the stream's flow, while those along the second watercourse might be injured by the effects of an excessive stream flow.⁹² This allows a riparian owner to use water on his land to the maximum extent while at the same time protecting downstream owners, and protects riparians who are not currently exercising their riparian rights by insuring that water will be available if needed in the future.

Nevertheless, many commentators favor relaxation or abolition of the watershed rule.⁹³ In the East, this restriction often unduly limits water use and encourages waste of the resource.⁹⁴ At present, few eastern states have expressly adopted the watershed rule,⁹⁵ two have rejected it,⁹⁶ and the rest have not yet taken a position.

(iii). Effect of Nonriparian Uses

A nonriparian use is one in which water is diverted onto nonriparian land. Land which lies outside of a stream's watershed is also deemed nonriparian in those states which adhere to the watershed rule. Thus, both diversions by a nonriparian landowners and use of water

by a riparian owners on nonriparian land are considered a nonriparian uses.

Nonriparian uses, however, are not always prohibited. According to one view, such uses are wrongful per se and riparian owners may obtain appropriate judicial relief even though they have suffered no actual damage.¹⁰¹ In states which follow the reasonable use rule, however, a plaintiff must usually prove actual damage before he can enjoin a nonriparian use.¹⁰² A few states permit nonriparian uses even though they cause harm to downstream riparian owners;¹⁰³ nonriparian use is simply one factor that is considered in determining whether the use is reasonable in accordance with the requirements of the reasonable use rule.¹⁰⁴

(iv). Transfer of Water Rights

In most states riparian rights are not transferable apart from the riparian land to which they are incident,¹⁰⁵ but a few jurisdictions have allowed severance of such rights.¹⁰⁶ In such cases the right of the nonriparian grantee is derivative,¹⁰⁷ and the riparian owner cannot convey a greater right than he has.¹⁰⁸ Moreover, while the right of the nonriparian grantee is effective against his riparian grantor,¹⁰⁹ it is usually inferior to the rights of other riparians.¹¹⁰

(v). Use By Municipalities

In theory, a municipality cannot divert water for purposes of public water supply even where it owns riparian property.¹¹¹ Actually, courts often refuse to prevent municipal water utilities drawing from watercourses and deny relief on the basis of failure to show damages estoppel or laches, or the existence of prescriptive right on behalf of the municipality.¹¹² A few states have expressly recognized riparian rights for municipalities.¹¹³ Of course, municipalities normally have the power to acquire water rights by eminent domain, and once water rights are acquired, the municipality may sell water to nonriparians and is not bound by any of the restrictions of the riparian doctrine.¹¹⁴

(c). Prescriptive Rights

Most riparian jurisdictions allow both riparian and nonriparian owners to acquire prescriptive rights to particular water uses.¹¹⁵ A prescriptive right constitutes a servitude against the ownership adversely affected,¹¹⁶ and thus amounts to an uncompensated transfer of rights from the adversely affected riparians to the adverse user.¹¹⁷ Prescription, like adverse possession, rests on the theory that aggrieved parties should seek judicial relief within a reasonable time or be forever barred from a remedy.¹¹⁸

In order to ripen into a prescriptive right, the use must be adverse, notorious, continuous and uninterrupted, and be made under a claim of right or title. To establish

a right by prescription the use must be maintained in a manner hostile to the right of the riparian proprietor against whom it is claimed.¹¹⁹ An act is hostile when it is inconsistent with the true owner's rights of ownership.¹²⁰ Thus, a licensed or permissive use can never give rise to a prescriptive right because such uses are not hostile to the titleholder.¹²¹

The use must be visible, open and notorious so that the riparian owner either knows, or should know, that his rights have been invaded.¹²² It must also be continuous and uninterrupted for the entire prescriptive period.¹²³ Since some water uses, like irrigation, may be sporadic rather than continuous, this requirement is probably satisfied if the claimant uses the water as his necessities require. Of course, the initiation of a suit puts an end to the adverse character of the use as does any other substantial interruption during the prescriptive period.¹²⁴ Likewise, the adverse use is interrupted if at any time during the limitation period the adverse claimant concedes or acknowledges title in the true owner.¹²⁵ Finally, use of water by one claiming a prescriptive right must be under a claim of right so as to necessarily imply an ouster of the owner's exclusive right of control.¹²⁶

Because of the transient nature of water, prescriptive water rights are difficult to acquire. In those states which follow the natural flow doctrine, there must

be an actionable invasion of the right to the stream's natural flow,¹²⁷ while reasonable use jurisdictions require an actionable wrong involving actual damages to the servient owner.¹²⁸

The scope of a prescriptive right, once acquired, is measured by the use originally made and actually enjoyed during the prescriptive period.¹²⁹ Once a prescriptive right has been perfected, the water use may be changed at any time,¹³⁰ as long as the new use does not increase the burden imposed on the servient estate.¹³¹ Finally, prescriptive rights, once acquired, may be lost by abandonment, although mere nonuse is only evidence of an intent to abandon and non conclusive.¹³²

(d). Riparian Rights in Florida

The Florida Supreme Court first recognized the doctrine of riparian rights in Tampa Waterworks Co. v. Cline,¹³³ decided in 1896. The plaintiff in the Cline case was a waterworks company which supplied water to the City of Tampa from a spring-fed stream.

When the defendant, a nearby landowner, excavated a hole on his land and exposed the spring, the plaintiff fearing that it would be polluted by surface runoff, brought suit to prevent further excavation. The Court observed that same rules applied to both contained surface waters and underground streams and declared that the law of riparian rights was applicable in Florida as part of the English common law. The Court seems to have

rejected the natural flow doctrine in favor of the reasonable use rule since it sustained the trial court's denial of injunctive relief when the plaintiff was unable to prove damages.

The riparian reasonable use rule was also applied more recently in Taylor v. Tampa Coal Co.¹³⁴ which involved a 26-acre fresh-water lake in central Florida. The plaintiff in Taylor sued to prevent the defendant from withdrawing water from the lake to irrigate his citrus grove. The trial court found that the lake level was falling about 1/2 inch per day because of drought conditions and another 1/2 inch per day as the result of the defendant's pumping. At the time of the trial the lake level was 49 inches below normal and, according to the plaintiff, this condition interfered with use of the lake for recreational purposes. The defendant argued that the plaintiff's inconvenience was trivial in comparison with the possible loss to his citrus grove if he were prevented from irrigating. Nevertheless, the trial court granted an injunction.

On appeal, the Florida Supreme Court declared:¹³⁵

It is the rule that the rights of riparian proprietors to the use of waters in a non-navigable lake such as the one here involved are equal. Except as to the supplying of natural wants, including the use of water for domestic purposes of home or farm, such as drinking, washing, cooking, or for stock of the proprietor, each riparian owner has the right to use the water in the lake for all lawful purposes, so long as his use of water is not detrimental to the rights of other riparian

owners . . . The fact that one riparian owner may choose to use the water in the lake for recreational purposes while another may desire to divert it for an artificial use such as irrigation, will not give the latter a superior right to take water to the detriment of the former, for in this jurisdiction there is no distinction in respect to use between a farm and a summer residence.

The Court thus affirmed the lower court's decision to prohibit the defendant from irrigating while the lake level was below normal.

One riparian owner also sued another in Lake Gibson Land Co. v. Lester¹³⁶ to prevent withdrawal of water from a lake for irrigation purposes. However, the facts in Lester were somewhat different from those of the Taylor decision. The lake in the Lester case was larger, about 485 acres as opposed to 26 acres. Moreover, the defendant in Lester has been pumping water from the lake for more than 20 years before the lawsuit was brought. Finally, the defendant showed that a drought rather than his pumping was the major cause of the lowering of the lake below its normal level. Accordingly, the Florida Supreme Court held in favor of the defendant.

With the enactment of the 1972 Water Resources Law, the riparian system was replaced by a statutory allocation scheme in most parts of Florida. However, the riparian system continues to remain in force in those areas of the state which have not yet implemented the 1972 Act's consumptive use permit provisions.¹³⁷

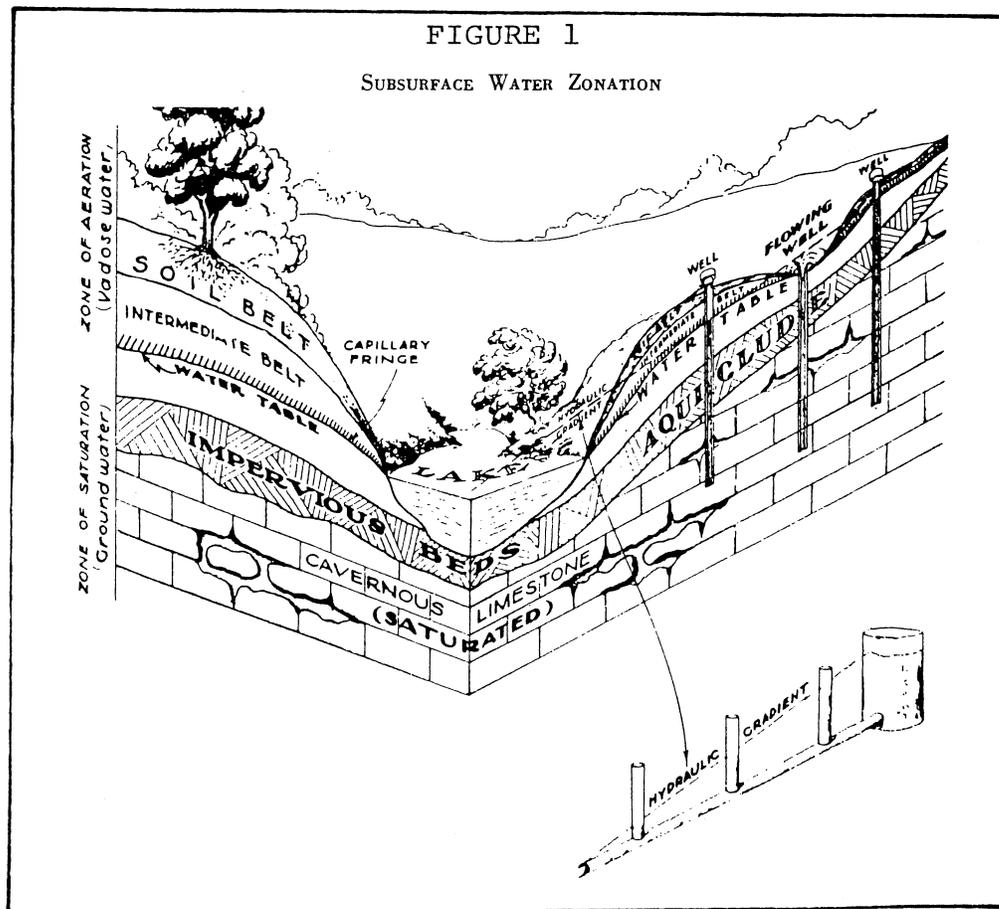
C. Ground Water

Ground water is one of Florida's most important natural resources. It is the principal source of water supply for domestic, municipal, industrial, and agricultural uses.¹³⁸ With the tremendous population expansion and industrial growth in Florida today, the proper conservation and utilization of this resource becomes increasingly important.

1. Hydrology

Ground water is but one phase of the hydrologic cycle and, at least in its freshwater form, is derived from rainfall. Not all of the rainfall will become ground water, however, since some of it will remain as surface water or return to the atmosphere through evaporation. It should be noted that technically ground water is a subclass of a larger subsurface water classification. Subsurface water occurs in two primary zones (Fig. 1).¹³⁹ The water that seeps down to be available for plants is found in the zone of aeration. The voids in the rocks in this zone contain both water and air, and the water is held by capillarity. The remainder of the subsurface water percolates down to the zone of saturation, in which the water completely fills the voids in the rocks. Only the water that reaches this zone is available to supply springs and wells. The subsurface water occurring in the zone of saturation is referred to as ground water, and it is primarily this water with which this chapter is concerned.

Ground water moves both by percolation and by laminar flow through small and large openings. Such movement of the water, either by percolation or through the voids and pores of the rocks and soil, is in response to hydrostatic pressure and gravity. A bed of sediment that is porous and permeable enough to allow the movement of ground water to supply wells and springs is known as an aquifer or water-bearing bed.

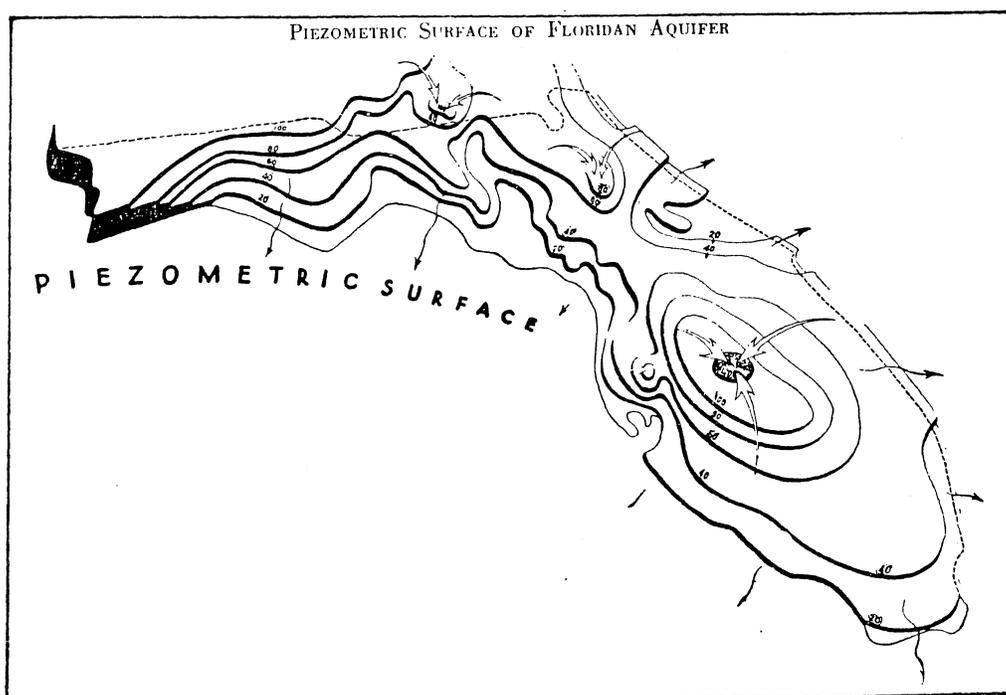


Ground water occurs under water-table or artesian conditions. The water is under water-table conditions when the ground water surface is free to rise and fall with the water supply. Water that has moved through a

permeable bed and is confined under an impervious water-tight bed, called an aquiclude, is said to be under artesian conditions. The artesian water is under pressure and will rise above the water-bearing bed if a well is sunk through the aquiclude or confining bed.

By measuring the height in many wells throughout the state to which the artesian water will rise in relation to sea level, a contour map of the imaginary pressure surface or piezometric surface can be prepared (Fig. 2).¹⁴⁰ The piezometric surface reveals much information on the source and movement of water in the artesian aquifer. In areas where the piezometric surface is high but lies beneath the surface of the land, wells will not flow. Discharge areas, such as the areas where Florida's springs are found, occur where the piezometric surface is higher than the land surface and the wells will flow (Fig. 3).¹⁴¹

FIGURE 2



2. Geology-The Aquifers in Florida

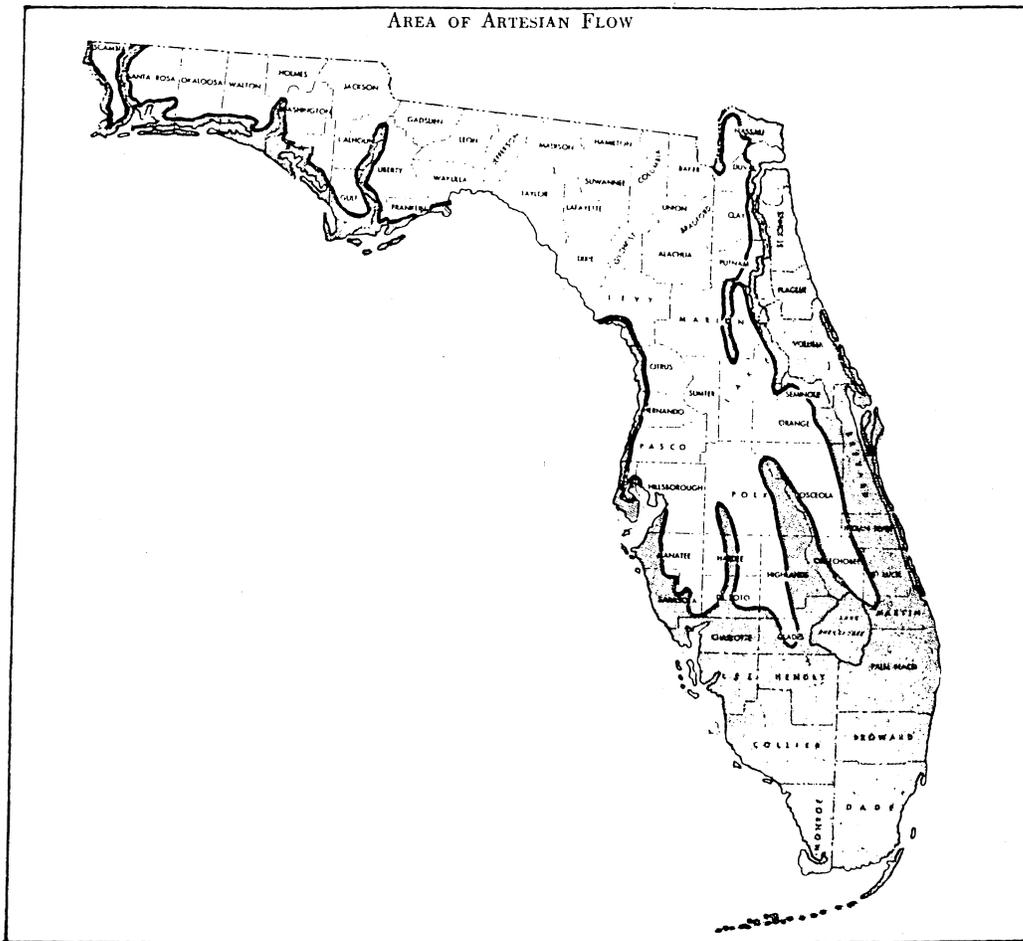
The hydrology of ground water is but one aspect of an understanding of its characteristics. The geological formations of an area figure significantly in the availability of ground water.

Almost the entire state is underlaid with a porous and permeable limestone that provides much of Florida's ground water supplies (Fig. 4).¹⁴² These rock formations are called aquifers. In Florida the aquifers are under both water-table and artesian conditions.

The Floridan aquifer, which is under artesian conditions, provides most of Florida's water supply, except where it is absent (Santa Rosa and Escambia counties) or where it is too salty or mineralized for most purposes (along the east coast below St. Augustine and the peninsula below Lake Okeechobee). The Floridan aquifer is the source of most of the large springs in Florida and thousands of wells. Seventeen of these springs rank in the first magnitude, being springs with an average daily flow of 64.6 million gallons. The discharge from the largest of these springs, Silver Springs, has ranged from 419 to 756 million gallons a day.¹⁴³

The other principal aquifer in Florida is the Biscayne aquifer of Dade and Broward counties. It is very productive and consists of highly permeable limestone and sand. It is the sole source of ground water in the area and exists under water-table conditions.

FIGURE 3



The other aquifers in the state are also limited in area and exist under water-table and artesian conditions.

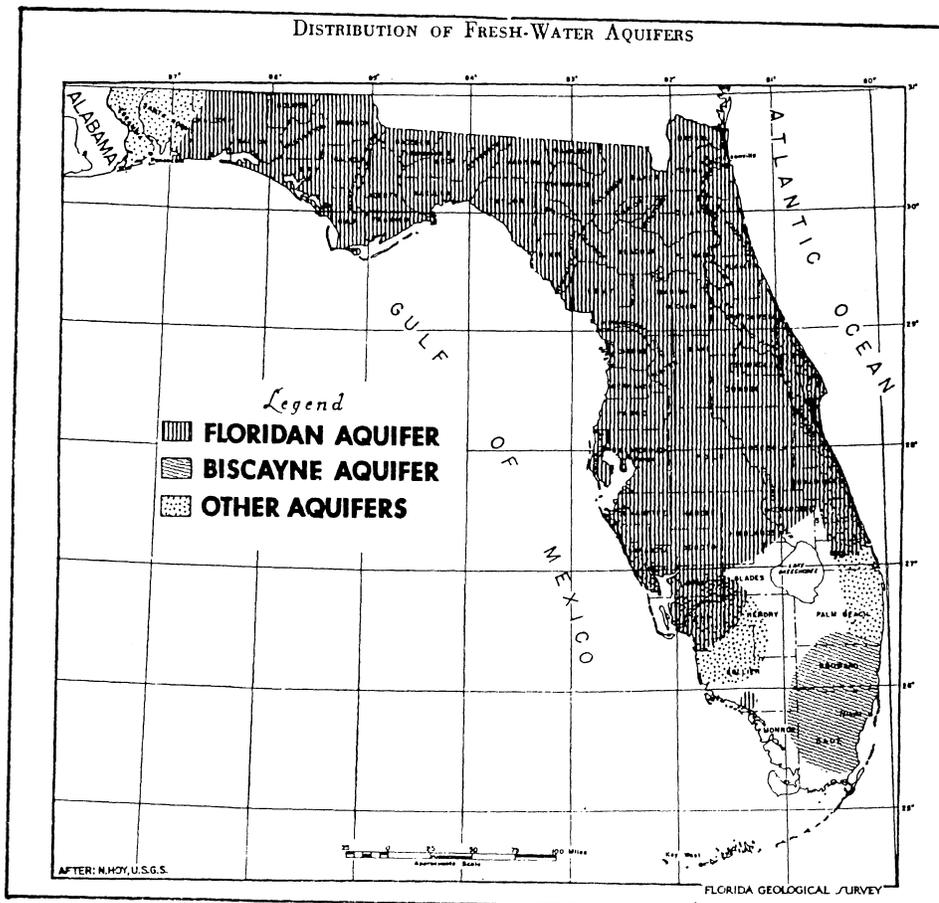
3. Ground Water Problems

The basic problems of ground water conservation and control fall under three general headings: (a) interference between wells; (b) overdraft of the water-bearing bed or aquifer; (c) contamination, which includes pollution and salt water intrusion.¹⁴⁴ Though separable analytically, these problems are interrelated in terms of actual cause and effect. In a sense, all of them involve waste of the ground water supplies because the supplies are not utilized effectively.

(a) Interference Between Wells

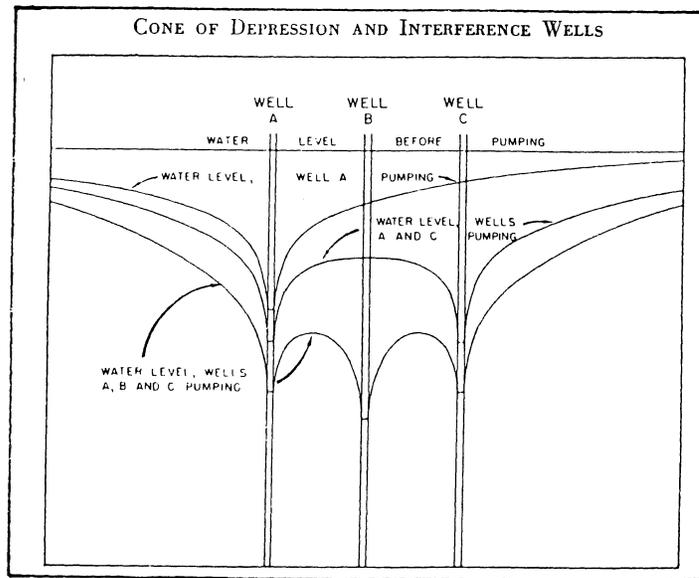
When a well is pumped or allowed to flow, the water level in the area around the well is lowered as a result of the withdrawal of the water. The water-table surface forms a depression in the shape of an inverted cone. The shape of the cone is governed by the size of the openings in the rocks forming the aquifer. If the openings are large, the cone is flat; if they are small, the cone is steep because of the restricted flow. The cone of depression may extend a few feet from the well to a few miles. The amount of drawdown in the well depends on the rate of flow or pumping and the rate or release of the water from storage in the waterbearing bed.

FIGURE 4



Interference occurs between wells when the cones of depression overlap (Fig. 5).¹⁴⁵ The interference may be caused by improper spacing in the well field or by excessive withdrawals, or what appears to be an interference may actually be caused by the lowering of the water table or pressure surface as a result of inadequate recharge of the aquifer because of drought conditions. When interference occurs, it can usually be remedied by deepening the well or lowering the pump. Interferences between private wells of equal use are normally not as serious as interference between the larger yield wells supplying cities and industries.

FIGURE 5



(b) Overdraft of the Water-Bearing Bed or Aquifer

Overdraft of the water-bearing bed results from pumping at a greater rate than the intake of water from the recharge area. The water level is lowered and larger

pumps have to be installed to withdraw the water. Artesian wells may cease flowing and pumping may be required because of the lowered pressure surface. Overdraft occurs for a variety of reasons, but it is usually a result of excessive development of a well field by industries and municipalities. Wasteful flow of artesian wells and low rainfall will also contribute to overdraft.

Overdraft of an aquifer may lead to serious problems. In the first place, the lowered water level will increase costs of obtaining the water. Larger pumps, deeper wells, and additional wells may be necessary to obtain the same yield. Second, serious problems occur in Florida in areas where the aquifer connects with the sea, or overlaps salty water. Excessive withdrawals of the fresh water may draw the salty water into the aquifer, resulting in contamination of the water supply.

(c) Contamination

Contamination includes pollution of the ground water supplies by industrial, municipal, or private wastes, and by salt-water encroachment into the aquifer.

Pollution of ground water by industrial and municipal wastes and sewage does not seem to be widespread in Florida at the present time. In the past considerable quantities of municipal sewage and industrial wastes were disposed of through discharge into drainage wells.

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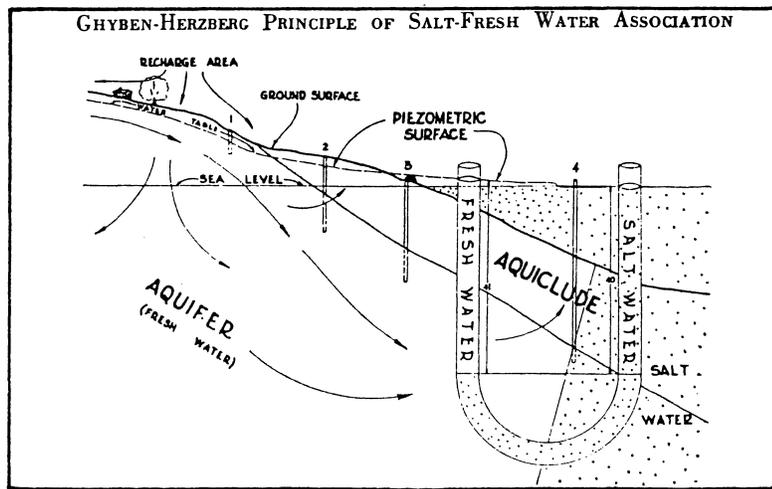
(d) Salt-Water Intrusion

Salt-water intrusion from the ocean or from underlying saline aquifers has been one of the major threats to the ground water supplies of many coastal areas of Florida, and is probably the greatest contamination problem with respect to Florida's ground water today. The State Board of Health considers 250 parts per million chlorides sufficient to make water unsuitable for human consumption.¹⁴⁷ In most of the area of the state south of Lake Okeechobee the Floridan aquifer has a salinity content that exceeds this standard. If an artesian well in this area is allowed to flow, the result will be contamination of the share-owner water-table aquifer. Many artesian wells were drilled in the past and were left uncapped and allowed to flow uncontrolled. In others, the casing has deteriorated, resulting in contamination of the surrounding ground water supplies.¹⁴⁸ It is also known that salt water from the geological past underlies most of the artesian aquifers in Florida.¹⁴⁹ If the aquifer is excessively overdrawn. This salt water may move up into the fresh-water supplies.

The hydraulic principle applicable to the relation between salt and fresh water is illustrated in Figure 6.¹⁵⁰ This is the so-called Ghyben-Herzberg principle.¹⁵¹ Fresh water is lighter than salt water and will float on it. According to the above principle,

one foot of fresh water above sea level is necessary to support a column of salt water 40 feet high. In other words, a column of fresh water 41 feet high will balance a column of salt water 40 feet high. When too much fresh water is removed from the aquifer, it no longer balances out the salt water, and the salt water moves into the fresh-water supplies.

FIGURE 6



There are several factors which contribute to salt-water encroachment: 152

1. Loss of head through increased demands by municipalities. The demands of agriculture, due largely to modern irrigation, and of industry with hydraulic mining, pulp and paper mills, and refrigeration are examples.

2. Excessive drainage. High water levels in the Everglades and under the Atlantic coastal ridge were materially lowered by digging of the Everglades drainage canals during the first quarter of the current century. The result has been excessive drainage and a lower water

table that no longer holds in check the salt water from the ocean.

3. Lack of protective works against tidewater in bayous, canals, and rivers. This factor is particularly prevalent in southern Florida between Miami and Fort Lauderdale where numerous canals and old discharge channels cut the Atlantic coastal ridge.

4. Improper location of wells. Wells in an area subject to salt-water intrusion should be located as far as may be economically feasible from the source of possible salt-water intrusion and properly spaced with respect to each other to prevent interference.

5. Highly variable annual rainfall with insufficient surface storage during droughts. The most important single problem having to do with water conservation and control in Florida lies in the fact that the rainfall is highly variable, resulting in variations in the piezometric surface.

6. Uncapped wells and leakage. Uncapped artesian wells represent a serious loss of ground water and inevitably result in lowered ground water levels. Even when capped, many old artesian wells have broken or corroded casings that permit highly saline water from salt residuals to contaminate the fresh water in overlying strata.

Florida's answers to these ground water conservation problems have been varied. The artesian well-capping

statute was passed in order to control waste through wild-flowing wells and salt-water contamination from highly mineralized wells. The problems of salt-water intrusion are being met by the multipurpose water management districts¹⁵⁴ and by the setting of salt-water barrier lines.¹⁵⁵ Pollution of the underground waters has been controlled to some extent by the Department of Environmental Regulation.¹⁵⁶ Finally, the 1972 Water Resources Law provides for the establishment of water management districts which can regulate and control many of the problems of well interference, overdrafts, and to some extent salt-water intrusion. To appreciate the reach and effect of these statutory controls, one must view them against the background of the common law rules governing ground water utilization. These rules are the subject of the next two sections.

4. Legal Classification of Ground Water

Ground water has been divided into two separate legal categories - underground streams and percolating waters - and as thus classified is subject to two separate bodies of legal rules.¹⁵⁷ Apparently a lack of hydrologic information led the early courts to make these artificial classifications.¹⁵⁸ A classic statement of the early judicial attitude toward percolating ground water is found in a statement made by the Ohio Supreme Court in 1861:¹⁵⁹ "Because the existence, origin, movement and course of such waters, and the causes which govern and direct their movements, are so secret, occult,

and concealed . . . an attempt to administer any set of legal rules in respect to them would be involved in hopeless uncertainty, and would be, therefore, practically impossible." Today it is generally agreed that virtually all ground water is in constant movement under the land, either in watercourses or through the pores of the earth, and that the precise physical state is of no particular consequence to the water's utilization.

The Florida Supreme Court has followed the tradition of classifying ground water into underground streams and percolating waters.¹⁶⁰ However, recent scientific knowledge has changed many of the old ideas concerning percolating water, and the Florida court has indicated an awareness of the nature of ground water and its inter-relationship to other waters.¹⁶¹ Nevertheless, many of the old rules remain, and an understanding of the two legal classes of ground water is still important.

(a) Underground Streams and Percolating Waters - Definitions

Underground streams have been distinguished from percolating waters on the basis that they flow in fixed or definite channels; their existence may be known or ascertainable from surface indications or other methods without excavations for that purpose.¹⁶² These subterranean streams are presumed to have the same characteristics as a surface stream: that is, a bed, banks, and a channel of water. By contrast, percolating waters

are defined as those "subsurface waters which, without any permanent, distinct, or definite channel, percolate in veins or filter from the lands of one owner to those of another."¹⁶³

(b) Presumption That Ground Water Is Percolating

Because of the difficulty of proof, it is well settled in Florida, and in most other jurisdictions, that ground water is presumed to be percolating unless it is affirmatively shown that the water is flowing in an underground stream.¹⁶⁴ The burden of proof rests with the party alleging such fact. This limitation means that in most cases the water will be treated as if it were percolating, which greatly reduces the legal significance of the underground stream classification. In many jurisdictions, however, it may be advantageous to show that an underground stream exists, and it is important to know the various factors looked at by the courts.

(c) Evidence Allowable to Prove an Underground Stream

An underground stream must have essentially the same characteristics as a surface stream, such as a bed and banks, a well-defined and distinct channel, and a current of water, although it need not flow continuously.¹⁶⁵ The evidence allowable to prove the existence of a subterranean stream includes surface indications such as a line of plant growth which would only occur over a wet area,¹⁶⁶ waters disappearing into

the ground and reappearing a short distance away,¹⁶⁷ or
a line of surface depressions or sinkholes.¹⁶⁸ Other
proofs, such as the geological formation of the earth in
the vicinity,¹⁶⁹ the sound of water passing underneath
the earth,¹⁷⁰ and the interruption of the flow of other
wells or springs¹⁷¹ may also be shown.

In Tampa Waterworks Co. v. Cline¹⁷² the Florida
Supreme Court found that a well-defined underground
stream existed. The area in question was underlaid
with limestone, and the court noted that such evidence
as a line of surface depressions or sinks over the lands
of the parties indicated the course of a subsurface
stream as found in limestone regions.¹⁷³ The court also
took into account the presence of fish both in the
plaintiff's downstream spring and in an excavation made
by the defendant, and the reappearance of dyes in the
downstream spring shortly after being placed in the
excavation as evidence of a well-defined underground
stream.¹⁷⁴

The Florida Supreme Court has also indicated, how-
ever, that the knowledge that the area "is largely under-
laid by a limestone strata, which is a waterbearing strata
that is commonly pierced and riddled with underground
caverns and watercourses" is not sufficient evidence to
establish the existence of a well-defined underground
stream supplying another landowner's spring.¹⁷⁵

(d) Significance of the Classification

The classification of ground water into underground streams and percolating waters is significant because of the different legal rules governing each class. It is generally agreed that the riparian and prior appropriation doctrines governing surface watercourses are equally applicable to subterranean streams, whereas different doctrines may govern the rights of landowners in percolating waters.

At least one court has completely done away with the legal distinctions and held all underground waters to be percolating waters, noting that "whether underground waters move in a well-defined channel, either in a generally confined direction as to the points of the compass or spread out laterally, is merely a question of difference or degree."¹⁷⁶

5. Underground Streams

The rights of adjoining property owners to the use of water in underground streams have generally been held to be the same as those of a riparian owner in the waters of a surface watercourse.¹⁷⁷ The actual rule applicable depends on whether the particular jurisdiction follows the "natural flow" or "reasonable use" doctrine with respect to surface streams.¹⁷⁸ In those states following the prior appropriation doctrine, subterranean streams are subject to appropriation under the same rules governing surface streams.¹⁷⁹

A 1951 Florida case illustrates one application of the reasonable use rule to an underground stream, although the case involved alleged unreasonable use of defendant's land rather than unreasonable use or withdrawal of the water as such.¹⁸⁰ Plaintiff alleged that the defendant, in the process of excavating for construction of a yacht basin, caused the water flowing to the plaintiff's spring from an underground stream to cease to flow. The trial court ruled for the defendant on demurrer, despite plaintiff's allegation that the defendant knew that the underground stream supplied plaintiff's spring, and that he proceeded with the excavation anyway. The Florida Supreme Court reversed, pointing out that, while the affirmative duty rested on the plaintiff to show the invasion was either an intentional one or that the conduct was "negligent, reckless, or ultra hazardous," the complaint stated a cause of action for an intentional invasion.¹⁸¹

Three years later the case returned to the Supreme Court, this time on appeal from a jury verdict for defendant.¹⁸² The evidence at trial had established that during the course of excavation the defendant's employees, in an attempt to "cap" the hole, poured four yards of ready-mix concrete into the crevice; the spring then ceased to flow. The jury found for the defendant. The Supreme Court reversed, holding that the only inference which reasonable men could draw from the evidence

was that the concrete stopped the flow of the spring, and that defendant's attempt to cap the hole was not in accord with good engineering practices and was therefore unreasonable under the circumstances.

The Florida Supreme Court's decision was consistent with the rule of the Restatement of Torts.¹⁸³ If the interference is intentional, the plaintiff must show that defendant's use of his land was unreasonable; the utility of the conduct is balanced against the harm to the plaintiff. If the interference is unintentional, the defendant's conduct must have been either negligent, reckless, or ultrahazardous in order for the plaintiff to recover damages.

6. Percolating Waters

Percolating waters "ooze, seep or filter through the soil beneath the surface, without a defined channel."¹⁸⁴ Ground water is presumed to be percolating rather than flowing in an underground stream because visible surface indications and available scientific information are usually inadequate to allow an accurate determination of the source and movement of underground water. Some states have even abandoned the underground stream classification, and hold all ground waters to be percolating.¹⁸⁵

Although consumptive use rules with respect to percolating ground water are hopelessly fragmented and confused, three major approaches can be discerned in the East: the absolute ownership doctrine, the American rule,

and the correlative rights doctrine. In addition, many western states now apply the prior appropriation system to ground water.¹⁸⁶

(a) The Absolute Ownership Doctrine

According to the English or absolute ownership doctrine, a landowner may extract an unlimited quantity of percolating ground water from his land and use it on overlying or distant lands, regardless of injury to adjacent landowners.¹⁸⁷ The rule imposes liability only for waste or for malicious injury to another.¹⁸⁸ The English rule is followed in Ohio, Maine, Massachusetts, Mississippi, Rhode Island and Vermont.¹⁸⁹

The absolute ownership doctrine originated in Acton v. Blundell,¹⁹⁰ an English case decided in 1843. The plaintiff in that case was a manufacturer whose well was affected by nearby mining operations. As the defendant pumped water out of the shaft of his coal mine, he drew the percolating water from under the plaintiff's well. The plaintiff sought damages in an action on the case. Although the defendant's conduct might have been actionable if a surface watercourse had been involved, the court refused to apply the law of surface waters because:¹⁹¹

. . . no man can tell what changes these underground sources have undergone in the progress of time [T]here can be no ground for implying any mutual consent or agreement for ages past . . . which is one of the foundations on which the law as to running streams is supposed to be built

Instead, the Acton court held that the defendant was

entitled to use the water as he saw fit, even if he injured the plaintiff. This result was justified since the defendant, as owner of the overlying land, had an exclusive right to any percolating ground water beneath his tract.

The absolute ownership doctrine recognizes a vested property in the overlying landowner to percolating ground water beneath his property regardless of whether he actually puts the water to use. It has been said that "the percolating water belongs to the owner of the land, as much as the land itself, or the rocks and stones in it."¹⁹² However, since a landowner has no rights against an adjoining landowner who also withdraws ground water, it is somewhat misleading to say that he owns "absolutely" the percolating water under his land.¹⁹³ Instead it would seem that the landowner does not really own the water until he had reduced it to actual possession.¹⁹⁴ The property right involved is the landowner's exclusive right of access to the ground water through his land, rather than ownership of the underground water itself.¹⁹⁵

The absolute ownership rule was followed in many American jurisdictions in the nineteenth century,¹⁹⁶ and is still recognized in a number of states today.¹⁹⁷ It is often criticized, however, because it fails to account for the nature of ground water and because it favors municipalities and other large users who are able to drill deep wells.¹⁹⁸

now only Texas

ground water for farming operations on his land. The City of New York, which owned an adjoining two-acre tract, sank a number of wells to obtain water for sale to the City of Brooklyn. When the wells interfered with plaintiff's farming operations, he sought injunctive relief. Although the court conceded that there would be no liability under the absolute ownership doctrine, it nevertheless enjoined the defendant's extraction of ground water for transportation and sale to distant users.

The American rule has displaced the older absolute ownership doctrine in many jurisdictions, and is now followed in Alabama, Connecticut, Illinois, Michigan, New Hampshire, New York, Pennsylvania, Tennessee, and West Virginia.²⁰⁶ Although the American rule differs from the absolute ownership doctrine where the use of ground water on non-overlying land is concerned, the two rules are quite similar conceptually and the American rule may be regarded as a modification of the absolute ownership doctrine.²⁰⁷ Both rules place the ownership of percolating waters in overlying landowners, but the American rule places reasonable limitations upon the exercise of ownership rights similar to the law of private nuisance. Also, like the absolute ownership doctrine, the American rule favors large users at the expense of farmers and domestic users who often have shallow wells and less powerful pumps.²⁰⁸

(b) The American Rule

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The American or reasonable use rule, allows a landowner to use as much percolating ground water as he needs, regardless of any adverse effect on other landowners, as long as the water use is reasonably related to the natural use of his overlying land.²⁰⁰ The use must be beneficial; a malicious or wasteful use is considered unreasonable per se²⁰¹ and may be enjoined even though the plaintiff has suffered no actual damage.²⁰² As a general rule, however, the use of water on overlying land for agricultural, domestic, mining or manufacturing purposes is deemed to be reasonable.²⁰³

The absolute ownership doctrine and the American rule are virtually the same with respect to the landowner's right to use percolating ground water on overlying land, but they differ significantly in regard to the extraction and transportation of ground water for use in distant areas. The absolute ownership doctrine permits ground water to be transported and used on non-overlying land without liability even though neighboring landowners are injured. According to the American rule, however, the sale or use of water on distant lands is unreasonable and actionable if it impairs the ground water supply of another landowner, even though the defendant's use is beneficial.²⁰⁴

The leading case on the American rule is Forbell v. City of New York.²⁰⁵ The plaintiff in Forbell used

(c) The Correlative Rights Doctrine

Under the correlative rights doctrine, each land owner over a common ground water pool has an equal and correlative right to make a beneficial use of the water on his overlying land. The correlative rights doctrine is sometimes known as the "California rule" because it was introduced by the California Supreme Court in Katz v. Walkinshaw.²⁰⁹ The plaintiff in the Katz case was using ground water for domestic and irrigation purposes on land overlying an artesian basin. He brought suit when the defendant began pumping the water for sale and use outside the basin. The court stated that use of ground water on nonoverlying land would not be allowed if it caused injury to an overlying user, but went on to declare that landowners above a common underground basin have such equal rights in the underlying water so it must be prorated among them when the available supply was not sufficient to meet the needs of all.²¹⁰

Outside of California the doctrine provides that ground water must be equitably apportioned among overlying owners in times of shortage, with each owner entitled to no more than his fair and just proportion.²¹¹ This is sometimes known as the eastern correlative rights doctrine. In some instances, particularly in the case of irrigators, the correlative rights doctrine limits the user to his proportionate share, determined by comparing his surface area with the whole area overlying the water supply.²¹²

Some writers view the correlative rights doctrine as an attempt to analogize the law of percolating ground water to the law of surface streams.²¹³ The approach of these two doctrines, with their emphasis on common rights to water, is similar. Using either the surface water reasonable use rule or the correlative rights doctrine, a number of eastern states appear to have abandoned the American rule.²¹⁴ Other commentators regard the correlative rights doctrine as an extension or modification of the American rule.²¹⁵ However, these two doctrines seem to rest upon different concepts of water ownership.²¹⁶ Under the correlative rights doctrine, overlying owners have only usufructary rights and not, as under the absolute ownership and American rules, proprietary rights in the corpus of the water itself.²¹⁷ It is this concept of a usufructary right which justifies the requirement that overlying owners share the available water supply during shortages.²¹⁸ The surface water reasonable use rule rests on a similar basis.

In two Florida cases on the point the Florida Supreme Court has indicated it will invoke a reasonable use rule similar to that governing riparian rights. In Cason v. Florida Power Co.²¹⁹ the defendant erected a dam which obstructed the natural subterranean drainage of plaintiff's land. In overruling the motion for a directed verdict in favor of the defendant, the court noted that the same principle of reasonable use applicable

to a surface stream should be applicable to percolating water. The court stated that "The reasonableness of the use of property by its owner must of necessity be determined from the facts and circumstances of particular cases as they arise, by the application of appropriate provisions or principles of law and the dictates of mutual or reciprocal justice."²²⁰

In Koch v. Wick,²²¹ a more recent holding, the Florida Supreme Court reaffirmed its application of reasonable use principles. In that case the Board of County Commissioners of Pinellas County sank wells on the road right of way adjacent to plaintiff's property and proceeded to pump water for individuals and municipalities in the county. The county was successfully enjoined in the lower court action by the plaintiff. The county board then leased a strip of land 60 feet in width and 2,640 feet in length adjoining plaintiff's land. The plaintiff again sought an injunction and damages. The trial court granted the county's motion to dismiss. On appeal, the Supreme Court noted that Cason and Labruzzo had overruled the old rule that an owner had an unrestricted right to draw percolating water from his land and had adopted the rule that the right to draw percolating waters is "bounded by reasonableness and beneficial use of the land."²²² The court stated that the question must be resolved on the reasonableness of the use, and apparently extended this doctrine

to municipalities as well as individuals. The lower court was reversed.

Although the reasonable use rule as applied by the court does not give definite answers as to the actual amount of water that may be taken by overlying landowners, it does recognize that the relationship of overlying landowners is similar to that of riparian owners on a water body.

(d) The Restatement of Torts Approach

Recently, the American Law Institute in its Restatement of Torts has recommended a revision of the existing American rule in favor of an approach somewhat similar to the surface water reasonable use rule. The Restatement (Second) of Torts Section 858 provides:

(1) A proprietor of land or his grantee who withdraws ground water from the land and uses it for a beneficial purpose is not subject to liability for interference with the use of water by another, unless

(a) the withdrawal of ground water unreasonably causes harm to a proprietor of neighboring land through lowering the water table or reducing artesian pressure,

(b) the withdrawal of ground water exceeds the proprietor's reasonable share of the annual supply or total store of ground water, or

(c) the withdrawal of the ground water has a direct and substantial effect upon a watercourse or lake and unreasonably causes harm to a person entitled to the use of its water.

(2) The determination of liability under clauses (a), (b), and (c) of Subsection (1) is governed by the principles stated in §§ 850 to 857.²²³

The Restatement includes all of the traditional grounds of liability, but excludes some of the common law defenses.²²⁴ It utilizes a reasonableness standard, but the concept offers the overlying user less protection from liability than the American rule.²²⁵ Instead it utilizes principles that are similar to the surface water reasonable use rule.

Under the Restatement an overlying user may be liable for harm resulting from ground-water withdrawals even though the resulting water use is beneficial to the overlying surface. "Reasonableness" and beneficial effect of use are not judged solely in relation to use on the overlying land, but may vary with the circumstances of the case.²²⁶ While the American rule is intended to encourage maximum development of ground water by overlying landowners on the theory that they will be the most efficient users, the Restatement approach is concerned with the interests of all water users.

Wisconsin appears to be the only state to have adopted the Restatement position. In State v. Michels Pipeline Construction Inc.,²²⁷ the defendant was constructing a large sewer line beneath the Root River Parkway for the Metropolitan Sewer Commission of Milwaukee. Since the project involved tunnelling at depths of forty feet, the Michels tried to dewater the construction site by pumping water from nearby wells. These dewatering operations apparently interfered with

wells in the area and also caused damage to foundations, basement walls and driveways due to subsidence.

The State brought suit to compel the defendant to modify its construction activities in order to reduce the harm to adjoining landowners. The State argued that the higher costs resulting from different construction techniques should be borne by those who would benefit from the sewer system. The trial court, however, dismissed the action, declaring that "there was no cause of action on the part of an injured person concerning his water table." On appeal, the Wisconsin Supreme Court concluded that advancements in the science of hydrology made the prevailing English rule obsolete. Moreover, it felt that the hydrologic relationship between ground water and surface water made it difficult justify applying an absolute ownership doctrine to one class of water while subjecting the latter to a reasonable use rule.²²⁸ Accordingly, it endorsed the Restatement position, thereby assuring that a similar allocation rule would be applied to both surface water and ground water.

7. Subsidence

One issue that has received a good deal of attention recently is the extent to which common-law ground water rules affect liability for subsidence caused by ground water withdrawals.

The first American case to allow recovery for

subsidence was Cabot v. Kingman,²²⁹ which based liability on deprivation of lateral support. A more recent case, Gamer v. Town of Milton,²³⁰ held that ground water consumptive use doctrines, such as the absolute ownership rule, would not prevent liability for negligent conduct when subsidence occurred. However, the Maryland court, in Finley v. Teeter Stone Co., refused to allow recovery for subsidence caused by ground water withdrawals when the pumping was conducted for a reasonable purpose.²³¹ The defendant in this case pumped water out of his quarry pit in order to keep the excavation dry. This drained the surrounding limestone aquifer and created solution cavities under the land, which eventually caused sink-holes to develop on the plaintiff's adjoining farm. The court declared that since ground water was a transitory and subject to "flowing, shifting, or changing position in response to the vagaries of weather and climatic conditions," it could not be considered part of the soil's lateral support. The court also ruled out subjacent support because there was no actual subsurface invasion. Instead, the court concluded that there was no liability for withdrawals which caused subsidence as long as the water was used in connection with the legitimate use of the defendant's land. Finding that his quarrying operations met this requirement, the Maryland court found in favor of the defendant.²³²

Section 818 of the Restatement of Torts reflects

increasing concern for the victims of subsidence. The revised section now provides that "One who is privileged to withdraw subterranean water, oil, minerals, or other substances from under the land is not for that reason privileged to cause a subsidence of the others' land by such withdrawal."²³³ The commentary states that section 818 applies to the withdrawal of any solid, liquid or gaseous substance from under another's land even though the withdrawal is legally permitted. Nor does the means of withdrawal make any difference. Thus, according to section 818, one who withdraws ground water may be liable for subsidence damages regardless of the prevailing ground water allocation rule.

Smith-Southwest Industries v. Firewood Development Co.²³⁴ is the most recent case to address this issue. In that case the plaintiffs attempted to recover for subsidence to their property caused by the defendant's withdrawal of large quantities of ground water by means of high-capacity pumps. The trial court, relying on the absolute ownership doctrine, granted a summary judgment for the defendants. The intermediate appellate court reversed, finding that liability for subsidence damages might be predicated on theories of negligence²³⁵ and nuisance in fact. On appeal, however, the Texas court affirmed the trial court's decision for the defendants, but also declared that it would impose liability in the future for subsidence caused by negligence in pumping or drilling.²³⁶

Recent cases suggest that the courts will provide some protection against damages from subsidence even when the English or absolute ownership rule is recognized. It remains to be seen, however, whether the strict liability approach of the Restatement of Torts or the less restrictive negligence theory will prevail.

D. An Evaluation of Common Law Water Rights

Unfortunately, the riparian system is not responsive to the needs of many water users. Ideally, water rights should be both definite and secure: The water right should be clearly defined with respect to quantity and in terms of its relation to the rights of other users. The reasonable use rule, however, is vague and uncertain;²³⁷ one cannot know with any precision who may use the available water, how much can be used, or for what purpose it can be used.²³⁸ This uncertainty exists because any use must be reasonable with respect to the uses of other riparian owners, and these uses are constantly changing.²³⁹

The uncertain nature of the user's water right under the riparian system is further aggravated because mechanisms for resolving controversies among water users are severely limited. Not only is litigation time consuming, expensive, and uncertain in its outcome, but the results of successful litigation are often narrow and limited in scope. First, the judgment relates only to the parties before the court and not other water users. Since the courts will usually not apportion a stream

between competing users, the judgment will be "all or nothing" for one party or another. Moreover, a judgment pertains only to the present facts and new developments which change the relative positions of the parties cannot adequately be dealt with absent further
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litigation.

Another criticism is that the riparian system tends to foster locational inefficiencies.²⁴¹ In most states it restricts excessively the use of the water for the benefit on non-riparian land.²⁴² Since many beneficial uses consume water some distance from the point of diversion, these locational restrictions probably result in less efficient water use.²⁴³ Thus, while the riparian system possesses the advantage of flexibility, insecurity of the water right and locational restrictions often inhibit efficient water use.

As far as ground water allocation doctrines are concerned, the correlative rights doctrine may be more equitable than either the absolute ownership doctrine or the American rule since small users may be better protected and the effects of a water shortage are borne proportionately by all users. In addition, hydrological considerations favor the correlative rights doctrine since the hydrologic interrelation between percolating ground water and surface water supports a uniform allocation rule for all forms of water.²⁴⁴ Only the correlative rights doctrine sufficiently resembles the

surface water reasonable use rule, both in terms of an allocative standard and in terms of an underlying theory of property interest in the water, to allow the courts to fashion a rational and integrated law of water allocation.²⁴⁵

On the other hand, the correlative rights doctrine is subject to many of the same criticisms as the surface water reasonable use rule. The correlative rights rule is so indefinite that it is exceedingly difficult to apply to varying conditions.²⁴⁶ Moreover, it offers no security to early developers by protecting the water supply on which they have relied, nor does it permit landowners to acquire a more secure right to an adequate supply of water by purchase or contract.²⁴⁷

1. Foley, Water & The Laws of Nature, 5 Kan. L. Rev. 492, 496 (1957).
2. Tampa Waterworks Co. v. Cline, 20 So. 780 782 (Fla. 1896), adopting the classes of water from Frazier v. Brown, 12 Ohio St. 294, 298 (1861).
3. Thomas, Hydrology v. Water Allocation in the Eastern United States, in The Law of Water Allocation in the Eastern United States 164, 170 (Haber & Bergen ed. 1956).
4. Consumptive riparian rights have no legal status in the eight western states which adhere to the "Colorado doctrine." These states include Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming. Riparian rights exist along with appropriative water rights in the eleven "California doctrine" states. These include Alaska, California, Kansas, Mississippi, Nebraska, North Dakota, Oklahoma, Oregon, South Dakota, Texas and Washington. In these states, generally located along the Pacific Coast in the Great Plains area, riparian rights were recognized before the prior appropriation system was adopted. However, since the riparian and appropriative systems do not work well together, most "California doctrine" states limit the exercise of

- riparian rights in some fashion. Trelease, Coordination of Riparian and Appropriative Rights to the Use of Water, 33 Tex. L. Rev. 24 (1954).
5. Pasadena v. Alhambra, 33 Cal.2d 908, 926, 207 P.2d 17 (1949); Bailey v. Idaho Irr. Co., 39 Idaho 354, 358, 227 P. 1055 (1924).
 6. Smith v. O'Hara, 43 Cal. 371, 375 (1872). This protection of the junior appropriative right may be had against unlawful acts of senior appropriators as well as by others.
 7. 1A G. Thompson, Commentaries on the Modern Law of Real Property § 263 (1964).
 8. Hutchins, Background and Modern Developments in Water Law in the United States, 2 Nat. Res. J. 426, 417 (1962). Although the date of priority is generally established by the date of public notice or by the date of application for a permit, the appropriation is effectively secured merely by applying the water to the stated use. Davis, Australian and American Water Allocation Systems Compared, 9 B.C. Ind. & Com. L. Rev. 647, 688 (1968).
 9. 5 R. Powell, The Law of Property ¶ 735 (1973).
 10. 1 W. Hutchins, Water Rights Laws in the Nineteen Western States 491 (1971).

11. N.D. Cent Code § 61-04-04 (1960); Utah Code Ann.
§ 73-3-2 (Supp. 1977).
12. 1 W. Hutchins, supra note 10, at 517.
13. Davis, supra note 8, at 688.
14. Johnson, The Challenge of Prescriptive Water Rights,
30 Tex. L. Rev. 669, 673 (1952).
15. Ariz. Rev. Stat. Ann. § 45-147 (Supp. 1978); Calif.
Water Code §§ 106, 1254, 1460 (1971); Kan. Stat.
Ann. § 82a-707(b) (1969); Ore. Rev. Stat. § 540.140,
(1960); Wash. Rev. Code Ann. § 90.03.040 (1972);
Wyo. Stat. Ann. § 41-3 (1959).
16. Colo. Const. Art XVI, § 6; Neb. Const. Art. XV, § 6.
17. Davis, supra note 8, at 688-89.
18. Rejected. S.B. 69, 60th Sess., Ark. G.A. (1955).
19. Study recommendation not adopted. See Institute Of
Law and Government, A Study Of The Riparian and
Prior Appropriative Doctrines of Water Law (School
of Law, Univ. of Ga. 1955).
20. Rejected by Legislative Study Commission. See Fla.
Water Resources Study Comm'n, Florida's Water Resources:
A Report To The Governor and The 1957 Legislature
14, 15 (1956).

21. Study recommendation not adopted. See The Law of Water Allocation In the Eastern United States 49-70, 441-90 (D. Haber & S. Bergen eds. 1958) (sets forth and disusses the proposed statute).
22. Adopted. Miss. Code Ann. § 5956-04 (Supp. 1971).
23. Rejected. H.B. 298. S.B. 153, N.C.G.A. (1955).
24. Rejected. H.B. 1085. S.B. 43, S.C.G.A. (1956).
25. Proposal not adopted. See discussion in Coates, Present and Proposed Legal Control of Water Resources in Wisconsin, 1953 Wis. L. Rev. 256.
26. The veto of appropriative type legislation in West Virginia was a topic of discussion at the Environmental Law Symposium. May 23-24, 1970. Morgantown, W. Va.
27. Miss. Code Ann. § 51-3-7 (1972). See also Champion, Prior Appropriation in Mississippi: A Statutory Analysis, 39 Miss. L.J. 1 (1967).
28. F. Maloney, R. Ausness & J. Morris, A Model Water Code 76 (1972).
29. See
30. See 1 H. Farnham, The Law of Waters and Water Rights 278-342 (1904).

31. A riparian owner is one who owns land touching on the bank of a watercourse. See Agnor, Riparian Rights in the Southeastern States, 5 S.C.L.Q. 141, 142 (1952). As between riparian owners, the lower owner is, of course, the one farther downstream.
32. See
33. Hanks, The Law of Water in New Jersey, 22 Rutgers L. Rev. 621, 628-29 (1968).
34. Kinyon, What Can a Riparian Proprietor Do?, 21 Minn. L. Rev. 512, 527 (1937).
35. Evans v. Merriweather, 4 Ill. 492 (1842).
36. Meng v. Coffey, 93 N.W. 713, 715-16 (Neb. 1903); Crawford Co. v. Hathaway, 93 N.W. 781 (Neb. 1903); Hough v. Porter, 89 P. 1083 (Ore. 1909); Salem Flouring Mills Co. v. Lord, 69 P. 1033, (Ore. 1902); Martin v. Burr, 228 S.W. 543 (Tex. 1921).
37. Spence v. McDonough, 42 N.W. 371 (Iowa 1889); Canton v. Shock, 63 N.W. 600 (Ohio 1902); Filbert v. Dechert, 22 Pa. Super. 362 (1903); Beuscher, Appropriation Water Law Elements in Riparian Doctrine States, 10 Buffalo L. Rev. 448, 452 (1961).
38. Prentice v. Geiger, 74 N.Y. 341 (1878); Pennsylvania R. Co. v. Miller, 3 A. 780 (Pa. 1886); Lone Tree Ditch Co. v. Cyclone Ditch Co., 128 N.W. 596

- (S.D. 1910); *Watkins Land Co. v. Clements*, 86 S.W. 733 (Tex. 1905); *Nielson v. Sponer* 89 P. 155 (Wash. 1907).
39. *Harvey Realty Co. v. Wallingford*, 150 A. 60 (Conn. 1930); *Robertson v. Arnold*, 186 S.E. 806 (Ga. 1936); *Roberts v. Martin*, 77 S.E. 535 (W. Va. 1913); Comment, *Development of Riparian Law in Alabama*, 12 *Ala. L. Rev.* 155, 158 (1959).
40. *Gynn v. Wabash Water & Light Co.*, 104 N.E. 849 (Ind. 1914); Note, *Water Rights in Indiana*, 32 *Ind. L.J.* 39, 42 (1956).
41. Teass, *Water and Water Courses-Riparian Rights-Diversion of Storm or Flood Waters for Use on Non-Riparian Lands*, 18 *Va. L. Rev.* 223, 236 (1932).
42. *Restatement (Second) of Torts* § 850A, Scope Note (Tent. Draft No. 17, 1971).
43. Only Georgia, New Jersey, Pennsylvania and West Virginia expressly adhere to the natural flow doctrine. *Robertson v. Arnold*, 186 S.E. 806 (Ga. 1936); *McCord v. Big Brothers Movement, Inc.*, 185 A. 480 (N.J. 1936); *Palmer Water Co. v. Leighton Water Supply Co.*, 124 A. 747 (Pa. 1924); *McCausland v. Jarrell*, 68 S.E.2d 729 (W. Va. 1951).

44. In spite of this, the natural flow and reasonable use rules often tend to become blended or confused in practice. Davis, Water Rights in Iowa, 41 Iowa L. Rev. 216, 218 n.8 (1956).
45. 5 R. Powell, The Law of Real Property, ¶ 713 (1976); Restatement (Second) of Torts § 853, comments c, d, & e (Tent. Draft No. 17, 1971).
46. Trelease, The Concept of Reasonable Beneficial Use in the Law of Surface Streams, 12 Wyo. L.J. 1, 16 (1957).
47. 6A American Law of Property § 28.55 (A.J. Casner, ed. 1954); but see Trelease, Alternatives to Appropriation Law, 6 Denver J. of Int'l L. & Pol. 283, 297 (1976).
48. Haar & Gordon, Riparian Water Rights vs. a Prior Appropriation System: A Comparison, 38 B.U.L. Rev. 207, 240 (1958).
49. Restatement (Second) of Torts § 850A, comment d (Tent. Draft No. 17, 1971).
50. Maloney, Capehart & Hoofman, Florida's "Reasonable Beneficial" Water Use Standard: Have East and West Met?, 31 U. Fla. L. Rev. 253, 256-262 (1979).
51. See also Grimes, Lex Aquae Arkansas, 27 Ark. L. Rev. 429, 442 (1973).

52. Restatement (Second) of Torts § 850A, Comment on clause (a) (1979) [Hereinafter cited as "Restatement (2d)".)]
53. Comment, Acquisition of the Right to Use Water, 29 Tul. L. Rev. 554, 556 (1955).
54. Ausness, Water Permits in a Riparian State: Problems and Proposals, 66 Ky. L.J. 191, 199-201 (1977).
55. Harris v. Brooks, 283 S.W.2d 129 (Ark. 1955); Taylor v. Tampa Coal Co., 46 So.2d 392 (Fla. 1950); Hoover v. Crane, 106 N.W.2d 563 (Mich. 1960); Johnson v. Seifert, 100 N.W.2d 689 (Minn. 1960); Bollinger v. Henry, 375 S.W.2d 161 (Mo. 1964).
56. Water Pollution interfering with the reasonable uses of lower riparian owners has been held unreasonable. See, e.g., Stanton v. Trustees of St. Joseph's College, 254 A.2d 597 (Mc. 1969). Although the courts have considered pollution as a factor to be weighed in the determination of whether a use is "reasonable," it is important to note that most states, including Florida, have a separate statutory scheme for the regulation of water pollution. See Fla. Stat. §§ 403.011-.261 (1977).
57. Harris v. Brooks, 225 Ark. 436, 283 S.W.2d 129 (1955).

58. Reynolds Metal Co. v. Ball, 217 Ark. 579, 232 S.W.2d 441 (1950).
59. See, e.g., Stamford Extract Mfg. Co. v. Stamford Rolling Mills Co., 101 Conn. 310, 125 A. 623 (1924) (upper riparian's use held reasonable where discharges after best available treatment neither substantially nor appreciably contaminated the water and where many other new factories and cities were possible sources of pollution); Hazard powder Co. v. Sommersville Mfg. Co., 78 Conn. 171, 61 A. 519 (1905) (where upper riparian's water wheel installation found excellently arranged and adapted to size, capacity, and varying flows of the river and where the use was found to follow the custom of most uses on the river, use held reasonable); Davis v. Getchell, 50 Me. 602 (1862) (where volume of small stream in ordinary course was found insufficient for any practical use, detention for reasonable time to make water power useful and valuable held reasonable); Thompson v. Enz, 379 Mich. 667, 154 N.W.2d 473 (1967); Red River Roller Mills v. Wright, 30 Minn. 249, 15 N.W. 167 (1883) (use found unreasonable where lower riparian injured and upper riparian failed to show the character of the stream, because what might be reasonable on one stream adapted and used for certain purposes might not be proper upon another

stream of a different character used for different purposes); *Davis v. Town of Harrisonburg*, 116 Va. 864, 83 S.E. 491 (1914) (upper riparian's hydro-electric plant found adapted to the ordinary capacity of the stream; therefore, detention of water for reasonable time during drought held reasonable); *Timm v. Bear*, 29 Wis, 254, 266 (1871) (upper riparian's interference with stream flow held unreasonable where his mills required 50% more than the ordinary supply of water in the stream); Restatement (2d), § 850A, comment on clause (b).

60. Restatement (2d) § 850A, comment on clause (c).
61. Id. See, e.g., *Taylor v. Tampa Coal Co.*, 46 So.2d 392 (Fla. 1950) (irrigation versus recreational value); *Higday v. Nickolaus*, 469 S.W.2d 859 (Mo. App. 1971) (value of city's investment weighed); *Borough of Westville v. Whitney Home Builders*, 40 N.J. Super, 62, 122 A.2d 233 (Super. Ct. App. Div. 1956) (aesthetic impairment and recreational value versus developer's investment).
62. Restatement (2d), § 850A, comment on clause (d).
63. *Lamb v. Dade Cty.*, 159 So.2d 477, 479 (Fla, 3d D.C.A. 1964) (interference with salinity control system); *Higday v. Nickolaus*, 469 S.W.2d 859, 871 (Mo. App. 1971) (assurance of wholesome water supply to public). See generally *Hart v. D'Agostini*,

7 Mich. App. 319, 151 N.W.2d 826 (1967) (temporary interference with groundwater allowed where sanitary sewer trunk line benefitted the area); 42 A.L.R.3d 426 (1972) (propriety of injunctive relief against diversion of water by municipally incorporated public utility); Borough of Westville v. Whitney Home Builders, 40 N.J. Super., 62, 122 A.2d 233 (Super. Ct. App. Div. 1956) (public policy recognizing social importance of sewage disposal plants).

64. Restatement (2d) § 850A, comment on clause (e) (citing Gehlen v. Knorr, 101 Iowa 700, 70 N.W. 757 (1897); Elliot v. Fitchburg R.R. Co., 10 Cush. 191 (Mass. 1852); Hazard Powder Co. v. Sommersville Mfg. Co., 78 Conn. 171, 61 A. 519 (1905); Heise v. Schulz, 167 Kan. 34, 204 P.2d 706 (1949); Louisville v. Tway, 297 Ky. 565, 180 S.W.2d 278 (1944); Meyers v. Lafayette Club, 197 Minn. 241, 266 N.W. 861 (1936); Bollinger v. Henry, 375 S.W.2d 161 (Mo. 1964); Montelious v. Elsea, 11 Ohio St. 2d 57, 161 N.E.2d 675 (1959). See also Tampa Water Works Co. v. Cline, 37 Fla. 586, 20 So. 780 (1896); Lake Gibson Land Co. v. Lester, 102 So.2d 833 (Fla. 2d D.C.A. 1958).
65. Scott v. Slaughter, 237 Ark. 394, 373 S.W.2d 577 (1964); Conobre v. Fritsch, 92 Ohio App. 520, 111 N.E.2d 38 (1952).

66. Restatement (2d), § 850A, clause (f), comments h & i, (citing *Thomas v. LaCotts*, 222 Ark. 161, 257 S.W.2d 936 (1953)); *Rancho Santa Margarita v. Vail*, 11 Cal. 2d 501, 81 P.2d 533 (1938); *Colorado Springs v. Bender*, 148 Colo. 458, 366 P.2d 552 (1961) (underground stream); *Hazard Powder Co. v. Sommersville Mfg. Co.*, 78 Conn. 171, 51 A. 519 (1905); *Wilkes v. Perry*, 92 Iowa 417, 60 N.W. 727 (1894); *Crowley v. District Court*, 108 Mont. 89, 88 P.2d 23 (1939); *Warner Valley Stock Co. v. Lynch*, 215 Or. 523, 336 P.2d 884 (1959).

More recent decisions weighing the practicality of avoiding the harm include: *Scott v. Slaughter*, 237 Ark. 394, 373 S.W.2d 577 (1964) (dam lowered two feet); *Collens v. New Canaan Water Co.*, 155 Conn. 477, 234 A.2d 825 (1967) (other sources were available); *MacArtor v. Graylyn Crest 111 Swim Club*, 41 Del. Ch. 26, 187 A.2d 417 (1936) (groundwater, adjusting method of use found impractical).

67. Restatement (2d), § 850A, comment on clause (g).

68. *Id.*, clause (g), comment j. See, e.g., *Lingo v. City of Jacksonville*, 253 Ark. 63, 522 S.W.2d 403 (1975) (groundwater); *Harris v. Brooks*, 225 Ark. 436, 283 S.W.2d 129 (1955); *Half Moon Bay Land Co. v. Cowell*, 173 Cal. 543, 160 P. 675 (1916); *Wiggins v. Muscupiabe Land and Water Co.*, 113 Cal. 182, 45 P.

160 (1896); *Harris v. Harrison*, 93 Cal. 676, 29 P. 325 (1892); *Collens v. New Canaan Water Co.*, 155 Conn. 477, 234 A.2d 825 (1967) (groundwater); *Bliss v. Kennedy*, 43 Ill. 67 (1867); *Meng v. Coffey*, 67 Neb. 500, 93 N.W. 713 (1903). Many of the cases cited are from prior appropriation states in the West because these states also recognize, or did recognize, the riparian doctrine of reasonable use.

69. See Maloney, Capehart & Hoofman, supra note 50, at 282.
70. Davis, Coblentz & Titelbaum, Waters and Water Rights, § 612 at 42 (R. Clark ed 1976). (citing *Dumont v. Kellog*, 29 Mich. 420, 18 Am. Rep. 102 (1874), and *Bliss v. Kennedy*, 43 Ill. 67 (1867). Accord, 78 Am. Jur. 2d Waters § 285 (1975).
71. Restatement (2d) § 850A, clause (h), comment 1 (citing *McCarter v. Hudson Cnty. Water Co.*, 70 N.J. Eq. 695, 65 A. 489 (Ch. 1906).
72. Id. (citing *Strobel v. Kerr Salt Co.*, 164 N.Y. 303, 58 N.E. 142 (1900); *Harris v. Brooks*, 225 Ark. 436, 283 S.W.2d 129 (1955).

Another commentator has stated flatly that where "different lawful and reasonable uses are inherently mutually exclusive, the prior in time will prevail...." Grimes, supra note 51, at 444.

73. Restatement (2d), § 850A, clause (1), comment m, (citing *Strobel v. Kerr Salt Co.*, 164 N.Y. 303, 58 N.E. 142 (1900)); *State v. Michels Pipeline Constr. Inc.*, 63 Wis. 2d 278, 217 N.W.2d 339 (groundwater), modified, 63 Wis. 2d 278, 219 N.W.2d 308 (1974); *MacArtor v. Graylyn Crest III, Swim Club, Inc.*, 41 Del. Ch. 26, 187 A.2d 417 (1963) (groundwater); *United States v. 531.13 Acres of Land*, 244 F. Supp. 895 (W.D.S.C. 1965) (compensation due for public taking of riparian right to use of river flow).
74. *United States v. Gerlach Livestock Co.*, 339 U.S. 725 (1950).
75. Restatement (2d), § 850A, clause (1), comment m (citing *Furrer v. Talent Irrigation Dist.*, 258 Or. 494, 466 P.2d 605 (1970)).
76. Farnham, The Permissible Extent of Riparian Land, 7 Land & Water L. Rev. 31 (1972).
77. *Rancho Santa Margarita v. Vail*, 81 P.2d 533 (Cal. 1935); L. Kinney, The Law of Irrigation and Water Rights 789 (2d ed. 1912).
78. *Title Ins. & Trust Co. v. Miller & Lux*, 190 P. 433 (Cal. 1920); 5 R. Powell, The Law of Real Property, supra note 45, at ¶ 714.
79. *Anaheim Union Water Co. v. Fuller*, 88 P. 978 (Cal. 1907).

80. Watkins Land Co. v. Clements, 86 S.W. 733 (Tex. 1905); Yearsley v. Cater, 270 P. 804 (Wash. 1928).
81. Waite, Beneficial Use of Water in a Riparian Jurisdiction, 1969 Wis. L. Rev. 864, 872.
82. Boehmer v. Big Rock Irrigation Dist., 48 P. 908 (Cal. 1897); Yearsley v. Cater, 270 P. 804 (Wash. 1928).
83. Levi & Schneeberger, The Chain and Unit of Title Theories for Delineating Riparian Lands: Economic Analysis as an Alternative to Case Precedent, 21 Buffalo L. Rev. 439, 442 (1972).
84. Clark v. Allaman, 80 P. 571 (Kan. 1905); Jones v. Conn, 64 P. 855 (Ore. 1901); Slack v. Marsh, 11 Phila. 543 (C.P. Pa. 1875); Restatement of Torts § 843, comment c (1939).
85. Sparks Mfg. Co. v. Town of Newton, 41 A. 385 (N.J. 1898) rev'd on other grounds, 45 A. 596 (N.J. 1900).
See also 1 Kinney, The Law of Irrigation and Water Rights 798 (2d ed. 1912); 6A American Law of Property § 28.55 (A.J. Casner, ed. 1954).
86. Farnham, Permissible Extent of Riparian Land, 7 Land & Water L. Rev. 31, 57 (1972).

87. Johnson & Knippa, Transbasin Diversion of Water, 43 Tex. L. Rev. 1035, 1036 (1965); Recent Important Decisions, Waters and Watercourses-Riparian Land-Watershed, 20 Mich. L. Rev. 123 (1921). According to Professor Waite the source of title test and one version of the unity of title test are not concerned with the watershed limitation. The other version adds to the unity of title test the requirement that the land lie within the watershed of the watercourse to which it is riparian. Waite, Beneficial Use of Water in a Riparian Jurisdiction, 1969 Wis. L. Rev. 864, 873. See also Sayles v. City of Mitchell, 245 N.W. 390 (S.D. 1932). Professor Clark declares this to be the general rule. 1 Waters and Water Rights § 53.5(c) (R. Clark, ed. 1967). On the other hand, Professor Casner contends that the unity of title definition without the watershed limitation is the general rule. 6A American Law of Property § 28.55 (A.J. Casner, ed. 1954).
88. Hudson v. West, 306 P.2d 807 (Cal. 1957); Clark v. Allaman, 80 P. 571 (Kan. 1905); Sayles v. City of Mitchell, 245 N.W. 390 (S.D. 1932); Watkins Land Co. v. Clements, 86 S.W. 733 (Tex. 1905); Miller v. Baker, 122 P. 604, 605 (Wash. 1912).

89. Harrell v. City of Conway, 271 S.W.2d 924, 927 (Ark. 1954); Sturtevant v. Ford, 182 N.E. 560 (Mass. 1932); Stratton v. Mount Hermon Boy's School, 103 N.E. 87 (Mass. 1913); McCarter v. Hudson County Water Co., 65 A. 489, 494-95 (N.J. 1906); Virginia Hot Springs Co. v. Hoover, 130 S.E. 408 (Va. 1925); Town of Gordsonville v. Zinn, 106 S.E. 508, 511 (Va. 1921); Comment, 34 N.C.L. Rev. 247, 247-48 (1956).
90. 2 H. Farnham, The Law of Waters and Water Rights 1571 (1904).
91. Anaheim Union Water Co. v. Fuller, 88 P. 978 (Cal. 1907); Note, Limitation on Diversions from the Watershed: Riparian Roadblock to Beneficial Use, 23 S.C.L. Rev. 43 (1971). Most industrial and municipal uses return up to 90 percent of the water diverted; some water used for irrigation is also returned. Johnson & Knippa, Transbasin Diversion of Water, 43 Tex. L. Rev. 1035, 1057 (1965).
92. Murphy, A Short Course on Water Law for the Eastern United States, 1961 Wash. U.L.Q. 93, 94-95.
93. Martz, Water for Mushrooming Population, 62 W. Va. L. Rev. 1, 11 (1959); O'Connell, Iowa's New Water Statute-The Constitutionality of Regulating Existing Uses of Water, 47 Iowa L. Rev. 549, 557 (1962); Note,

- The Riparian Rights Doctrine in South Carolina, 21
S.C. L. Rev. 757, 769 (1969).
94. Marquis, Freeman & Heath, The Movement for New Water Rights Laws in the Tennessee Valley States, 23 Tenn. L. Rev. 797, 832 (1955).
95. Arkansas, Massachusetts, New Jersey, and Virginia.
96. Gillis v. Chase, 31 A. 18 (N.H. 1891); Lawrie v. Sillsby, 74 A. 94 (Vt. 1909).
97. Waite, Beneficial Use of Water in a Riparian Jurisdiction, 1969 Wis. L. Rev. 864, 875.
98. Metropolitan Util. Dist. v. Merritt Beach Co., 140 N.W.2d 626 (Neb. 1966); Jones v. Conn, 64 P. 855 (Ore. 1901); Texas Co. v. Burkett, 296 S.W. 273 (Tex. 1927).
99. Poire v. Serra, 106 A.2d 39 (N.H. 1954); Smith v. Stanolind Oil & Gas Co., 172 P.2d 1002 (Okla. 1946); Lawrie v. Sillsby, 74 A. 94 (Vt. 1909); Farnham, The Improvement and Modernization of New York Water Law Within the Framework of the Riparian System, 3 Land & Water L. Rev. 377, 413 (1968).
100. Note, Property Rights--Riparian Rights, 34 N.C.L. Rev. 247, 251 (1956).
101. 6A American Law of Property, supra Note 47, § 28.56.

102. Metropolitan Util Dist. v. Merritt Beach Co., 140 N.W.2d 626 (Neb. 1966); Jones v. Conn, 64 P.2d 855 (Ore. 1901); Texas Co. v. Burkett, 296 S.W. 273 (Tex. 1927).
103. Lawry v. Sillsby, 74 A. 94 (Vt 1909); Poire v. Serra, 106 A.2d 39 (N.H. 1954); Smith v. Stanoline Oil & Gas Co., 172 P.2d 1002 (Okla. 1946).
104. Note, 34 N. Car. L. Rev. 247, 251 (1956).
105. Trelease, Coordination of Riparian and Appropriative Rights, 33 Tex. L. Rev. 24, 56-57 (1954).
106. Winchell v. Clark, 68 Mich. 64, 73, 35 N.W. 907, 913 (1888); Texas Co. v. Burkett, 117 Tex. 16, 25, 296 S.W. 273, 276 (1927); Hite v. Town of Luray, 175 Va. 218, 224, 8 S.E.2d 369, 371 (1940).
107. Davis, Australian and American Water Allocation Systems Compared 9 B.C. Indus. & Com. L. Rev. 647, 683 (1968).
108. Young v. City of Asheville, 241 N.C. 618, 86 S.E.2d 408 (1955); 5 R. Powell, supra note 45 at para. 719.
109. 78. Duckworth v. Watsonville Water & Light Co., 158 Cal. 206, 110 P. 927 (1910); Texas Company v. Burkett, 117 Tex. 16, 296 S.W. 273 (1927); Note, supra note 104, at 250.

110. Stoner v. Patten, 132 Ga. 178, 63 S.E. 897 (1909); Roberts v. Martin, 72 W. Va. 92, 77 S.E. 535 (1913); Heilbron v. Fowler Switch Canal Co., 75 Cal. 426, 432, 17 P. 535, 538 (1888); Kennebunk v. Maine Turnpike Authority, 147 Me. 149, 84 A.2d 433 (1951); Contra Gillis v. Chase, 67 N.H. 161, 31 A.18 (1891); Lawrie v. Silsby, 82 Vt. 505, 74 A.94 (1909); Note, Are Water Rights Marketable in Wisconsin? 1966 Wis. L. Rev. 942, 946, n. 18.
111. Pernell v. Henderson, 220 N.C. 79, 16 S.E.2d 449 (1941); Town of Purcellville v. Potts, 179 Va. 514, 19 S.E.2d 700 (1942); Webster v. Harris, III Tenn. 668, 69 S.W. 782 (1902); Ziegler, Acquisition and Protection of Water Supplies by Municipalities, 57 Mich. L. Rev. 349, 357 (1954); Marquis, Freeman & Heath, supra note 94, at 813.
112. Buescher, Appropriation Water Law Elements in Riparian Doctrine States, 10 Buffalo L. Rev. 448, 445 (1961).
113. Canton v. Shock, 66 Ohio St. 19, 63 N.E. 600 (1902); St. Anthony Falls Water Power Co. v. St. Paul Water Commissioners, 56 Minn. 485, 58 N.W. 33 (1894); Grogan v. Brownwood, 214 S.W. 522 (Tex. 1919); Trelease, The Concept of Reasonable Beneficial Use in the Law of Surface Streams, 12 Wyo. L. J. 1, 4 (1965).

114. Davis, supra note 107, at 684.
115. Waite, supra note 81, at 875; Sibbett v. Babcock, 124 Cal. App. 567, 269 P.2d 42 (1954); S.O. & C. Co. v. Ansonia Water Co., 83 Conn. 611, 78 A. 432 (1910); Manier v. Myers & Johns, 43 Ky 514 (1844); Harmon v. Carter, 59 S.W. 656 (Tenn. 1900); Martin v. Burr, III Tex. 57, 228 S.W. 543 (1921); Kirk v. Hoge, 122 Va. 519, 97 S.E. 116 (1918); Town of Gordonsville v. Zinn, 129 Ba. 542, 106 S.E. 508 (1921).
116. Northern California Power Co. v. Flood, 186 Cal. 301, 199 P. 315 (1921); 5 R. Powell, supra note 31, at para. 720.
117. Buescher, supra note 37, at 452.
118. Harnsberger, Prescriptive Water Rights in Wisconsin, 1961 Wis. L. Rev. 47 48-49.
119. Shellow v. Hagen, 9 Wis.2d 506, 101 N.W.2d 694 (1960).
120. Harnsberger, supra note 118, at 61.
121. Stewart v. White, 128 Ala. 202, 30 So. 526 (1901); Moal v. Boyd, 116 Tex. 82, 286 S.W. 458 (1926); Rhoades v. Barnes, 54 Wash. 145, 102 P. 884 (1909).
122. Illinois Steel Co. v. Bilot, 160 Wis. 218, 151 N.W. 258 (1915).

123. At common law there was no fixed period of prescription but the courts by analogy followed the statute of limitations for adverse possession. 2 American Law of Property, supra note 47, at § 8.52. The common law period is twenty years, but in most states the prescriptive period is determined by statute.
124. *Alta Land & Water Co. v. Hancock*, 85 Cal. 219, 24 P. 645 (1890); *Harmon v. Carter*, 59 S.W. 656 (Tenn. 1900).
125. *Harnsberger*, supra note 118, at 65.
126. *Illinois Steel Co. v. Bilot*, 109 Wis. 418, 446, 85 N.W. 402, 408 (1901).
127. 5 R. Powell, supra note 31, at para. 720.
128. *Anaheim Water Co. v. Semi-Tropic Water Co.*, 64 Cal. 185, 30 P. 623 (1883); *Preston v. Clark*, 238 Mich. 632, 214 N.W. 226 (1927); *Schulenberg v. Zimmerman*, 86 Minn. 70, 90 N.W. 156 (1902); *Hanks*, supra note 33, at 630.
129. *Smith v. McElderry*, 220 Ala. 342, 124 S1. 896 (1929); *Tinker v. Bessel*, 213 Mass. 74, 99 N.E. 946 (1912).
130. 56 Am. Jur., Waters § 337 (1947); 93 C.J.S., Waters § 185 (1956); contra *Burkman v. City of New Lisbon*, 246 Wisc. 547, 19 N.W.2d 311 (1945).

131. Harnsberger, supra note 118, at 78-79.
132. Burkman v. City of New Lisbon, 246 Wis. 547, 19 N.W.2d 311 (1945).
133. 20 So. 780 (Fla. 1896).
134. 46 So.2d 392 (Fla. 1950).
135. 46 So.2d at 394.
136. 102 So.2d 833 (2d DCA Fla. 1958).
137. See Chapter 2, infra.
138. Cooper & Stringfield, Ground Water in Florida, Fla. Geol. Surv. Info. Cir. No. 3, at 1 (1950).
139. Figure 1 is taken from Florida Water Resources Study Comm'n, Florida's Water Resources Report to the Governor of Florida & 1957 Legislature 36 (1956) [hereinafter cited as Florida's Water Resources].
140. Figure 2 is taken from Hendry & Lavender, Final Report on an Inventory of Flowing Artesian Wells in Florida, Florida Geol. Surv. Cir. No. 21, at 10 (1959).
141. Figure 3 is taken from Hendry & Lavender, Final Report on an Inventory of Flowing Artesian Wells in Florida, Florida Geol. Surv. Cir. No. 21, at 11 (1959).

142. Figure 4 is taken from Hendry & Lavender, supra, at 6.
143. See Ferguson, Linghas, Love & Vernon, Springs of Florida 32-33, 124-25 (Fla. Geol. Surv. Geol. Bull. No. 31, 1947).
144. Critchlow, Policies and Problems in Controlling Ground Water Resources, 40 Am. Water Works Ass'n J. 775 (1948).
145. Figure 5 is taken from Florida's Water Resources, supra note 139, at 39.
146. Id. at 66.
147. Id. at 40.
148. See Hendry & Lavender, supra note 140, at 13.
149. Id. at 14, 17.
150. Figure 6 is taken from Florida's Water Resources, supra note 139, at 47.
151. Id. at 47; Black, Brown & Pearce, Salt Water Intrusion in Florida-1953 (1953).
152. Florida's Water Resources, supra note 139, at 47-48.
153. Fla. Stat. §§ 373.021-373.061 (1977). See also Hendry & Lavender, supra note 140, at 18.

154. See discussion in Chapter 2.
155. Fla. Stat. § 373.194 (1977).
156. See discussion in Chapter 4.
157. Tampa Waterworks Co. v. Cline, 20 So. 780
(Fla. 1896).
158. Thomas, Conservation of Ground Water 248 (1951).
159. Frazier v. Brown, 12 Ohio St. 294, 311 (1861).
160. Tampa Waterworks Co. v. Cline, 20 So. 780 (Fla.
1896).
161. See Koch v. Wick, 87 So.2d 47 (Fla. 1956).
162. Tampa Waterworks v. Cline, 20 So. 780 (Fla.
1896).
163. Id. at 782
164. E.g. Tampa Waterworks Co. v. Cline, 20 So. 780
(Fla. 1896); Stoner v. Patten, 63 S.E. 897
(Ga. 1909); Clinchfield Coal Corp. v. Compton,
139 S.E. 308 (Va. 1927).
165. Tampa Waterworks Co. v. Cline, 20 So. 780
(Fla. 1896).
166. Maricopa County Municipal Water Conservation
Dist. v. Southwest Cotton Co., 39 Ariz. 65, 87,
4 P.2d 369, 377 (1931) (dictum); Hale v. McLea,

53 Cal. 578, 580 (1879) (line of brushes evidence of well-defined underground stream); Commonwealth Dep't of Highways v. Sebastian, 345 S.W.2d 46, 47 (Ky. 1961) (line of green grass growing on surface even in dry weather was sufficient to create a jury issue as to the existence of a well-defined underground stream).

167. Board of Supervisors v. Mississippi Lumber Co., 80 Miss. 535, 544, 31 So. 905, 906 (1902) (dictum); Stoner v. Patten, 132 Ga. 178, 179, 63 S.E. 897 (1909) (appearance and reappearance properly received as evidence of an underground stream).
168. Tampa Waterworks Co. v. Cline, 37 Fla. 586, 604, 20 So. 780, 785 (1896) (underground stream found to exist).
169. Ross Common Water Co. v. Blue Mountain Consol. Water Co., 228 Pa. 235, 240, 77 A. 446, 447 (1910) (underground streams found to exist on basis of evidence of geological formation).
170. Maricopa County Municipal Water Conservation Dist. v. Southwest Cotton Co., 39 Ariz. 65, 87, 4 P.2d 369, 377 (1931) (dictum).
171. Id.
172. 37 Fla. 586, 20 So. 780 (1896).

173. Id. at 603, 20 So. at 785.
174. Id.
175. Labruzzo v. Atlantic Dredging & Constr. Co., 54 So.2d 673, 677 (Fla. 1951); 29 A.L.R.2d 1346 (1953).
176. Hinton v. Little, 50 Idaho 371, 375, 296 P. 582, 583 (1931) (holding that the doctrine of prior appropriation applies to all subterranean waters); Idaho Code Ann. 42-230 (1947).
177. Weston, Law of Ground Water in Pennsylvania, 81 Dick. L. Rev. 11, 19 (1976).
178. Ausness, Water Use Permits in a Riparian State: Problems and Proposals, 66 Ky. L.J. 191, 207 (1977); Note, Water Law-Ground Water Rights in Missouri - A Need for Clarification, 37 Mo. L. Rev. 357, 358 (1972); Comment, The Law of Underground Water: A Half-Century of Huber v. Merkel, 1953 Wis. L. Rev. 491, 499.
179. E.g., Maricopa County Municipal Water Conservation Dist. v. Southwest Cotton Co., 39 Ariz. 65, 4 P.2d 369 (1931); Chandler v. Utah Cooper Co., 43 Utah 479, 135 P. 106 (1913).
180. Labruzzo v. Atlantic Dredging & Constr. Co., 54 So. 2d 673 (Fla. 1951).

181. Id. at 676.
182. Labruzzo v. Atlantic Dredging & Consts. Co.,
73 So.2d 228 (Fla. 1954).
183. Restatement of Torts §§ 822-49 (1939).
184. Clinchfield Coal Corp. v. Compton, 139 S.E. 308,
311 (Va. 1927).
185. Hinton v. Little, 296 P. 582, 583 (Idaho 1931);
Kan. Stat. §§ 82a-702 to 703 (1969); Ore. Rev.
Stat. § 537.515(3) (1973); N.D. Cent. Code Ann.
§ 61-01-01 (1960).
186. In the West, underground streams have always been
subject to appropriation in the same manner as sur-
face waters. Maricopa County Mun. Water Con-
servaion Dist. v. Southwest Cotton Co., 4 P.2d
369 (Ariz. 1931); Chandler v. Utah Copper Co.,
135 P. 106 (Utah 1913). Increasingly, these states
have moved toward public control and management in
the distribution of their percolating ground water
as well. Colorado, Idaho, Montana, Nevada, New
Mexico, Oklahoma, Oregon, Washington and Wyoming
now have separate ground water codes based on the
prior appropriation model. Colo. Rev. Stat. § 37-
90-101 to 141 (1973); Idaho Code §§ 42-226 to 239
(Supp. 1977); Mont. Rev. Codes Ann. §§ 89-2911 to
2936 (Supp. 1975); N.M. Stat. Ann. § 75-11-1 to

40 (1968); Okla. Stat. Ann. tit. 82, §§ 1002-1014 (West 1970); Ore. Rev. Stat. §§ 537.05-.990 (1973); Wash. Rev. Code §§ 90.010-.44.250 (1972); Wyo. Stat. §§ 41-121 147 (1957).

Five other states, Alaska, Kansas, North Dakota, South Dakota and Utah have made their general appropriation statutes applicable to percolating ground water. Alaska Stat. §§ 46.15.030, .040(a), .260(5) (1971); Kan. Stat. § 82a-707 (1969). *Cities of Hesston & Sedgwick v. Smrha*, 391 P.2d 93 (Kan. 1964) and *Williams v. City of Wichita*, 374 P.2d 578 (Kan. 1962); N.D. Cent. Code § 61-01-01 (1960); S.D. Compiled Laws Ann. § 46-6-3 (Supp. 1977); Utah Code Ann. § 73-1-1 (1953), construed in *Stubbs v. Ercanbrack*, 368 P.2d 461 (Utah 1962).

The remaining western states follow one of the common law rules and do not apply prior appropriation principles to ground water. California follows the correlative rights doctrine. Arizona and Nebraska follow the American rule. See *Bristor v. Cheatham*, 255 P.2d 173 (Ariz. 1953); In re Metropolitan Util. Dist. of Omaha, 140 N.W.2d 626 (Neb. 1966) and *Olson v. City of Wahoo*, 248 N.W. 304 (Neb. 1933).

Texas continues to adhere to the absolute ownership doctrine. *City of Corpus Christi v. Pleasanton*, 276 S.W.2d 798 (Tex. 1955);

- Pecos County Water Control & Improv. Dist. v. Williams, 271 S.W.2d 503 (Tex. Civ. App. 1954); Houston & Tex. Central R.R. Co. v. East, 81 S.W. 279 (Tex. 1904); Greenhill & Gee, Ownership of Ground Water in Texas: The East Case Reconsidered, 33 Tex. L. Rev. 620 (1955).
187. Stoner v. Patten, 63 S.E. 897 (Ga. 1909); Edwards v. Haeger, 54 N.E. 176 (Ill. 1899).
188. Roath v. Driscoll, 20 Conn. 533 (1850); St. Amand v. Lehman, 47 S.E. 949 (Ga. 1904); Gagnon v. French Lick Springs Hotel Co., 72 N.E. 849 (Ind. 1904); Greenlead v. Francis, 35 Mass. (18 Pick) 117 (1836); Wheatley v. Baugh, 25 Pa. 528 (1855); Rose v. Socony-Vacuum Corp. 173 A. 627 (R.I. 1934).
189. Adams, Updating Groundwater Law: New Wine in Old Bottles, 39 Ohio St. L. J. 520, 521 (1978).
190. 152 Eng. Rep. 1223 (Ex. Ch. 1843). See also Chasemore v. Richards, 2 H. & H. 168 (1857), aff'd 11 Eng. Rep. 140 (1859).
191. 152 Eng. Rep. 1223, 1233-34. This same sense of inadequate of knowledge was expressed in other cases. Ewart v. Graham, 11 Eng. Rep. 132 (1859); Chatfield v. Wilson, 28 Vt. 49 (1855). See also Comment, Wisconsin Ground Water Law--A New Era, 1957 Wis. L. Rev. 309, 324.

- 12 S.W. 937 (Ky. 1890); Wilson v. City of New Bedford, 108 Mass. 261 (1871); Chase v. Silverstone, 62 Mo. 175 (1873); Haldeman v. Bruckhart, 45 Pa. 514 (1863). The rule seems to have arisen independently in Massachusetts. See, e.g., Greenlead v. Francis, 35 Mass. (18 Pick.) 117 (1836).
197. See, e.g., Edwards v. Haeger, 54 N.E. 176 (Ill. 1899); Logan Gas Co. v. Glasgo, 170 N.E. 874 (Ohio 1930); White River Chair Co. v. Connecticut River Power Co., 162 A. 859 (Vt. 1932). Professor Powell estimates that about one quarter of the states still adhere to the absolute ownership doctrine. 5 R. Powell, The Law of Real Property ¶ 725 (1973).
198. McHendrie, The Law of Underground Water, 13 Rocky Mtn. L. Rev. 1, 5 (1940).
199. Although the American rule is often called the reasonable use rule, it should not be confused with the surface water reasonable use rule.
200. Harnsberger, Oeltjen & Fischer, Groundwater: From Windmills to Comprehensive Public Management, 52 Neb. L. Rev. 179, 205 (1973).
201. Barclay v. Abraham, 96 N.W. 1080 (Iowa 1903); Stillwater Water Co. v. Farmer, 93 N.W. 907 (Minn. 1903).

192. Fire Dist. No. 1 v. Graniteville Spring Water Co., 152 A. 42, 43 (Vt. 1930), quoting Wilson v. New Bedford, 108 Mass. 261, 265 (1908). See also Davis v. Spaulding, 32 N.E. 650 (Mass. 1892), where the court stated:

[W]ater percolating underground . . . is in law a part of the land itself, in the same sense that earth, gravel, stones, or minerals of any kind are constituent parts of the land, and is the absolute property of the owner in the same way, and to the same extent, that the other constituent parts of his land are his absolute property; so that he has the same right to . . . use it, on the land or elsewhere, that he has to . . . use or sell sand, soil, clay, ores, or any other constituent part of the land.

193. Maloney & Plager, Florida's Ground Water: Legal Problems in Managing a Precious Resources, 21 U. Miami L. Rev. 751, 767-68 (1967).
194. Note, Percolating Water Law--Theories of Ownership and Problems of Distribution in the Western United States, 30 N.Y.U.L. Rev. 1419, 1422 (1955).
195. Kirkwood, Appropriation of Percolating Water, 1 Stan. L. Rev. 1, 19 (1948).
196. Roath v. Discoll, 20 Conn. 532 (1850); Saddler v. Lee, 66 Ga. 45 (1879); Kinnard v. Standard Oil Co.,

202. 5 R. Powell, The Law of Real Property ¶ 726 (1973); Hanks & Hanks, The Law in New Jersey: Groundwater, 24 Rutgers L. Rev. 621 (1970).
203. Board of Supervisors v. Mississippi Lumber Co., 31 So. 905 (Miss. 1902); Drummond v. White Oak Fuel Co., 140 S.E. 57 (W.Va. 1927); Pence v. Carney, 52 S.E. 702 (W.Va. 1905); Lugar, Water Law in West Virginia, 66 W. Va. L. Rev. 191, 214 (1964). It cannot be said with certainty that the courts would find any use reasonable if it actually resulted in a substantial injury to a neighboring landowner's ground water supply. In nearly all the cases applying the reasonable use rule, the percolating water was extracted for sale or use at distant points. No case was found in which both parties were using the water on overlying land for a beneficial purpose and the court applied the percolating water reasonable use rule in such a way that one party was allowed to use the water to the complete deprivation of another's supply. Maloney & Plager, Florida's Ground Water: Legal Problems in Managing a Precious Resource, 21 U. Miami L. Rev. 751, 770 (1967).
204. Schenk v. City of Ann Arbor, 163 N.W. 109 (Mich. 1917); Erickson v. Crookston Waterworks, Power & Light Co., 111 N.W. 391 (Minn. 1907); Rouse v.

- City of Kinston, 123 S.E. 482 (N.C. 1924);
Canada v. City of Shawnee, 64 P.2d 694, 697
(Okla. 1937).
205. 58 N.E. 644 (N.Y. 1900).
206. Adams, Updating Groundwater Law: New Wine in Old Bottles, 39 Ohio St. L. J. 520, 522 (1978).
207. 2 W. Hutchins, Water Rights in the Nineteen Western States 634 (1974).
208. Note, Percolating Water Law -- Theories of Ownership and Problems of Distribution in the Western United States, 30 N.Y.U.L. Rev. 1419, 1423 (1955).
209. 70 P. 663 (Cal. 1902), modified on rehearing, 74 P. 766 (Cal. 1903).
210. In addition, the court applied the principles of prior appropriation to transfers of water beyond overlying land. Thus, as between outside users the first taker has priority over subsequent users. The Katz case, therefore, represented an effort to unify the state's groundwater law with its law of surface water streams, which recognized both riparian and prior appropriation rights. City of Pasadena v. City of Alhambra 207 P.2d 17 (Cal. 1949). In a case decided after Katz it was held that the rights of overlying users are

superior to those of outside users even where the outside use was earlier in time. Burr v. Maclay Rancho Water Co., 98 P. 260 (Cal. 1908). However, an outside user could gain a prescriptive right through the adverse taking of nonsurplus waters. City of Pasadena Co. v. City of Alhambra, 207 P.2d 17, 29 (Cal. 1949); Comment, The Law of Underground Water: A Half-Century of Huber v. Merkel, 1953 Wis. L. Rev. 491, 501.

211. Hanks & Hanks, The Law of Water in New Jersey: Groundwater, 24 Rutgers L. Rev. 621, 638-39 (1970).
212. Cross, Groundwaters in the Southeastern States, 5 S.C.L.Q. 149, 151 (1952).
213. Kirkwood, Appropriation of Percolating Water, 1 Stan. L. Rev. 1, 6 (1948); McHendrie, The Law of Underground Water, 13 Rocky Mtn. L. Rev. 1, 6 (1940). But see F. Maloney, S. Plager & F. Baldwin, Water Law and Administration--The Florida Experience § 54.2(b) (3) (1968).
214. Jones v. Oz-Ark-Val Poultry Co., 306 S.W.2d 111 (Ark. 1957); MacArtor v. Grayln Crest III Swim Club, Inc., 187 A.2d 417 (Del. 1963); Koch v. Wick, 87 So.2d 47 (Fla. 1956); Cason v. Florida

- Power Co., 76 So. 535 (Fla. 1917); Erickson v. Crookston Waterworks Power & Light Co., 117 N.W. 435 (Minn. 1908); Meeker v. City of East Orange, 74 A. 379 (N.J. 1909); Nashville, C. & St. L. Ry. v. Rickert, 89 S.W.2d 889 (Tenn. 1936).
215. 2 W. Hutchins, Water Rights in the Nineteen Western States 635 (1974); W. Hutchins, Selected Problems in the Law of Water Rights in the West 159 (1942).
216. Kirkwood, Appropriation of Percolating Water, 1 Stan. L. Rev. 1, 6 (1948).
217. 5 R. Powell, The Law of Real Property ¶ 727 (1973).
218. Hanks & Hanks, The Law of Water in New Jersey: Groundwater, 24 Rutgers L. Rev. 621, 641 (1970).
219. 76 So. 535 (Fla. 1917).
220. Id. at 536.
221. 87 So.2d 47 (Fla. 1956).
222. Id. at 48.
223. Restatement (Second) of Torts § 858 (1977) at 258.
224. Lowe, Ruedisili & Graham, Beyond Section 858: A Proposed Ground-Water Liability and Management System for the Eastern United States, 8 Ecol. L. Q. 131, 139 (1979).

225. Id.
226. Under section 858, issues of reasonableness are determined by reference to the factors enumerated in section 850A. These are discussed in Chapter 2.
227. 217 N.W.2d 339 (Wis. 1974).
228. Comment, Wisconsin Strives to Minimize Conflicts Over the Use of Water, 59 Marq. L. Rev. 145, 148 (1976).
229. 44 N.E. 344 (Mass. 1896).
230. 195 N.E.2d 65 (Mass. 1964).
231. 248 A.2d 106 (Md. 1968).
232. Teutsch, Controls and Remedies for Ground Water-Caused Land Subsidence, 16 Houston L. Rev. 283, 302-303 (1979).
233. Restatement (Second) of Torts § 818 (Tent. Draft No. 15, 1969).
234. 576 S.W.2d 21 (Tex. 1978). See also Note, Establishing Liability for Damage Resulting from the Use of Underground Percolating Water: Smith-Southwest Industries v. Friendswood Development Company, 15 Houston L. Rev. 454 (1978); Note, Water Law--Subsidence of Land Caused by

- Withdrawal of Percolating Water is Actionable on Theories of Negligence and Nuisance in Fact, 9 Tex. Tech. L. Rev. 392 (1978).
235. 546 S.W.2d 890 (Tex. Civ. App. 1977).
236. Note, Friendswood Development Company v. Smith-Southwest Industries: There May be Hope for Sinking Landowners, 31 Baylor L. Rev. 108, 111-113 (1979).
237. Teass, Water and Water Courses-Riparian Rights-Diversion of Storm or Flood Waters for Use on Nonriparian Lands, 18 Va. L. Rev. 223, 237-38 (1932).
238. Lauer, Reflections on Riparianism, 35 Mo. L. Rev. 1, 13 (1970).
239. Davis, Australian and American Water Allocation Systems Compared, 9 B.C. Indus. & Com. L. Rev. 647, 680 (1968).
240. Lauer, Reflections on Riparianism, 35 Mo. L. Rev. 1, 13-14 (1970).
241. Davis, Australian and American Water Allocation Systems Compared, 9 B.C. Indus. & Com. L. Rev. 647, 680 (1968).

242. Farnham, Improvement and Modernization of New York Water Law Within the Framework of the Riparian System, 3 Land & Water L. Rev. 377, 413 (1968); Marquis, Freeman & Heath, Movement for the New Water Rights Laws, 23 Tenn. L. Rev. 797, 832 (1955).
243. Levi & Schneeberger, The Chain and Unity of Title Theories for Delineating Riparian Lands: Economic Analysis as an Alternative to Case Precedent, 21 Buffalo L. Rev. 439, 443-47 (1972).
244. Kirkwood, Appropriation of Percolating Water, 1 Stan. L. Rev. 1, 23 (1948).
245. Hanks & Hanks, The Law of Water in New Jersey: Groundwater, 24 Rutgers L. Rev. 621, 645 (1970).
246. McHendrie, The Law of Underground Water, 13 Rocky Mtn. L. Rev. 1, 6 (1940).
247. Note, Percolating Water Law -- Theories of Ownership and Problems of Distribution in the Western United States, 30 N.Y.U.L. Rev. 1419, 1425 (1955).

CHAPTER II

STATE, REGIONAL AND LOCAL WATER RESOURCE AGENCIES

A. Introduction

Florida is an ideal state for an examination of water resources administration because it has more than its share of water resources, both salt and fresh-water; more than its share of water use; and, more than its share of actual and potential water problems. This situation has insured the whole range of administrative responses which make analysis of Florida's water resources administration especially worthwhile.

Administrative operations at the state level in Florida are generally handled in one of two ways: through independent agencies whose chief administrator is usually appointed by the Governor with the consent of the Senate, as, for example, the Department of Environmental Regulation; or by the Governor and Cabinet sitting as an ex officio board, as in the case of the Board of Trustees of the Internal Improvement Trust Fund.

In addition to these state-level agencies, regional administration of water resources is being carried out by Florida's water management districts and several single purpose districts. Finally, there is extensive water administration authority in local units of government, especially the boards of county commissioners.

Water administration powers are given to various counties, districts, and municipalities by a multitude of special acts. Since these acts only apply to particular counties, districts or municipalities, and also because they are so numerous, discussion of them has been generally omitted. Emphasis has been

placed on discussing the general powers of local, regional and state agencies. Also, it must be explained that the agencies in Florida that exercise powers, duties and functions related to water resource management are, in almost every instance, concerned with additional responsibilities that are not directly water-related. For example, the Department of Environmental Regulation is the primary state agency for the control of air pollution in Florida in addition to being involved with a myriad water resource functions. Admittedly, all of the elements that make up the environment are interdependent and can be best understood from the perspective of their interrelationship yet the scope of this chapter does not attempt to reach so far. The discussion of the water resource administration agencies which follows will focus on water-related functions and the absence of discussion as to other responsibilities of any agency is not an oversight - but deliberate.

B. The Florida Environmental Reorganization Act of 1975

The advent of environmental awareness in Florida carried with it the recognition that strong legal controls were needed to protect the environment from irreversible degradation. The Florida Legislature responded with innovative laws designed to meet those needs but the regulatory structure that developed became slow-moving and complex. Confusion, unnecessary duplication and lack of accountability in the environmental permitting system made it ripe for renovation. In 1975, the Florida Environmental Reorganization Act (FERA)¹ was passed to implement some essential changes.²

The primary focus of FERA was the centralization of authority for the administration of the State's environmental programs.³ That was to be accomplished by the creation of the Department of Environmental Regulation (DER) as the centralized permitting agency to carry out all of the State's major water resource management responsibilities.⁴ Centralization of permitting authority was made possible by transferring responsibilities that had previously been exercised by several state agencies to the new DER. Air, water, noise, solid waste, and power plant siting responsibilities of the old Department of Pollution Control under Chapter 403, F.S., the permitting authority of the Trustees of the Internal Improvement Trust Fund over activities in navigable waters under Chapter 253, F.S., the public drinking water supply functions formerly with the Bureau of Sanitary Engineering of the Division of Health under Chapter 381, F.S., and the water management responsibilities formerly in the Department of Natural Resources under Chapters 298 and 373,

F.S., were thus combined for the first time at the state level in one department.⁵

To facilitate the administration of DER's water management functions under the Act and to implement the expressed intent of the legislature to provide for "the delegation of substantial decision-making authority to the district level,"⁶ FERA mandated the establishment of environmental districts headed by district managers to be "colocated with the water management districts to the maximum extent practicable"⁷ and provided that certain additional functions of DER might be delegated to water management districts where appropriate.⁸

FERA also created, as a part of the Department of Environmental Regulation, an Environmental Regulation Commission⁹ to replace the old five-member Pollution Control Board. Membership of the Commission is required to be representative of "interested groups including agriculture, real estate, environmentalists, the construction industry and lay citizens."¹⁰ The seven members are appointed by the Governor for staggered terms. The Environmental Regulation Commission (ERC) has three major functions under the Act: setting standards for DER review of permit applications, acting as an adjudicatory body for certain final actions taken by DER, and exercising final state approval authority on applications for and disbursements of federal grants.¹¹

In addition to these responsibilities the ERC must direct DER to conduct studies to determine both the environmental and economic impacts of any proposed standards that would be "stricter or more stringent" than those set by a federal agency under federal law or regulation.¹² The requirement that an economic impact study be

conducted by the Department is a significant change over previous review procedures of the former Pollution Control Board.¹³

The previously existing Department of Natural Resources (DNR) was also reorganized by FERA with the most significant changes being the creation of the Office of Assistant Executive Director to assist in overall management of the Department, the transfer of Law Enforcement into its own separate division, and the transfer of most of the statutory powers and responsibilities of the Trustees of the Internal Improvement Trust Fund to the Bureau of State Lands within DNR's new Division of Resource Management.¹⁴ In addition, the Division of Marine Resources has now assumed authority for regulation of shellfish, previously a function of the Department of Health and Rehabilitative Services¹⁵ and the Coastal Coordinating Council was abolished and replaced by the Bureau of Coastal Zone Planning in the Division of Resource Management within the reorganized Department of Natural Resources.¹⁶ The responsibility for coastal zone planning,¹⁷ however, has been transferred to DER by more recent legislation.

One provision of FERA which was designed to increase the authority of DNR vis a vis the Game and Fresh Water Fish Commission was subsequently held unconstitutional. The functions of the Commission had been transferred to DNR by earlier reorganization legislation, the Governmental Reorganization Act of 1969.¹⁸ The transfer of functions in 1969 expressly provided that the Commission would continue to exercise its constitutional powers independently of DNR.¹⁹ Section 17 of FERA attempted to amend this provision by striking the exception clause and adding the following language: "The Department of Natural Resources shall have authority pursuant to the type one transfer to directly supervise, review and approve the commission's exercise of executive powers in the area of

budgeting." The Commission brought an action against DNR claiming that the new provision was an unconstitutional deprivation of the Commission's constitutional authority. The Circuit Court for Leon County held the provision unconstitutional on that basis and the Supreme Court of Florida affirmed the lower court's decision in Department of Natural Resources v. Game and Fresh Water Fish Commission in 1977.²⁰

The supreme court reasoned that a type one transfer of the Commission's powers, duties and functions without a qualification as had appeared in the 1969 act would place absolute control in DNR and thus violate the constitutional mandate of Art. IV, Section 9 that the Commission will exercise executive powers in the area of planning, budgeting, personnel management and purchasing.²¹ The court indicated that not all laws affecting the Commission's budget would fail if challenged on this ground. The intrusion into the Commission's constitutional powers contemplated by Section 17 of FERA, however, was held impermissibly broad and therefore the circuit court's judgement for the Game & Fish Commission was affirmed.²² Section 17, codified as section 20.25(4), Florida Statutes, was promptly repealed.²³

As stated above, one of the central goals of the Legislature in passing the Florida Environmental Reorganization Act was the renovation of the state's environmental permitting system. Important improvements were made which accomplished a streamlining of the permit application process and the elimination of some unnecessary overlap in the old system. For example, the permit issuance functions of the Trustees of the Internal Improvement Trust Fund and the former Department of Natural Resources pursuant to chapter 253,

were consolidated in DER.²⁴ In addition, a revised short form permit application process was developed to be administered at the district level to expedite administration of relatively minor dredge and fill projects.²⁵ The requirement for a permit was even eliminated for certain activities defined by the Act.²⁶ Further, DER was directed to establish "uniform procedures and forms for the orderly determination of decisions relating to permits, licenses, certificates, and exemptions."²⁷ Programs designed to discard duplicative permitting functions between DER and local, state and federal agencies were accordingly implemented. Despite these improvements made in the State's environmental permitting structure,²⁹ some commentators have criticized FERA for leaving vestiges of overlap and duplication behind.³⁰

C. Department of Environmental Regulation³¹

The Department of Environmental Regulation (DER) is Florida's principal permitting agency for implementing the State's environmental laws and regulations. Its regulatory powers and responsibilities are broad in scope, covering all major water-related activities. The Department is headed by the Secretary of Environmental Regulation who is appointed by the Governor subject to confirmation by the Senate. Four full-service district offices and eight subdistrict and branch offices have been established to perform field services, inspections and any other functions assigned by the Department.³² The core of the Department's functions are contained in Chapter 403 of the Florida Statutes. Under Chapter 403, Part I, the Florida Air and Water Pollution Control Act,³³ the Department exercises its power and duty to protect the quality of the waters of the State,³⁴ primarily through the regulation of potential and actual sources of water pollution. The statutory language of Chapter 373, known as the Florida Water Resources Act of 1972,³⁵ would also appear to give DER a major role in the management of the State's water resources, see to their proper utilization, conservation and development. In actuality however, these functions are performed almost entirely by the water management districts which will be examined at a later point.

The Department of Environmental Regulation is organized into three divisions, Environmental Permitting, Environmental

Programs, and Administrative Services. Also within DER is the Environmental Regulation Commission. The two operational divisions and the Commission will be used to organize the following overview of the Department's numerous water-related responsibilities.³⁶

1. Division of Environmental Permitting

The processing of permit applications for a number of kinds of regulated activities is carried out by this division. Dredge and fill permits, construction permits, sewage works permits, spoil site permits, drainage well permits, well contractor permits, new source operation permits and water pollution prevention operation permits are all administered by the Division's Bureau of Permitting.

Chapter 253 of the Florida Statutes requires that any person engaging in dredge, fill or construction activities in or connected directly or via an excavated water body or series of water bodies to any navigable waters of the State must first obtain a DER permit unless specifically exempted.³⁷ Activities requiring a permit from DER include the construction of piers, wharves, docks, mooring piling, groins, jetties, levees, wires and cables, over or under the water, bridges, causeways, ramps, and fences, commercial sand and gravel dredging, filling, beach restoration and disposal of dredged material.³⁸

While Chapter 253 is concerned solely with navigable waters, any similar activities in nonnavigable waters will almost always require a permit pursuant to Chapter 403 because of potential adverse effects on water quality.³⁹ A single permit application process covers both Chapter 253 dredge and fill operations and Chapter 403 pollutant discharges.⁴⁰ Currently, however, a significantly higher application fee is imposed on the applicant who proposes to dredge or fill in navigable waters because of the additional requirement that a biological survey, ecological study, and hydrographic survey be conducted before issuance of a standard permit for such operations in navigable waters.⁴¹

Because the U.S. Corps of Engineers exercises broad regulatory authority over dredge and fill activities in "waters of the United States,"⁴² an applicant for a state permit most likely will need a concurrent federal permit issued by the Corps of Engineers.⁴³ Recognizing that fact, DER and the Corps have cooperated and established a joint application procedure for construction, dredging and filling in the waters of the State.⁴⁴ An application is submitted to DER which, in turn, forwards a copy to the Corps District Office.⁴⁵ Processing proceeds simultaneously so that final action at the federal and state levels occurs at about the same time. The Corps and DER also

hold joint public hearings on the issuance of permits whenever possible.⁴⁶ If the Corps determines that granting the permit would constitute a major federal action having a significant effect on the human environment, an Environmental Impact Statement (EIS) will be prepared prior to any action on the permit application as required by the National Environmental Policy Act of 1969.⁴⁷ The Corps prepares the EIS but the applicant is required to submit necessary data and may be assessed for the expense of its preparation.⁴⁸

DER evaluates the potential impact of a proposed project on the State's waters. For a Chapter 253 permit, the Department determines whether an obstruction or alteration of the natural flow of navigable waters will occur, erosion will be induced or increased or fish and wildlife conservation will be interfered with.⁴⁹ In evaluating a permit to be issued pursuant to Chapter 403, DER determines if the proposed project will degrade the quality of the water.⁵⁰

To facilitate and expedite the administration of the permitting process, the Department has identified certain sources or potential sources of pollution which are of such an insignificant nature that they are exempted from the permit requirement.⁵¹ Other activities have been enumerated for which a short-form permit can be processed and issued.⁵² Any activity

that is either exempted from the permit requirement or requires only a short-form application must still meet the water quality standards established by the Department pursuant to Chapter 403,⁵³ Florida Statutes, and contained in Chapter 17-3 of the Florida Administrative Code.

The DER district and subdistrict offices process short-form environmental permits and water quality certifications which represent the bulk of the Department's permit requests. About 95% of DER's permitting function is now being performed at the regional level rather than at the Tallahassee offices.⁵⁴ Environmental enforcement and technical assistance programs, in addition to activities in support of the permitting program are conducted by the district and subdistrict offices under the supervision and support of the Office of Field Operations of the Division of Environmental Permitting.

The Office of Field Operations is also charged with coordinating the consumptive use permitting activities of the water management districts. The 1972 Water Resources Act⁵⁵ provided that the Department of Natural Resources, at that time the state-level supervisory agency, could authorize the governing board of any water management district to implement a program for the issuance of consumptive use permits after public notice and a public hearing.⁵⁶ The two southern water management districts were immediately delegated such authority since they

already had the financial and technical capability to carry out consumptive use permitting.

It was not until 1974 that the Governor and Cabinet, as the head of the Department of Natural Resources, passed a resolution which authorized the other water management districts to issue permits for water use whenever their governing boards decided to undertake that responsibility.⁵⁷ Currently, the South and Southwest Florida Water Management Districts have complete permitting programs and the St. Johns River Water Management District has implemented a permit system in about half of its geographical jurisdiction. The Northwest and Suwanee River Water Management Districts are not yet requiring consumptive use permits. To avoid redundancy, a more complete discussion of water quantity and use management is deferred to Section 8 which describes in greater detail the powers and duties of the water management districts.

Another responsibility of the Division of Environmental Permitting is the preparation and review of federal water pollution source permits. Under the Federal Water Pollution Control Act⁵⁸ any applicant for a federal permit to conduct an activity in Florida which could result in the pollution of its waters must get a certification from DER that any discharge of a pollutant will comply with the effluent limitations, water quality standards and performance standards

as provided in the federal act.⁵⁹ No federal license or permit can be granted for discharges in waters of the State without DER's prior certification.⁶⁰

Before a person can be licensed as one of the operational personnel of a water or sewage treatment plant, he or she must be certified by DER to have the requisite experience and academic training as set by the Department.⁶¹ A license must also be obtained from DER to conduct business as a water well contractor.⁶² No license is required of a person who wishes to drill a well for domestic or farm use only,⁶³ but a permit must be obtained before the construction of a well, regardless of its intended use.⁶⁴

2. Division of Environmental Programs

This division is the heart of the Department of Environmental Regulation. It provides the technical research, data analysis, program coordination and water management planning which serve as the foundation for the Department's permitting processes and environmental programs. The Division's Bureau of Water Resources coordinates the water management activities of the five water management districts, other than permitting,⁶⁵ and is responsible for the supervision of the State's drainage districts pursuant to Chapter 298, Florida Statutes.⁶⁶ A relatively new responsibility of this bureau is the administration of the Water Resources Restoration and Preservation Act.⁶⁷ Under the Act, DER has established a program to clean up Florida's most polluted waterbodies, using funds from, among other sources, the Pollution Recovery Fund which consists of moneys recovered by the State in actions

against polluters. Initially, DER concentrated on restoring the water quality of Lake Apopka, near Orlando, and Lake Jackson, near Tallahassee.⁶⁸ In addition, some public works projects being conducted in Florida, such as the beach restoration project on Miami Beach, are coordinated through this bureau.

Areawide waste treatment management planning for both designated and non-designated areas of the State, as required by the Federal Water Pollution Control Act (FWPCA)⁶⁹ is coordinated by DER's Bureau of Water Quality Management Planning. This bureau is also involved in the development of technical data for the environmental quality portions of the State Comprehensive Plan.⁷⁰ DER has the responsibility of formulating the State Water Use Plan which is a functional element of the State Comprehensive Plan. Input from the water management districts contributes to the Plan's formulation. The Water Use Plan is required to take into consideration all the competing uses of water, the extent of Florida's water resources and present and projected needs.⁷¹

The administration of state and federal grant and loan programs for the construction of wastewater treatment and disposal activities is charged to DER's Bureau of Wastewater Management and Grants. Federal grants for construction of treatment works in Florida are made available under the provisions of the FWPCA.⁷² Eligibility for a FWPCA grant is required before any local governmental agency in Florida can receive state grant funds to construct or reconstruct a sewage treatment facility.⁷³

In addition, the State will not make grants available until the local government agency adopts and submits to DER a "comprehensive long range plan for the control of water pollution in the area within its jurisdiction."⁷⁴ DER loans for planning, designing, constructing and modifying sewage treatment facilities, however, can be made to local governments without prior eligibility for a federal grant or the submission of a comprehensive plan for water pollution abatement.⁷⁵

The Bureau of Drinking Water and Special Programs administers programs to assure adequate quantities of safe drinking water in the State, including implementation of the Florida Safe Drinking Water Act.⁷⁶ The Florida Act allows DER to play the lead role in enforcing drinking water regulations rather than the U.S. Environmental Protection Agency (EPA) pursuant to the Federal Safe Drinking Water Act of 1974.⁷⁷ The Federal Act gave the EPA authority to enforce its minimum national drinking water regulations for all public water systems throughout the United States unless a state program was created which employed regulations at least as stringent as those promulgated by the EPA.⁷⁸ With the passage of Florida's own act in 1977, the Department of Environmental Regulation now has a basis for exercising primary authority in this area.⁷⁹

The Department's newest bureau, the Bureau of Coastal Zone Planning,⁸⁰ is charged with creating a program to achieve a balance between development of the State's coastal areas and their protection as a valuable resource. The program will assist decision-makers at the state and local levels to make informed choices between competing uses in the coastal zone. The Bureau will identify uses to be managed, designate management boundaries, establish policies for coastal resource protection and economic development, and provide for the coordination of the program at all levels of government within the State.⁸¹ Participation in the program by local governments is voluntary.⁸²

The Department of Environmental Regulation is the lead agency for two important programs designed to provide comprehensive review of large scale development proposals through a consolidated permit application process. These programs were created under the Florida Electrical Power Plant Siting Act,⁸³ and the Florida Industrial Siting Act.⁸⁴ In evaluating an application for a DER site location certification for an electric utility,⁸⁵ a study must be conducted or contracted for by the Department which will evaluate the environmental impact of the electrical generating facility.⁸⁶ In addition, the applicant is required to monitor environmental effects of water contamination, hydrologic processes and the ecology of the proposed site, including fish and other aquatic life.⁸⁷ Applications for power plant siting certification are handled in Tallahassee since they require the approval of the Secretary of

the Department.⁸⁸

The Industrial Siting Act provides an alternative procedure for the licensing of large industrial projects or the expansion of existing industries.⁸⁹ Instead of the usual need to acquire separate permits from two or more state agencies, this act contemplates a single state certification for both construction and operation of the proposed project.⁹⁰ Local governmental authority, however, is not affected by this centralized state permit procedure.⁹¹

Industrial developers desiring to utilize the Industrial Siting Act must apply initially with DER for development approval.⁹² The Department, in turn, submits copies of the applications to all affected state agencies.⁹³ DER must also conduct or contract for studies evaluating the environmental, economic, public facilities and energy impacts of the proposed project.⁹⁴ When the studies have been completed, DER files a written analysis of the project with a special hearing officer along with the Department's recommendation for approval or disapproval.⁹⁵ This analysis, along with the reports of other affected state agencies and a statement of approval from the local government form the basis of the subsequent certification hearing.⁹⁶ The hearing officer ultimately submits a recommended order to the Governor and Cabinet who approve in full, grant conditional approval or deny certification of the industrial project.⁹⁷ As can be seen, DER plays a primary role in the overall process.

3. Environmental Regulation Commission

Within the Department of Environmental Regulation is the

Environmental Regulation Commission (ERC). It is composed of seven citizens appointed by the Governor and confirmed by the State Senate for four-year staggered terms. Each of the five water management districts must be represented on the Commission by at least one member and the Commission members as a body must be representative of agricultural, construction, real estate and environmental interest groups and lay citizens.

The Commission's exercise of standard-setting authority for the Department of Environmental Regulation is described in Chapter 403 as "exclusive". It is true that, generally, rules of the Department relating to air and water quality, noise or solid waste management must be reviewed and approved by the ERC before implementation, but there are two important exceptions. Regulations governing the water management districts are subject to review, rescission and modification by the Governor and Cabinet in their capacity as the Land and Water Adjudicatory Commission and final authority is vested with the Governor and Cabinet in regard to any proposed DER standard that would be stricter or more stringent than its federal counterpart. In the latter context, for example, if the Department proposed to adopt an effluent standard for the discharge of a particular type of detergent into the waters of the State, and that standard was more stringent than the federal (EPA) effluent standard for the same detergent, the Governor and Cabinet would have the final authority to accept,

reject or modify that standard. Moreover, when such stricter standards are proposed, the Environmental Regulation Commission will direct that environmental and economic impact studies be conducted by the Department and submitted to the Commission and the Governor and Cabinet to aid them in their decision concerning the proposed standard.

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The Commission also serves as an appeals board for final actions taken by DER with the exception of appeals and decisions regarding power plant site certification and state-owned lands. Again, these areas are reserved to the Governor and Cabinet. The ERC exercises final state approval authority on applications for and disbursements of federal water and wastewater treatment facility construction grants.

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The presently-existing structure in Florida for the administrative appeal of decisions of the State's water resource agencies is somewhat confusing for the practitioner. The Environmental Regulation Commission acts as an adjudicatory body for final actions of DER related to its water quality and pollution control regulatory functions under Chapter 403, Florida Statutes. The Department's decisions in regard to Chapter 253 dredge and fill activities, however, are reviewed by the Governor and Cabinet as the Board of Trustees of the Internal Improvement Trust Fund, because of the Board's authority in regard to submerged lands. In addition, any policy, rule, order or regulation of a water

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management district that an appropriate party seeks to have reviewed must be taken before the Governor and Cabinet when they are meeting as the Land and Water Adjudicatory Commission.

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That Commission also has exclusive authority to review decisions regarding Developments of Regional Impact and Areas of Critical State Concern pursuant to Chapter 380, Florida Statutes.

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D. Department of Natural Resources¹¹²

The Department of Natural Resources (DNR) is charged by law with the administration, supervision, development and conservation of Florida's natural resources, including the management of state-owned lands. DNR is headed by the Governor and Cabinet.¹¹³ Regular public meetings to transact the business of DNR are held twice each month in Tallahassee. At each meeting, the Executive Director of DNR presents an agenda of business to the Governor and Cabinet along with his recommendations for action. Any action taken is by motion, second and majority vote. The Executive Director is responsible for the overall management of the Department with the aid of the Office of Assistant Executive Director, recently created by the Florida Environmental Reorganization Act of 1975.¹¹⁴ DNR's functions are distributed among six divisions. Each division's powers and duties will be examined with special emphasis given to its water-related activities.

1. Division of Administrative Services

The Division of Administrative Services has the responsibility of providing in-house services required by DNR and its several divisions that can be advantageously and effectively centralized. It also is the catch-all division for functions not specifically assigned elsewhere in the Department. Water-related functions of this division are consolidated in its Bureau of License and Boat Registration. There are over a million boat owners in Florida who are required to register

with this bureau.¹¹⁵ Several licenses are issued by the bureau
including the Seafood Dealer License, Shrimping License,
and Sponge License.¹¹⁸

Although dredge and fill activities in the State require
a permit from the Department of Environmental Regulation (DER),
a separate certificate must be obtained from the Division of
Administrative Services of DNR, registering and authorizing
the use of any dredge and fill equipment. It is also DNR
that imposes the requirement that any person engaging in
dredge and fill activities maintain a log book of the daily
operations of each piece of dredge equipment. This division
of responsibilities between DNR and DER appears unnecessary.
Greater efficiency might well be achieved by transferring the
regulation of dredge equipment to DER.

Florida Conservation News, a monthly publication of the
Department, is put out by the Division of Administrative
Services' Office of Education and Information. Recent environ-
mental legislation, unique examples of Florida's ecology and
current Department activities are among the topics discussed
in the magazine. News releases, including a weekly salt-water
fishing report, and other educational literature are also pre-
pared and distributed by the Office.

2. Division of Marine Resources

The major objectives of the Division of Marine Resources
are to preserve, manage, protect and regulate the use of the
coastal and marine resources of Florida and to provide the

basic scientific research information upon which management policies and decisions are made by the Department. The term "marine resources" in the context of this division's many responsibilities is a broad one, including Florida's seafood, wetlands, and beaches.

Within the Division of Marine Resources, the Bureau of Marketing and Extension services works to expand the State's seafood market. Technical assistance is provided to producers and processors of fish products. New markets are sought for existing products and for underutilized species of seafood. In addition, the bureau staff makes available consumer information regarding nutritional values, selection, handling, storage and the preparation of seafoods. Some of the monies necessary to promote seafood products are provided from the Florida Saltwater Products Trust Fund into which is deposited one half of the fees collected for wholesale and retail seafood dealership licenses.

Efficient regulation and utilization of marine resources requires a sophisticated body of technical knowledge to support proper conservation and management. The Division's Bureau of Marine Science and Technology is assigned the task of acquiring this technical knowledge. Research is conducted in a broad variety of areas encompassing fishery biology, environmental studies and mariculture and pathology research and development. The data thus accumulated is disseminated to numerous local, state, national and international organizations for practical application.

The techniques,¹²³ purposes,¹²⁴ and catch limits,¹²⁵ in saltwater fishing, both commercial and recreational, are regulated by the Division of Marine Resources. The regulation of shrimp,¹²⁶ crabs,¹²⁷ crawfish¹²⁸ and oysters and shellfish¹²⁹ are also its responsibility. The taking of certain marine creatures is greatly restricted because of the scarcity of particular species or their importance to local ecological communities. Queen conchs,¹³⁰ sea turtles,¹³¹ manatees,¹³² dolphins,¹³³ manta rays,¹³⁴ and others are thus protected by general law.

The Division's Bureau of Shellfish Sanitation has an important role in quality control for Florida's large shellfish industry. Its primary responsibility, once assigned to county health departments, is water quality monitoring in areas currently used for shellfish harvesting. Regional offices of the Bureau perform monthly samplings for red tide and pollutants arising from septic tank leaks, insecticides, fertilizers, urban runoff and other sources of water quality degradation.^{134a} Florida has four classifications^{134b} for shellfish beds which make shellfish water standards second only to drinking water standards in strictness.

Another important function of this division and one that has attracted much attention in recent years is the

management of Florida's coastline. The protection, restoration and nourishment of the State's sandy beaches which are subject to coastal erosion processes is the responsibility of the Bureau of Beaches and Shores.¹³⁵ It has the responsibility for establishing and regulating coastal construction setback lines¹³⁶ and for implementing measures designed to minimize erosion, including the review and approval of coastal construction permits.¹³⁷ The recently created Erosion Control Trust Fund in the State Treasury earmarks revenue to be disbursed by the Division of Marine Resources for erosion control, beach preservation, and hurricane protection projects initiated and partially funded by local governments.¹³⁸

3. Division of Recreation and Parks

This division was created by the Governmental Reorganization Act of 1969,¹³⁹ and continued in the Florida Environmental Reorganization Act of 1975.¹⁴⁰ The authority and functions as set forth in the 1975 Act:

"The Division of Recreation and Parks shall preserve, manage, regulate and protect all parks and recreational areas held by the State, and may provide these services by contract or interagency agreement for any water management district where the governing board of a water management district designates or sets aside any park or recreational area within its boundaries."¹⁴¹

The Division has the responsibility for developing and executing a "comprehensive multipurpose outdoor recreation and conservation plan for Florida."¹⁴² An integral part of such planning is the Land Acquisition Trust Fund which the Division of Recreation and Parks administers to acquire for the State parks, wildlife preserves, forest areas, wetlands, floodways, beaches, boating channels, submerged lands, historical and archaeological sites, and other related resources for recreation and conservation."¹⁴³

A recent addition to the Division's responsibilities is the administration of the Florida Recreational Trails Act of 1979¹⁴⁴ which was enacted to facilitate horseback riding, hiking, bicycling, canoeing and jogging through the establishment of a network of public trails in the State.

4. Division of Resource Management

The history of this division of DNR is a good illustration of the dynamic nature of environmental management in Florida in the past ten years and its effect upon the organization of the State's environmental regulatory agencies. The functions of the former Division of Interior Resources were significantly altered by the Florida Environmental Reorganization Act of 1975 when that division was replaced by the Division of Resource Management. Many duties previously outside the Department of Natural Resources were included in this new division. However, three of the bureaus within the Division of Resource Management have since been transferred elsewhere. The responsibility for developing a comprehensive state plan for Florida's coastal zone was transferred to the Department of Environmental Regulation.¹⁴⁵ In 1979, the Bureau of Coastal and Land Boundaries and Bureau of State Lands were formed into a new division of DNR, the Division of State Lands.¹⁴⁶

Remaining in the Division of Resource Management is the Bureau of Aquatic Plant Research and Control which is responsible for developing a greater understanding of noxious aquatic weed growth and mechanisms for its control. The staff maintains surveillance of all state waters in order to detect any problems with such weeds, especially nonindigenous varieties.¹⁴⁷ Importation, certain transfers, and cultivation of any aquatic plants not native to Florida require a permit from DNR and the concurrent approval of the Department of Agriculture and Consumer Services, the Game and Fresh Water Fish Commission, and DER.¹⁴⁸

5. Division of Law Enforcement

The law enforcement duties of this Division vary from enforcement of catch limits fixed by law and the protection of Florida lobster and stone crabs from poachers during closed season, to the performance of search and rescue missions and maintenance of the Marine Patrol Scuba Team Emergency Squad. The staff is responsible for special enforcement in areas of boating safety,¹⁴⁹ quality control over sanitary practices used in the seafood industry,¹⁵⁰ and coastal protection pursuant to the Pollutant Spill Prevention and Control Act.¹⁵¹ The Division has the responsibility to react quickly to contain and remove any discharge of a pollutant into any coastal waters, estuaries, tidal flats, beaches or adjoining lands.¹⁵²

6. Division of State Lands

The growing concern for identification of state lands and their proper management along with an energetic interest in acquiring additional public lands through state purchase finally called for the creation in 1979 of the Division of State Lands in DNR. The Division was assigned functions previously carried out by the Bureau of State Lands and Bureau of Coastal and Land Boundaries in the Division of Resource Management.¹⁵³ The heightened interest in the management of state lands is exemplified by the fact that appointment of the director of the Division of State Lands is subject to confirmation by the Governor and Cabinet - a requirement not made in the appointment of directors of other divisions within the Department.¹⁵⁴

The Bureau of Coastal and Land Boundaries in the Division of State Lands performs those duties relating to research on and definition of the boundaries of state-owned submerged lands and uplands. The Bureau surveys both coastal water boundaries and the boundaries of sovereignty lands beneath navigable fresh-water lakes and rivers. Its work in coastal zone mapping and tide datum programs requires coordination with U.S. National Ocean Survey representatives and the installation, monitoring, and maintenance of tide gauges throughout the coastal areas of the State.¹⁵⁵

The new Division of State Lands, like the former Bureau of State Lands, acts as the staff to the Board of Trustees of the Internal Improvement Trust Fund, preparing those items of the Executive Director's agenda relating to the acquisition, disposition, and exchange of state lands; the leasing of state land for oil, gas and mineral development; the processing of easements affecting state-owned lands; the issuance of marina licenses; and the administration of all other applicable land related matters.¹⁵⁶ Also included under this responsibility is the development of a comprehensive plan to protect and manage state lands.¹⁵⁷

In 1979, the Conservation and Recreation Lands Trust Fund was created as a source of funds to acquire public lands for recreation.¹⁵⁸ The Fund is comprised of gas, oil, mineral and phosphate severance tax revenues.¹⁵⁹ Before any state agency initiates a land purchase, it must coordinate the proposed purchase with the Division of State Lands.¹⁶⁰ The Division also

plays a major role in the administration of the Land Conservation Act of 1972.¹⁶¹ Under this act, environmentally endangered lands are selected for purchase by a special selection committee made up of the heads of several agencies.¹⁶² The actual purchase is made by the Trustees of The Internal Improvement Trust Fund¹⁶³ but the Division of State Lands provides the primary staff support under the program.

E. Board of Trustees of the Internal Improvement Trust Fund

Florida contains many thousands of acres of swamp, overflowed, and submerged lands, both fresh- and salt-water. A grant to Florida of 500,000 acres of land when it became a state in 1845 and a subsequent larger grant under the federal Swamp and Overflowed Lands Act of 1850¹⁶⁴ gave the State title to much of this overflowed and swamp land. These grants were the immediate reason for the creation of the Board of the Internal Improvement Fund in 1855.¹⁶⁵ The trustees are seven in number and sit as an ex officio board composed of the Governor, the Secretary of State, the Attorney General, the Comptroller, the State Treasurer, the Commissioner of Education, and the Commissioner of Agriculture.

The powers, functions, and duties of the Board were significantly altered by the Florida Environmental Reorganization Act of 1975.¹⁶⁶ Basically, the Act affected a merger of the Board's responsibilities into the reorganized Department of Natural Resources, leaving the Board only a small portion of its previous authority as a distinct agency. However, because the Governor and Cabinet are also the head of DNR, ultimate policy decisions regarding functions of the Board that were transferred to divisions within DNR have not changed significantly. Similarly, although the Board's former permitting authority over dredge and fill operations in navigable waters of the State is now the responsibility of DER pursuant to Chapter 253,¹⁶⁷ the Board is vested with authority

to hear and decide appeals of DER decisions concerning such permits.¹⁶⁸ In this way, the Board continues to exercise much of its former statutory authority.

The Board of Trustees is vested with the "acquisition, administration, management, control, supervision, conservation, protection, and disposition of all lands owned by, or which may hereafter inure to, the state or any of its agencies, departments, boards or commissions"¹⁶⁹ Actually, the administration of these functions is carried out largely by the Division of State Lands of the Department of Natural Resources. With the exception of minor or routine staff decisions, however, the Division must receive specific authority from the Board to take any action affecting title to state lands. The Board gives such authorization by motion and vote on specific items of the Board's agenda. The sale, transfer or other disposition of state lands by the Board requires a vote of at least five of the seven Trustees.¹⁷⁰

A special procedure is required when the Board contemplates the sale or transfer of any submerged tidal lands. In that instance, the Department of Natural Resources must inspect the lands to be sold or transferred and submit a written report to the Board which examines the possible detriment to conservation practices that may arise from the development of those submerged title lands.¹⁷¹ No similar provision exists in regard to non-tidal submerged lands.

The Board is prohibited from selling islands or submerged tidal lands to private persons, local governments, or public

agencies if their ownership would be destructive of natural resources or deleterious to marine habitats.¹⁷² Moreover, a public hearing is required if objections to the sale of such lands are filed with the Board.¹⁷³

The Board of Trustees also makes the final determinations in regard to the selection of lands for inclusion in the State Wilderness System¹⁷⁴ and the designation of aquatic preserves.¹⁷⁵ The State Wilderness System comprises those areas which are to be set aside in permanent preserves so that their wilderness character will not be significantly altered. Aquatic preserves are established with the same intent-permanent protection of their natural character. There are presently more than thirty bays, rivers, and marshes in Florida that have been designated aquatic preserves.¹⁷⁶ After designation, only a limited degree of development is allowable within the established boundaries of the preserve.¹⁷⁷

The Board of Trustees of the Internal Improvement Trust Fund¹⁷⁸ plays a principal role in the approval and implementation of proposed beach nourishment and restoration projects along Florida's extensive coast-line.¹⁷⁹ Following the receipt of a written recommendation from DNR that approval be given an erosion control project requested by any coastal city, county or beach erosion control district,¹⁸⁰ the Board of Trustees makes a final decision whether to pursue the requested project.¹⁸¹ If the project is approved, the Board has a shoreline survey conducted and an erosion control line is established.¹⁸² Once it is located and

recorded, title to all lands seaward of the erosion control line becomes vested in the State.¹⁸³ Consequently, by statutory provision, the common law of ambulatory boundaries¹⁸⁴ would no longer be applicable where such a line has been established.¹⁸⁵

The 1979 Florida Legislature considered it necessary to declare that, "The existence of the Board of Trustees of the Internal Improvement Trust Fund is reaffirmed."¹⁸⁶ If its existence was in doubt, it was likely due to the drastic changes brought about by the Environmental Reorganization Act of 1975¹⁸⁷ which transferred much of the Board's staff functions to the Department of Natural Resources. The primary staff role in the administration of state lands is still carried out in DNR, by the recently created Division of State Lands.¹⁸⁸ The role of the Board of Trustees was made more prominent by 1979 legislation, however, especially in its oversight of the new Conservation and Recreation Lands Trust Fund¹⁸⁹ and the Land Conservation Act of 1972.¹⁹⁰ Additionally, the Board was charged with maintaining an annual inventory of publicly owned lands in the State which must be submitted each year to the Florida House and Senate.¹⁹¹

F. Game and Fresh Water Fish Commission

This constitutional body¹⁹² is an agency within the Department of Natural Resources,¹⁹³ but the Commission enjoys a special degree of independence due to its constitutional status under article IV, section 9 of the 1968 Constitution.¹⁹⁴ Its five members are appointed by the Governor with the approval of the Senate for staggered five-year terms.¹⁹⁵ The statutory powers, duties and functions of the Commission are contained in Chapter 372, Florida Statutes. The Commission manages the wildlife and fresh water fisheries resources of the state and attempts to insure optimum wildlife and fish populations for the recreational and aesthetic benefit of the citizenry.

Many of the regulatory responsibilities of the Commission in regard to fresh water aquatic life are similar to the responsibilities of the Division of Marine Resources over salt-water aquatic life. The Commission issues licenses to fresh-water fish dealers,¹⁹⁶ prosecutes poachers¹⁹⁷ and prohibits the use of certain fishing techniques¹⁹⁸ and devices.¹⁹⁹

The overall responsibility for aquatic weed and plant control in Florida lies with the Department of Natural Resources,²⁰⁰ but by interagency agreement, state-level aquatic weed control operations in fresh waters of the State have been performed by the Game and Fish Commission.²⁰¹ The eradication of noxious weeds is an important function because aquatic growth in Florida is a serious problem and can be viewed as a type of pollution.

For many years, the control of nonindigenous aquatic weeds had only been of peripheral concern to other water program objectives that were thought to be more important. For example, the U.S. Corps of Engineers became involved in aquatic plant control as a part of its projects to improve navigation. Florida's flood control districts²⁰² were concerned with aquatic weed growth as an obstruction to drainage. Similarly, the Game and Fish Commission's original focus was on the elimination of aquatic weed to facilitate fish and wildlife conservation and management. It appears that water management agencies in Florida are beginning to apply a more holistic perspective on the aquatic weed growth problem. There is growing recognition that aquatic weed control must be a part of any effective water management program.

The Commission is also concerned with the protection of rare wildlife. In 1977, the Florida Legislature passed the Florida Endangered and Threatened Species Act²⁰³ and the Endangered and Threatened Species Reward Trust Fund in 1979.²⁰⁴ It is noted in the new statute that "Florida has more endangered and threatened species than any other continental state"²⁰⁵ Many of these species have already been identified by the Commission.²⁰⁶ Among them are the Atlantic green turtle, wood stork and Florida panther.²⁰⁷

The Act required the Commission to establish a ten-member advisory council²⁰⁸ to be made up of representatives from state agencies, private conservation groups and knowledgeable private citizens. The council's primary function is to formulate and

recommend rules and policies to the Commission and DNR for the protection and management of endangered and threatened wildlife species.²⁰⁹ In addition, the Game and Fresh Water Fish Commission is directed by the Act to develop an annual plan for management and conservation of endangered and threatened species.²¹⁰

The Endangered and Threatened Species Trust Fund is comprised of moneys collected from fines and other penalties charged against persons who have harmed rare species or have unlawfully dealt with alligators or alligator products.²¹¹ These moneys can thereafter be used by the Game and Fish Commission to reward persons giving information leading to the arrest and conviction of persons killing, wounding or wrongfully possessing an endangered or threatened species.²¹²

The Commission has the authority to acquire lands, both upland and submerged, with the Governor's approval, for game preserves and wildlife sanctuaries.²¹³ However, the statutory requirement that any such purchases shall not exceed \$10 per acre²¹⁴ limits the usefulness of this authority of the Commission. The Commission is also one of the state agencies that participates in the designation of areas of the State believed to be environmentally endangered and thus eligible for purchase by the State under the Land Conservation Act of 1972.²¹⁵

The rules that are promulgated by the Game and Fresh water Fish Commission are controlling over inconsistent statutes passed by the Legislature and affecting the powers of the Commission as set forth in the Florida Constitution. That was the Florida supreme court's holding in Whitehead v.

Rogers.²¹⁶ Rogers petitioned the court for a writ of habeas corpus to challenge his arrest for firing a rifle on Sunday in violation of Section 855.04, Florida Statutes. Rogers was hunting mourning doves during open season which, according to an order of the Game and Fresh Water Fish Commission, continued uninterrupted from October 5 to November 3. No exception was made for the Sundays which fell between those dates. Notwithstanding the reasonableness of the general statute's purpose to prevent the loud discharge of firearms on Sunday, the court found that "the regulating of Sunday hunting is within the exclusive control of the Game and Fresh Water Fish Commission and not the Legislature"²¹⁷ The granting of Rogers' petition by the circuit court was therefore affirmed.

The preemptive status of the Commission's authority to regulate game and fresh water fish in the State was challenged soon after the passage of the constitutional amendment which created the Commission in 1942.²¹⁸ In Sylvester v. Tindall,²¹⁹ it was contended that the Commission's authority was an unconstitutional delegation of legislative power.²²⁰ The Supreme Court of Florida rejected that argument, describing the Commission's authority to make rules and regulations to carry out an expressed legislative purpose as "administrative in nature."²²¹

The language of article IV, section 9²²² contemplates that certain laws passed by the Legislature relating to game and fresh-water fish may be proper and thus a degree of shared authority would seem to exist. In a practical sense, however, the Commission's extensive regulatory rule-making makes it

difficult for the Legislature to enact such a law that would not be inconsistent with a Commission rule or regulatory scheme.²²³

G. Executive Office of the Governor

Soon after Governor Robert Graham took office in 1979, he began to implement some executive agency reorganizations designed to bring state planning and the state budgetary process into greater harmony. As a result, some functions scattered among a few state agencies were centralized in a new Executive Office of the Governor (EOG). Relevant to this discussion was the transfer of the state comprehensive planning function from the Division of State Planning of the Department of Administration to the Governor's Office.²²⁴

The EOG is now responsible for the implementation of Chapter 23, Part I, Florida Statutes, otherwise known as the Florida State Comprehensive Planning Act.²²⁵ The Act directs each executive agency at the state level and certain other governmental agencies, including the Game and Fresh Water Fish Commission, to designate a planning officer and to develop planning objectives for the particular agency.²²⁶ The EOG must coordinate all of the plans of the individual agencies and prepare and revise, as a continuing process, the State Comprehensive Plan.²²⁷ In this way, goals and policies are identified for the long-range guidance of Florida's social, economic and physical growth.

A vital element of the State Comprehensive Plan is the State Water Use Plan which is formulated primarily by the Department of Environmental Regulation in cooperation with the EOG.²²⁸ In the development of the State Water Use Plan, DER is directed to give due consideration to:

"(a) The attainment of maximum reasonable-beneficial use of water for such purposes as [protection and procreation of fish and wildlife, irrigation, mining, power development and domestic, municipal and industrial uses].

(b) The maximum economic development of the water resources consistent with other uses.

(c) The control of such waters for such purposes as environmental protection, drainage, flood control, and water shortage.

(d) The quantity of water available for application to a reasonable-beneficial use.

(e) The prevention of wasteful, uneconomical, impractical, or unreasonable uses of water resources.

(f) Presently exercised domestic use and permit rights.

(g) The preservation and enhancement of the water quality of the state and the provision of the state water quality plan.

(h) The state water resources policy as expressed by [Chapter 373, Florida Statutes]."²²⁹

The Department of Environmental Regulation is assisted in its water use planning responsibility by the State's five water management districts.²³⁰ The districts conduct water resource surveys and investigations, provide DER with technical data and advise and assist the Department in drafting those portions of the State Water Use Plan which are applicable to and unique to the district.²³¹

H. Water Management Districts

In the period prior to World War II, the major water management emphasis in Florida was on drainage to dispose of excess surface waters, particularly in the rapidly developing agricultural areas of South Florida. The topography of this area is very flat, and rainfall often remained on the land for long periods unless it was removed by drainage works. In this early period, construction of drainage works proceeded at a fast pace so as to render lands normally subject to periodic inundation suitable for agricultural development. However, much of Florida also experiences lengthy periods of severe rainfall deficiency. At such times, the surface water which was being drained into the Atlantic Ocean via man-made canals could have been of much better use for irrigation and ground water recharge.²³²

One legislative response was the formation of the Central and Southern Florida Flood Control District in 1949.²³³ The immediate impetus was provided by a major hurricane in 1947 which devastated the lower east coast of Florida and graphically demonstrated the need for further flood control measures. The District, which covered the lower southeastern quarter of the State, was created not simply as a flood control district, but rather as a multipurpose water management district in which conservation and use of diffused surface water rapidly became of equal importance to its disposition in periods of excess rainfall. In 1961, another large-scale multipurpose

water management district, the Southwest Florida Water Management District, was created²³⁴ and conservation of water supplies quickly became one of its principal projects.

Meanwhile, the Florida Legislature enacted the 1957 Water Resources Act,²³⁵ establishing a statewide administrative agency to oversee the development of Florida's water resources. The agency, originally established as a division within the State Board of Conservation, was authorized to issue permits for the capture and use of excess surface waters,²³⁶ and to establish rules for the conservation of water in areas of the State where overwithdrawals were endangering the resource through salt water intrusion or other causes.²³⁷ Finally, in 1972, the Florida Water Resources Act,²³⁸ Chapter 373, Florida Statutes, was enacted to provide even greater protection and management of water resources throughout the State.

Florida's 1972 Water Resources Act provides for a two-tiered administrative structure headed at the state level by the Department of Environmental Regulation (DER).²³⁹ Under the Department are five regional water management districts designed to provide the diverse types of regulation necessary in different areas of the State.²⁴⁰ They include the previously existing Central and Southern Florida Flood Control District, renamed the South Florida Water Management District, and Southwest Florida Water Management District. Since these two districts had already been established, were fully staffed, and authorized to levy ad valorem taxes

to pay for their regulatory functions, they were promptly delegated full regulatory and permitting powers by the Department of Natural Resources (DNR), at that time the state-level regulatory agency.²⁴¹ The three new districts established under the Act were the Suwannee River, St. Johns River and Northwest Florida Water Management Districts.

Each of the five water management districts is headed by a nine-member governing board whose members must reside within the district they serve.²⁴² The board members are appointed by the Governor for four-year terms, subject to Senate confirmation.²⁴³ The governing board may divide a district into subdivisions called basins which conform as nearly as possible to the natural hydrologic drainage basins within each district.²⁴⁴ Basins are supervised by boards composed of at least three members who are also appointed by the Governor. Like the members of the governing boards of the water management districts, basin board members do not receive compensation for their services.²⁴⁵

The basin boards handle administrative and planning functions in the particular basin, such as developing plans for secondary water control facilities and for water supply and transmission facilities for counties, municipalities or regional water authorities.²⁴⁶ Basin boards do not exercise regulatory or permitting authority, but serve to relieve the water management districts of some of their administrative chores.

The governing boards of the water management districts

exercise broad statutory powers under Chapter 373. In regard to water works, they are authorized to

Clean out, straighten, enlarge or change the course of any waterway, natural or artificial, within or without the district; to provide such canals, levees, dikes, dams, sluiceways, reservoirs, holding basins, floodways, pumping stations, bridges, highways and other works and facilities which the board may deem necessary; establish, maintain and regulate water levels in all canals, lakes, rivers, channels, reservoirs, streams or other bodies of water owned or maintained by the district; to cross any highway, or railway with works of the district and to hold, control and acquire by donation, lease or purchase, or to condemn any land, public or private, needed for rights-of-way or other purposes, and may remove any building or other obstruction necessary for the construction, maintenance and operation of the works, and to hold and have full control over the works and rights-of-way of the district.²⁴⁷

These boards also establish rules and regulations related to water use, adopted after public hearing, and subject to review by the Governor and Cabinet sitting as the Land and Water Adjudicatory Commission.²⁴⁸

One of the most important functions of the water management districts is their authority to implement a consumptive use permitting program.²⁴⁹ The 1972 Water Resources Act left it up to DER to determine when permit requirements should be imposed within the various districts.²⁵⁰ Since the need for regulation has not been as critical in the three northern districts, and these districts were originally faced with severe budgetary problems,²⁵¹ permit programs were at first implemented only in the two southern districts where the major part of Florida's population is located. One has

now been put into effect in a portion of the St. Johns River Water Management District.²⁵²

To obtain a permit pursuant to the provisions of Chapter 373, an applicant must establish that the proposed use of water: a) is a reasonable-beneficial use;²⁵³ and b) will not interfere with any presently existing use of water; and c) is consistent with the public interest.²⁵⁴ Permits can be granted for any period of time up to twenty years for most applicants and up to fifty years in the case of a municipality or other governmental body of public agency.²⁵⁵ Further discussion of state water use regulation is reserved for Chapter 5 where it will be examined in detail.

Additional permitting authority is conferred on the water management districts in regard to artificial recharge projects or the intentional introduction of water into any underground formation,²⁵⁶ the construction, repair and abandonment of water wells,²⁵⁷ the construction or alteration of dams, impoundments, reservoirs and other water storage projects,²⁵⁸ the licensing and registration of water well contractors,²⁵⁹ and the hook-up of local water works to the district's works.²⁶⁰ Such broad regulatory powers are consistent with the declared policy of the Florida Water Resources Act for the Department of Environmental Regulation, "to the greatest extent practicable," delegate conservation, protection, management and control authority over state waters to the water management districts.²⁶¹

The bifurcation of functions that exists in Florida's

water resource administrative structure, with the Department of Environmental Regulation concerned most directly with water quality control and the five water management districts primarily involved with water quantity control, has inevitably resulted in regulatory overlap and confusion since water quality and water quantity considerations are seldom mutually exclusive.²⁶² A proposed use of water by a permit applicant may have a potentially adverse impact on the quality of a water source and, although the water management districts are not charged expressly with making water quality determinations, they are not supposed to allow a use which would be "harmful to the water resources of the area."²⁶³

Responding to a request for an opinion in regard to this overlap of regulatory authority, the Attorney General of Florida determined that the water management districts could not properly carry out their responsibility to protect the State's water resources without getting an evaluation of the impact of water quality of a proposed use before issuance of a consumptive use permit.²⁶⁴ Therefore, it became necessary for DER and the water management districts to work out an effective policy to avoid confusion and redundancy in the State's regulatory scheme.²⁶⁵

The extent of permitting and evaluatory criteria overlap between DER and the districts, requiring permit applicants to approach both agencies for action on a single proposed activity, depends largely upon the extent to which a water management

district has implemented its own permitting authority and established a broad range of rules and regulations for water resource management within its jurisdiction. Essentially, that focusses the problem in the two southern districts. Negotiations between DER and the water management districts have resulted in increased regulatory efficiency and convenience for the environmental permit applicant.

One cooperative approach has been the designation of a "primary" and "secondary" agency for specific permitting areas.²⁶⁶ Applicants would apply for a permit from the primary agency only and the secondary agency would provide input and guidance according to the terms of an interagency agreement. DER's Bureau of Water Resources has assigned a coordinator to attend district board meetings as a direct link between the agencies for the resolution of overlap problems.²⁶⁷ Also, joint quarterly meetings and the development of standardized rules to improve uniformity have been helpful in this regard.²⁶⁸ The elimination of regulatory overlap has been additionally enhanced by the creation of joint permit application forms much like the joint DER and Corps of Engineers dredge and fill permit application form.²⁶⁹

I. Local Government Regulation

Local governments can play a significant role in the regulation of water resources within their immediate jurisdictions. The extent of regulation by a local governmental unit depends a great deal upon the political decision to implement or participate in water management programs since, in most instances, counties and municipalities are not required by statute to do so. Moreover, water regulatory programs often require a large operating budget and a relatively sophisticated governmental structure for effective implementation - factors which are lacking in many local governments. Therefore, it is generally true that significant water management regulation by local governments in Florida can be found in those areas of the State which have large populations while the sparsely populated regions may exercise no water management authority whatsoever.²⁷⁰

Formerly, Chapter 165, Florida Statutes, gave to municipalities jurisdiction over "the waters of all rivers, creeks, harbors or bays contained within the corporate limits."²⁷¹ That provision, however, was repealed in 1974.²⁷² Nevertheless, municipalities may derive authority to regulate water under article VIII, §2(b) of the Florida Constitution (1968)²⁷³ and the Municipal Home Rule Powers Act.²⁷⁴ In general, a municipality's home rule powers allow it to enact legislation concerning any subject upon which the State Legislature could act except where prohibited by the Constitution or preempted to the State or a charter county.²⁷⁵

Chapter 373, Florida Statutes, the Florida Water Resources Act of 1972, provides that all of Florida's waters are subject to regulation under its provisions,²⁷⁶ but does not give the State exclusive regulatory authority except with regard to the permitting of consumptive uses of water.²⁷⁷ The Act recognizes that local governments may enact their own rules and regulations affecting water, but requires that such rules and regulations be filed with the Department of Environmental Regulation (DER) before they may be enforced.²⁷⁸ There is no preemption of local jurisdiction here nor does DER exercise approval power over these local rules and regulations. The Department may review local rules, regulations and orders relating to water management other than consumptive uses, but only to recommend that any apparent overlaps or inconsistencies be eliminated.²⁷⁹ There is no requirement that the local rules and regulations conform to any established state criteria.

In enacting Chapter 373, the Florida Legislature expressed the belief that

"cooperative efforts between municipalities, counties, water management districts and the Department of Environmental Regulation are mandatory in order to meet the water needs of rapidly urbanizing areas in a manner which will supply adequate and dependable supplies of water where needed without resulting in adverse effects upon the areas from whence such water is withdrawn."²⁸⁰

A key role by local governments in water management programs was clearly intended:

"Municipalities and counties are encouraged to create regional water supply authorities as authorized herein. It is further the intent

that municipalities, counties, and regional water supply authorities are to have the primary responsibility for water supply, and water management districts and their basin boards are to engage only in those functions that are incidental to the exercise of their flood control and water management powers."²⁸¹

Under present law, municipalities have authority to provide for drainage of city streets and reclamation of wet, low or overflowed lands within their jurisdiction.²⁸² They may construct sewers and drains and may levy special assessments on benefited property owners to pay all or part of the costs of such works.²⁸³ Additionally, municipalities have the power of eminent domain to condemn property for these purposes.²⁸⁴ Thus, they have the means to deal directly with storm and surface water runoff problems, which are common to urban areas.

The general zoning power which municipalities may exercise pursuant to Chapter 166 gives them the authority to enact flood plain zoning ordinances. Such ordinances may simply require compliance with special building regulations or may limit the type of development allowed in a designated flood plain.²⁸⁵ Enactment of these ordinances is another means by which municipalities can deal with runoff problems. A local ordinance might require adequate drainage before a project's approval by the city, or limit development in the flood plain to reduce potential loss of life and property.

In addition to the general powers necessary to carry on county government, Chapter 125, Florida Statutes, gives counties broad authority to regulate water-related activities within their jurisdictions. This authority includes the power

"to establish and administer programs of flood and beach erosion control,..and navigation and drainage programs." 286

Counties have eminent domain power²⁸⁷ which may be exercised only after the Department of Environmental Regulation or the governing board of the water management district has been notified. They may construct, enlarge or repair a water supply system within the county or in adjoining counties.²⁸⁹ They also have injunctive power to prevent the pollution of drinking water supplies but may not regulate discharges of industrial waste into waters not connected with the water supply.²⁹⁰ Such discharges, of course, do not go unregulated, but are the responsibility of DER rather than the individual counties.²⁹¹

Counties may enact rules and regulations affecting the waters of the State which may only be enforced after being filed with DER.²⁹² Counties, as well as municipalities, may receive state grants and loans for the construction of sewage treatment facilities.²⁹³ Also, as mentioned in connection with the powers of municipalities, counties may create regional water supply authorities to develop, store and supply water for their needs.²⁹⁴

County commissioners may use their legislative power to provide relief from water pollution and shore erosion to local landowners on a case-by-case basis. If the owners of more than 50% of the land abutting a lake or the land constituting the bottom of privately-owned lake file a petition with the board of county commissioners alleging that a nuisance is present, the board can act to provide a speedy remedy.²⁹⁵ The kinds of

activities which are identified by statute as nuisances include dumping raw or treated sewage into the lake, introduction of harmful chemicals, use of dynamite in the water or along the shoreline of the lake, and dredging and filling operations.²⁹⁶

If the county commissioners determine, after the receipt of the recommendations of the Department of Environmental Regulation and the Department of Natural Resources, that a nuisance does in fact exist, they may enact a special ordinance to abate it.²⁹⁷

Violation of the ordinance constitutes a misdemeanor of the second degree²⁹⁸ which is punishable by up to 60 days imprisonment or a fine not to exceed \$500 or both.²⁹⁹ This statutory authorization does not actually expand county powers but does create an alternative remedy to landowners.

Under Chapter 403, the Department of Environmental Regulation has exclusive power and authority to require and issue permits for construction, operation, expansion, etc., of installations which may cause pollution and for discharges of wastes into state waters.³⁰⁰ However, this power may be delegated to local pollution control authorities.³⁰¹ These authorities, composed of counties, municipalities or combinations thereof, may establish and administer local pollution control programs which may be implemented through requirements "compatible with or stricter than those imposed" by Chapter 403.³⁰² While the state has exclusive authority to require and issue permits, local pollution control organizations can be and have been delegated this power.³⁰³ Permitting procedures have been worked out by interagency agreements providing for a single contact point and evaluation at the local level, with DER merely

reviewing the permit.³⁰⁴ The Palm Beach County Environmental Control Program is one of the local pollution control programs that has been delegated permitting authority by the Department. A brief description of its creation and regulatory structure will serve as an example of the way in which local governments may participate in water management and regulation.³⁰⁵

The need for a local environmental control program in Palm Beach County was not fully recognized until 1951 when the Annual Report of the Palm Beach County Health Department noted that 10 million gallons of raw sewage was being discharged into Lake Worth every day. At that time, there was not a single municipal sewage treatment plant in the County. As was true throughout the State between 1950 and the creation of the Department of Air and Water Pollution Control in 1967,³⁰⁶ responsibility for protecting the environment rested almost exclusively with the county health departments. The authority to enact and enforce local environmental control laws in Palm Beach County was enlarged in 1970 with the passage of the Palm Beach County Environmental Control Act.³⁰⁷

The 1970 Act with a companion ordinance³⁰⁸ became the foundation of Palm Beach County's present regulatory system. The Environmental Control Act established a tripartite structure for local control. Legislative or policy-making functions are the exclusive responsibility of the Palm Beach County Board of County Commissioners, sitting as the County's Environmental Control Board.

The day-to-day regulatory activities of Palm Beach County are carried out by the County Health Department's two Environmental Services Divisions. By local program agreement with the Department of Environmental Regulation, the County Health Department has full authority to conduct the inspection and the monitoring programs necessary to implement the state environmental control laws, as well as such federal programs as the National Pollution Discharge Elimination System (NPDES) permit program. ³⁰⁹

The Environmental Control Office in Palm Beach County works directly with federal, state, regional and municipal agencies in developing and implementing regional wastewater treatment and disposal and drinking water supply programs in the County.

The enforcement of state and local environmental laws is the responsibility of the Environmental Control Officer who maintains close daily contact with the County Health Department to insure proper case development and the successful prosecution of environmental law violators before administrative boards and trial courts. As the chief local enforcement agent, the Environmental Control Officer has the statutory duty to work with civic groups, business organizations and other members of the public in a continuous process of evaluation of the effectiveness of the County's local environmental controls.

The two environmental control laws enacted in 1970 only authorized the county to enforce three fundamental state environmental control laws; the sanitary nuisance law (Chapter 386,

Florida Statutes), the pollution control law (Chapter 403) and the public health law (Chapter 381). As a result, the County Health Department could not ask the Environmental Control Officer to locally enforce many other Florida laws and regulations which were the prerogative of the state-level regulatory agencies in Tallahassee. In early 1976, however, the Palm Beach County Board of County Commissioners adopted sweeping changes to the Environmental Control Ordinance, incorporating by reference virtually all public health laws and regulations of the State of Florida.³¹⁰

The third element of Palm Beach County's tripartite regulatory scheme is the county-level adjudicative function shared by the County's circuit courts and the Environmental Control Hearing Board, a five-member citizen panel that meets every four to six weeks and rules upon the bulk of those environmental cases that are brought in Palm Beach County. Prior to 1975, the Hearing Board only had the power to issue cease and desist orders against adjudged environmental law violators. In 1975, however, the Florida Legislature expanded the Hearing Board's powers³¹¹ so that it now has full authority to provide adequate remedies for local litigants, including the power to order specific affirmative corrective action within a specified time period and to impose substantial civil penalties of up to \$500 per day for each day of an environmental law violation.

Further indication of the state's interest in local participation is the program of state grants for construction of

sewage treatment facilities. To be eligible, the local government must adopt a comprehensive water pollution control plan and submit it to the DER for approval.³¹² DER may provide technical assistance with the plans which must provide for zoning, engineering, and economic studies.³¹³ The plan must comply with the state pollution control plan and must be reviewed by the local and regional planning agencies before transmittal to DER for approval.³¹⁴ In the event that local governments cannot agree upon a plan, DER is to develop one.³¹⁵ In this instance, there is state-level oversight, but also an obvious intent to include municipalities in a matter of important local impact.

The Local Government Comprehensive Planning Act,³¹⁶ which requires that municipalities plan for their "orderly and balanced future economic, social, physical, environmental, and fiscal development,"³¹⁷ provides that one of the planning elements that must be included in the comprehensive plan is a "general sanitary sewer, solid waste, drainage, and potable water element."³¹⁸ Municipalities must now consider their future needs for such facilities as water and waste treatment plants, sewer systems, and drainage works. They can then take the necessary steps to insure adequate financing for these projects through special assessments, state grants or other sources. Also, planning enables municipalities to anticipate the problems associated with population growth, such as excess runoff, water pollution, or water shortages, and to find ways to prevent them.

J. Single Purpose Districts

1. Drainage Districts

Historically, Florida's main concern with the administration of water problems had been with excesses of water, although this has changed significantly in the last twenty years. The traditional response was to simply drain the excess water from the land by the most expedient means available. Before 1900, drainage work in Florida was mainly an individual effort, but government soon got into the picture by providing for various types of drainage districts.³¹⁹ Many drainage districts were created by special act or by general act of local application. The Everglades Drainage District, one of the earliest and largest drainage districts in the State, was created by general law.³²⁰

Florida's General Drainage Act of 1913,³²¹ Chapter 298, Florida Statutes, provided for the creation of drainage districts, since renamed water control districts,³²² by circuit court decree. According to the provisions of Chapter 298, a drainage district can be created by the Department of Environmental Regulation or by the majority of the owners of any contiguous body of wet or overflowed lands by merely filing a petition in the circuit court of the county in which most of the lands are situated.³²³ This process offers an alternative to the approach of having such a district created

by the legislature. Under either scheme, the attitude of the courts and the legislature has been quite permissive.³²⁴

While Chapter 298 allows for the formation of drainage districts by petitioning the circuit court, Chapter 165, The Formation of Local Governments Act,³²⁵ provides that

"A charter for creation of a special district shall be adopted only by special act of the legislature or by ordinance of a county or municipal governing body having jurisdiction over the area affected."³²⁶

Although Chapter 298's procedural provisions have not been repealed, this language in Chapter 165 appears to be inconsistent with the proposition that a drainage district can be created by court decree. Indeed, section 165.022 states that:

"The provisions of this act shall be the exclusive procedure pursuant to general law for forming or dissolving municipalities and special districts in this state except in those counties³²⁷ operating under a home rule charter which provides for an exclusive method.... Any provision of a general or special law existing on July 1, 1974 in conflict with the provisions of this act shall

not be effective to the extent of such conflict."

In response to a request to clarify the Act's application to Chapter 298 districts, the Florida Attorney General stated that Chapter 165 operated to supercede methods of creating and abolishing water management districts as described in Chapter 298.³

Despite the implications of Chapter 165, the Attorney General's opinion is probably incorrect and drainage districts may still be created by petitioning the local circuit court. There are two important indications that this is so. First, at least one drainage district has been formed by circuit court decree pursuant to the procedural provisions of Chapter 298 since the passage of Chapter 165.³²⁹ While it is arguable that the creation of the district by decree was possible simply because no one challenged this procedure, it is some evidence that the petitioning process remains viable.

Secondly, even more recent legislation, the New Communities Act of 1975,³³⁰ indicates that Chapter 298 has not been superseded in this regard. Section 163.603(1) provides:

"This act shall constitute the sole authorization for the future establishment of independent special districts having the power to provide the capital improvements for sewer, road, water management and supply, solid waste, and erosion control systems and community facilities for development of lands, except for independent special districts and municipal service taxing and benefit units established pursuant to chapters 125, 153, 163, and 298....All

other special districts created by local ordinance or by a court or state agency order for these purposes shall, in the future, be established pursuant to this Act and in accordance with Chapter 165."

(emphasis added)

This language clearly indicates that Chapter 298's provision for the creation of a drainage district by court decree remains as an available alternative procedure. Regardless of the ultimate outcome of this present controversy, it seems clear that those drainage districts that were created by circuit court decree prior to the passage of the Formation of Local Governments Act in 1974 will continue to operate pursuant to Chapter 298's provisions.

Chapter 298 districts are managed by a board of three supervisors comprised of county residents owning land within the district.³³¹ The supervisors are elected by a majority vote of the landowners within the district with each landowner casting one vote for every acre of land he or she owns within the district.³³² The State Board of Drainage Commissioners, subsequently replaced by the Department of Environmental Regulation, has the same voting rights when state lands are situated within the districts' boundaries.³³³

The first supervisors are elected for staggered terms of one to three years,³³⁴ and thereafter serve three-year terms, one being elected each year.³³⁵ Each district board of supervisors

is to appoint a chief engineer to be in charge of the construction of the district and to submit plans, maps, and cost estimates to the supervisors. Each board is also authorized to appoint a secretary,³³⁶ a treasurer,³³⁷ an attorney,³³⁸ and a superintendent of paint and operations.³³⁹ The supervisors may also remove such employees³⁴⁰ and fix their compensation.³⁴¹

The boards of supervisors of districts created under the General Drainage Act are given extensive powers to construct all manner of works, acquire needed land, and to condemn land for right of way.³⁴² Most of the construction is the digging of drainage ditches or canals, or the widening of existing ditches or canals, under the plan of reclamation of the chief engineer.³⁴³ All canals, ditches, or systems of drainage already existing within a new drainage district are to be connected to its works if necessary for drainage of land; but all independent works constructed after the district's works may be connected with the latter only with the consent of the board of supervisors and on its terms.³⁴⁴

Drainage districts are given broad powers to finance their own works independently of the state government. Several methods of taxation are authorized. Preliminary expenses of organizing the district, surveying, and calculating benefits and damages are to be financed by a uniform tax not exceeding one dollar per acre upon each acre of land within the drainage district.³⁴⁵ This taxation is to be preliminary to any construction by the district, but any surplus from the tax is placed in the general construction fund of the district.³⁴⁶ The main source of revenue of the drainage

districts is a tax levied on land in proportion to benefits received from the proposed works of the district. After "the plan of reclamation" is adopted by the board of supervisors of a district, the circuit court in that district appoints three commissioners to assess benefits and damages resulting to lands in the district from the plan of reclamation.³⁴⁷ The commissioners make their determinations with the help of the chief engineer of the district.³⁴⁸ Besides benefits and damages, the commissioners estimate the cost of property needed for rights of way and estimate the total cost of the plan of reclamation.³⁴⁹ The report of the commissioners is to be filed with the local circuit court and provision is made for exception by the Department of Environmental Regulation, the drainage district, or any property owner affected by the report.³⁵⁰

When a decree of the court is entered, creating a drainage district, defining its boundaries, and confirming the assessment, it may be attacked only by allegation and proof of a clear case of fraud.³⁵¹ After the circuit court affirms or modifies the report of the commissioners, it is transferred to the board of supervisors of the district. The supervisors levy the drainage tax, using the commissioners' report to show relative benefits, since the tax is to be levied in proportion to benefit.³⁵² The total taxes levied by the supervisors are to be divided into annual installments,³⁵³ and delinquent taxes are a lien on the land of equal dignity with other tax liens.³⁵⁴

This power of taxation is limited to the benefits accruing to the land located within the drainage area, under the theory

that the value of the land is increased.³⁵⁵ The Florida supreme court has applied a flexible rule, saying that the lands must be reasonably benefited before assessments may be levied.³⁵⁶ Land is not exempt from assessment because it does not receive direct and exactly equal benefits from the drainage operations. Furthermore, land within a district may be divided into separate classes or zones and assessed at appropriate rates within the class.³⁵⁷

Another tax power authorized for drainage districts is a maintenance tax to finance the preservation of completed works.³⁵⁸ This tax is based on the same benefit assessment as the construct tax and constitute a lien upon the property until paid.³⁵⁹

In addition to these taxes, the supervisors may issue bonds not to exceed 90 per cent of the total amount of taxes levied by the district.³⁶⁰ In case the levy of taxes is not enough to pay the principal and interest on bonds issued, the supervisors are required to levy such additional taxes as are necessary to make good the bonds.³⁶¹ If bonds are nevertheless defaulted, the indebtedness constitutes a lien on the district land, and the making of the assessment and collection of the tax may be enforced by mandamus.³⁶²

Chapter 298 drainage districts are active and numerous in many areas of Florida. In addition, as discussed in Section 9, most counties and municipalities in the State play some role in local drainage control. Multiply the many local governmental units that are draining water without coordination and many problems begin to develop on the larger scale. Even the most

efficient drainage, following watershed lines, might contribute to water shortages. It is the nature of water management problems to require more than single-purpose controls for their solutions.

2. Soil and Water Conservation Districts

Chapter 582, Florida Statutes, provides for the creation of soil and water conservation districts. Originally enacted in 1937,³⁶³ this legislation was passed to facilitate agricultural development in the State through "control and prevention of soil erosion and for the prevention of floodwater and sediment damages, and for furthering the conservation, development and utilization of soil and water resources and the disposal of water."³⁶⁴

Under Chapter 582, these districts are to be formed by the filing of a petition signed by any twenty-five owners of land within the proposed district with the Department of Agriculture and Consumer Services.³⁶⁵ The Department then holds a hearing³⁶⁶ and a referendum in which landowners may vote and a favorable majority creates the district.³⁶⁷

The powers of the soil and water conservation districts as outlined in Section 582.20 are extensive. Each district constitutes a governmental subdivision of the State and may conduct research, construct works for soil and water conservation, and develop comprehensive plans for soil erosion control and flood prevention.³⁶⁸ In addition to these general powers, the districts may adopt land use regulations after a favorable majority vote of the landowners within the district.³⁶⁹ These land use regulations may include the requirement that certain agricultural

practices be utilized, such as contour cultivation, strip cropping and the planting of erosion-preventative vegetation.³⁷⁰ The power to adopt and enforce land use controls is not expressly available to the districts which have been examined previously.

Since 1969, watershed improvement districts may be formed as subdistricts of the soil and water conservation districts.³⁷¹ Section 582.34 of the Florida Statutes provide that the owners of a majority of the land within the proposed watershed improvement district may petition the supervisors of the soil and water conservation, district for the subdistrict's creation. A hearing and referendum are then held to allow the landowners to vote on the matter.³⁷²

Because watershed improvement districts are described in the statute as governmental subdivisions of the State,³⁷³ the question again arises as to whether Chapter 165 would apply and act to supersede the procedure outlined in Chapter 582 for creation of these subdistricts. Unlike Chapter 298 districts, Chapter 582 districts are not specifically identified as exempted from Chapter 165's provisions. The resolution of this problem must await judicial or legislative clarification.

The primary concern of the watershed improvement districts has been to alleviate localized flooding problems,³⁷⁴ although they have all the powers of the soil and water conservation districts.³⁷⁵ Actually, the watershed improvement districts have more authority than the soil and water conservation districts because they may also levy an ad valorem tax within their boundar

- a power the soil and water conservation districts may not exercise.

3. Beach and Shore Preservation Districts

The Beach and Shore Preservation Act,³⁷⁷ Chapter 161, Florida Statutes, provides that a beach and shore preservation district may be formed by any of Florida's coastal counties by ordinance "to do all manner of things necessary or desirable in pursuance [of beach and shore preservation]"³⁷⁸ The boards of county commissioners act as the heads of these districts.³⁷⁹ Once created, these districts constitute public bodies of the State.³⁸⁰ An important element of Chapter 161 is a provision for the development by the county of a comprehensive planning program.³⁸¹ Unfortunately, the planning process is not mandatory and the county's may carry out the statutory grant of powers without the comprehensive plan.³⁸²

Ad valorem taxes may be levied by the beach and shore preservation districts against properties that are benefited by the district's works.³⁸³ Bonds may also be issued by the county to obtain funds to meet the costs incurred for beach preservation projects.³⁸⁴ To carry out its specialized function, the beach and shore preservation districts must work closely with the state-level Department of Natural Resources which has overall state regulatory authority in regard to coastal construction.³⁸⁵

Footnotes

1. Fla. Laws 1975, Ch. 75-22. Relevant portions of the Act have been incorporated in Ch. 20, Ch. 253, Ch. 370, Ch. 373, and Ch. 403, Fla. Stat. (1979).
2. "The first serious efforts to reorganize environmental agencies began as early as the 1971 Session of the Legislature. In subsequent years bills twice passed the House but failed in the Senate." Landers, Functions of the Department of Environmental Regulation, 50 Fla. B.J. 269, 270 (1976).
3. "[I]t is the intent of the Legislature to promote the efficient effective, and economical operation of certain environmental agencies by centralizing authority over, and pinpointing responsibility for the management of, the environment by authorizing the delegation of substantial decision-making authority to the district level and by consolidating compatible administrative, planning, permitting, enforcement, and operatio activities." Fla. Stat. §403.802 (1979); Fla. Laws 1975, Ch. 7 22, §2.
4. Fla. Laws 1975, Ch. 75-22, §4. For a more detailed discussion of DER, see §3, infra.
5. See note 2. These transfers are provided for in Fla. Laws 1975 Ch. 75-22, §§8-11.
6. Fla. Stat. §403.802 (1979).
7. Id. §403.809.
8. "When the secretary determines that a water management district has the financial and technical capability to carry out water quality and other functions of the department, those powers, duties, and functions, or parts thereof, may be contracted or delegated to such water management district. This may include, but shall not be limited to, planning, regulation, and permitti of point sources and nonpoint sources of pollution and other field services." Id. §403.812.
9. Fla. Laws 1975, Ch. 75-22 §7. For more information about the F see §3, infra.
10. Id.; Fla. Stat. §403.804 (1979).
11. Id. §403.804 (1), (3).
12. Id. §403.804(2).

13. See Fla. Stat. §403.051 (1973).
14. Shields, How Reorganization Affected the Department of Natural Resources, 50 Fla. B.J. 266 (1976). For more information about DNR, see §4, infra.
15. Fla. Laws 1975, Ch. 75-22 §16.
16. Id. §18.
17. Fla. Stat. §20.261(13) (1977). See, Fla. Stat. §380.22 (1979).
18. Fla. Stat. §§20.01 et. seq. (1969).
19. "The Game and Fresh Water Fish Commission functions, prescribed by Chapter 372, are transferred by a type one transfer to the Department of Natural Resources; except that the commission shall exercise its powers prescribed by s. 9 of Art. IV of the state constitution independently of the head of the Department of Natural Resources. Fla. Stat. §20.25(17) (1969).
20. 342 So. 2d 495 (1977).
21. Id. at 497.
22. "Thus, while the legislature may pass laws affecting the Commission's exercise of its executive budgetary authority, it may not pass laws depriving the Commission of such authority." Id.
23. Fla. Laws 1977, Ch. 77-204. It was replaced by Fla. Stat. §20.325 (1979).
24. These transfers were provided for in Fla. Stat. §§20.261(6)(9) (1975), respectively.
25. Fla. Stat. §403.813 (1979).
26. Id. §403.813(2). "[H]owever, nothing in this subsection shall relieve an applicant from complying with applicable local pollution control programs authorized under this chapter or other requirements of county and municipal governments."
27. Ch. 75-22, §6(4); Fla. Stat. §403.808(3) (1979).
28. Landers, note 2 supra, at 271.

29. See e.g., Hopping & Rhodes, Penetrating the Permitting Profligacy: The Industrial Siting Act of 1979, 53 Fla. B.J. 555 (1979); Wershow, Water Management: The Future of Florida Legal Implications, 51 Fla. B.J. 136, 140-143 (1977); Rhodes, Environmental Agency Reorganization: The Practitioners' Perspective, 50 Fla. B.J. 292 (1976).
30. Discussion of those situations where redundancy in the environmental permitting process remains can be found in the sections pertaining to the specific state agencies involved.
31. Statutes affecting the operations of the Department of Environmental Regulation include Section 20.261; Chapter 120; Sections 193.621; 253.123; 253.124; 298.01; 298.02; 298.03; 298.07; 298.11; 298.12; 298.15; 298.16; 298.26; 316.272; 316.293; 335.17; Chapter 373; Section 381.2611; Chapter 403; Section 487.031, Florida Statutes and Chapter 17 of the Florida Administrative Code.
32. Northwest District, with headquarters in Gulf Breeze (branch office in Panama City); St. Johns River District, with headquarters in Orlando (subdistrict office in Jacksonville and branch office in Gainesville); Southwest District with headquarters in St. Petersburg; and Central and Southern District, with headquarters in West Palm Beach (subdistrict offices in Fort Myers and Winter Haven, branch offices in Punta Gorda, Marathon Shores and Fort Pierce). For specific addresses see Section 17-4.31, Appendix C, Florida Administrative Code.
33. "'Waters' shall include, but not limited to rivers, lakes, streams, springs, impoundments, and all other waters or bodies of water, including fresh, brackish, saline, tidal, surface or underground." Fla. Stat. §403.031(3) (1979).
34. Fla. Laws 1967, 67-436.
35. Fla. Laws 1972, Ch. 72-299.
36. Some of the basic organizational description contained here is adapted from Landers, Functions of the Department of Environmental Regulation, 50 Fla. B.J. 270 (1976).
37. Fla. Stat. §§253.123, 253.124 (1979). Section 123.124 was held unconstitutional in Odum v. Deltona Corp., 341 So.2d 977 (Fla. 1977).

"[W]hether or not a particular nonmeandered lake or pond is navigable involves a term so vague that men of common intelligence must guess at its meaning and differ honestly as to its application. This being so the provisions of the statutes which seek to define

a crime and prescribe punishment for its commission are void as a denial of due process of law." Odum at 987. (This language appeared in the lower court's opinion which was adopted in its entirety by the Florida supreme court.)

"We feel the Legislature might address itself to the problems and establish appropriate guidelines and criteria within the Constitution." Odum at 990.

Meanwhile, dredge and fill projects in navigable waters continue to be permitted by DER. Presumably, however, no one is subject to Chapter 253's criminal penalties since the ruling in Odum.

38. Fla. Admin. Code §17-4/31 (1979).
39. Section 403.031(2) defines pollution quite broadly so as to encompass dredge and fill activities: "Pollution is the presence in the outdoor atmosphere or waters of the state of any substances, contaminants, noise, or manmade or man-induced alteration of the chemical, physical, biological, or radiological integrity of air or water in quantities or at levels which are or may be potentially harmful or injurious to human health or welfare, animal or plant life, or property, or unreasonably interfere with the enjoyment of life or property, including outdoor recreation." See Chapter 4 for a more detailed discussion of DER dredge and fill regulation.
40. See generally Fla. Admin. Code, Chapter 17-4.
41. Fla. Stat. §253.12(7)(a) (1979). Fla. Admin. Code, §17-4.29(9) (1979). A standard permit application for dredging or filling activities issued under Chapter 253 must be accompanied by a \$200 non-returnable fee. By comparison, Chapter 403 permits require only a \$20 fee. Id. §17-4.31.
42. 33 U.S.C. §1362(7) (Supp. 1977).
43. Id. §1344.
44. Fla. Admin. Code, §17-4.31 (1979). The Army Corps of Engineers, Department of Environmental Regulation and Department of Natural Resources have also signed an agreement which specifies procedures for the processing of applications for federal projects by these two Florida agencies. See Department of Environmental Regulation, Environmental Regulation News, Vol. 2 (Dec. 1979).
45. Id. However, applications for groin or jetty construction, beach restoration or other activities permitted pursuant to Chapter 161 must also be submitted concurrently to the Bureau of Beaches and Shores, Department of Natural Resources. Id.
46. Id.
47. 42 U.S.C. §4331 et. seq., 83 Stat. 852, Pub.L. 91-190.

48. See note 38, supra. Responsibility for the preparation of an environmental impact statement, although simplistically alluded to in the DFR and Corps joint application instruction manual, is an area of continuing controversy in most contexts. See generally W. Rodgers, Environmental Law, at 777-785 (1977).
49. Fla. Admin. Code §17-4.31 (1979).
50. Id.
51. Id. §17-4.04.
52. Fla. Stat. §403.813 (1979); Fla. Admin. Code, §17-4.31, Appendix C (1979).
53. Id. §403.061(13).
54. Department of Environmental Regulation Newsletter, Tallahassee, Florida (May, 1977).
55. Fla. Laws 1972, Ch. 72-299.
56. Id. §1, Part II.
57. Resolution of the Department of Natural Resources, dated July 25, 1974, approved by the Governor and Cabinet on August 20, 1974, Tallahassee, Florida.
58. Pub. L. 92-500, 86 Stat. 880 (codified at 33 U.S.C. §1251, et. seq. (Supp. 1977)).
59. Pub. L. 92-500, §401; 33 U.S.C. 1341. The applicable rule of the U.S. Environmental Protection Agency is 40 C.F.R. §125.11 (1979).
60. Id.
61. Fla. Stat. §403.101 (1979); Fla. Admin. Code, Chapter 17-16 (1979).
62. Fla. Stat. §373.323; Fla. Admin. Code, Chapter 17-20. This requirement pertains equally to local governments that drill water wells in Florida. Fla. Stat. §373.323(4).
63. Id. §373.326.
64. Id. §373.306; Fla. Admin. Code, Chapter 17-21.

65. As stated previously, the permitting functions of the water management districts are coordinated by the Office of Field Operations in the Division of Environmental Permitting. Review of the water management district's budget requests is an example of the Bureau of Water Resource's supervisory authority in this context.
66. For more information about Florida's drainage districts, refer to §10, infra.
67. Fla. Laws 1977, Ch. 77-369, codified in Florida Statutes at Fla. Stat. §403.0615 (1979).
68. DER Newsletter, Tallahassee, Florida, September, 1977. DER's Restoration section had received requests from numerous counties for assistance in restoring 131 water bodies in the State as of the date of this newsletter.
69. See note 58, supra.
70. Fla. Stat. Ch. 23, Part I (1979).
71. Id. §373.036.
72. See note 58, supra.
73. Fla. Stat. §403, 1826(1) (1979): "Grants shall be made under ~~ss. 403.1821-403.1833~~ only for projects eligible for federal grants under Public Law 84-660, as amended, or other applicable federal law." Public Law 84-660 is the 1956 amendment to the Federal Water Pollution Control Act which, along with other changes, established the federal grant program for treatment works.
74. Id. §403.1826(9).
75. Id. §403.1835.
76. Fla. Laws 1977, Ch. 77-337, incorporated into Florida Statutes as §§403.850-403.864.
77. Public Law 93-523, as amended, as codified in 42 U.S.C. §§300f-300j-9 (1977).
78. Id. §300g-2.
79. For more information about the Florida Safe Drinking Water Act, see Chapter 4 .
80. This Bureau was transferred from the Department of Natural Resources by Fla. Laws 1977, Ch. 77-306, incorporated into the Florida Statutes as §20.261(13) (1977).

81. Adopted from The Florida Coastal Management Program Workshop Draft, published by the Department of Environmental Regulation, Tallahassee, Florida, (November, 1977).
82. Id. Any coastal development within a non-participating local government would still be subject to all those general statutes which currently regulate activities in the coastal areas of the State.
83. Fla. Stat. §§403.501 - 403.517 (1979). Applicable rules of DER are contained in Fla. Admin. Code §17-17 (1979).
84. Id. §§288.501 - 288.518. See generally, Hopping & Rhodes, Penetrating the Permitting Profligacy: The Industrial Siting Act of 1979, 53 Fla. B.J. 555 (1979).
85. Site certifications must be acquired for alterations or additions to existing power plants as well as for plants not yet constructed, as long as an increase in generating capacity will result. Id. §403.503(5).
86. Id. §403.504(7)(c); §403.507(2); Fla. Admin. Code, §17-17.05(h) (1979).
87. Fla. Admin. Code, §17.4.13 (1979).
88. Fla. Stat. §403.509 (1979).
89. An industrial project is defined by the act as "any new business activity or any expansion of or addition to an existing business activity which: (a) Has the potential for creating 50 or more full-time employment opportunities; (b) Is engaged in industrial, commercial, wholesale, or retail business activity; and (c) Must secure licenses from two or more agencies. Id. §288.503(1).
90. Id. §288.514(1).
91. Id. §288.513.
92. Id. §288.504. Application fees must be paid upon filing, ranging from a minimum of \$2,500 to a maximum of \$25,000, "related to the size and type of project being proposed by the applicant." Id. §288.504(8).
93. The act requires a copy to be submitted to the "Division of State Planning, the water management district and the regional planning agency which have jurisdiction over the area wherein the proposed project is to be located, the Department of Community Affairs, the Department of Commerce, the Department of Transportation, the Department of Natural Resources, the Game and Fresh Water Fish Commission, the Department of Health and Rehabilitative Services, the Department of Business Regulation, the Department of Agriculture and Consumer Services, the

Department of State, and the local governmental entities which have jurisdiction." Id. §288.509(1). Note: The Division of State Planning was abolished and its functions are now performed by the Executive Office of the Governor. Fla. Laws 1979, ch. 79-190.

94. Id. §288.509(4).
95. Id. §288.504(9).
96. Id. §288.51.
97. Id. §288.511.
98. Id. §20.261(3).
99. Id.
100. Id. §403.804(1).
101. Id. §373.114. Review may be initiated by the Governor and Cabinet, by the Secretary of DER, by the Environmental Regulation Commission, or by an interested party aggrieved by any rule or order of the water management district.
102. Fla. Stat. §403.804(2) (1979).
103. Id. Rules of DER that relate exclusively to the internal management of the Department, the procedural processing of applications, the administration of rulemaking or adjudicatory proceedings, the publication of notices, the conduct of hearings, or other procedural matters are not "standards" in the context of the Commission's authority. Id. §403.803(12).
104. Id. §403.804(1).
105. Id. §403.804(3). In 1977, these grants totaled \$211 million. DER monthly newsletter, Tallahassee, Florida (September, 1977).
106. See generally, Rhodes, Environmental Agency Reorganization: the Practitioners' Perspective, 50 Fla. B.J. 272 (1976).
107. Fla. Stat. §403.804(1) (1979).
108. Id. §253.76.

109. See note 101, supra.
110. Id. Although §373.026(7) places this review authority in DER, that statutory provision has been impliedly repealed by Fla. Laws 1975, Ch. 75-22 §11 which was incorporated in Fla. Stat. §373.114 (1979).
111. Id. §380.07.
112. Much of the following material is adapted from Rules of the Department of Natural Resources, Chapter 16-6, Description of Organization, in the Florida Administrative Code. When no footnote is given for information recited, Chapter 16-6 is the source. The material has been revised where necessary. The following statutory chapters affect the operation of the Department of Natural Resources: Florida Statutes, Chapters 161 (Beach and Shore Preservation Act); 177 (Land Boundaries); 197 (Murphy Act-Lands); 211 (Tax in Severance of Solid Minerals); 253 (Land Acquisition Trust Fund); 258 (State Parks and Preserves); 259 (Land Conservation Act of 1972); 270 (Public Lands); 285 (Indian Reservations); 370 (Saltwater Fisheries and Conservation); 371 (Regulation of Boats; Title Certificates); 374 (Canal Authority-Navigation Districts - Waterways Development); 375 (Outdoor Recreation and Conservation); 376 (Pollutant Spill Prevention and Control); 377 (Energy Resources - Oil and Gas); 380 (Environmental Land and Water Management); 418 (Playground and Recreation Centers); 592 (Recreation and Parks). Chapter 16 of the Florida Administrative Code contains the rules of the Department of Natural Resources.
113. Fla. Stat. §20.25 (1979).
114. Fla. Laws 1975, Ch. 75-22 §14(1), as incorporated in Fla. Stat. §20.25(3) (1979).
115. Fla. Stat. Ch. 371, Part I (1979).
116. Id. §370.07.
117. Id. §370.15(5).
118. Id. §370.17.
119. See section 3, supra, and Chapter 4.

120. Fla. Stat. §370.034 (1979).
121. Id. §370.036.
122. Id. §370.07.
123. E.g., explosives cannot be used to kill saltwater fish.
Id. §370.08(5).
124. E.g., taking fish and crustacea for scientific purposes requires a certificate of accreditation. Id. §370.09(2).
125. See e.g., §370.11(2) (length limits).
126. Id. §370.15.
127. Id. §370.13 (stone crabs); §370.135 (blue crabs).
128. Id. §370.14.
129. Id. §370.16.
130. Id. §370.113.
131. Id. §370.12(1).
132. Id. §370.12(2).
133. Id. §370.12(3).
134. Id. §370.12(4).
- 134a. Interview with Michael Sprague, Gulf Coast Supervisor for the Bureau of Shellfish Sanitation in Punta Gorda, Florida, appearing in the Daily Herald-News, Feb. 11, 1980, at 12.
- 134b. (1) Approved shellfish waters; (2) conditionally approved waters; (3) unapproved waters; and (4) unclassified waters not yet surveyed. Id.
135. DNR is thus the administering agency for the Beach and Shore Preservation Act, Fla. Stat. Chapter 161, Parts I & II (1979).
136. Fla. Stat. §161.053 (1979).
137. Id. §§161.041 - 161.052.
138. Fla. Laws 1977, Ch. 77-379; Fla. Stat. §161.091 (1979).
139. Fla. Laws 1969, Ch. 69-106.
140. Fla. Laws 1975, Ch. 75-22.

141. Id. Part II, §14(4). Authority and substantive functions are assigned to the Division of Chapters 20, 259, 260, 375, 418 and 592, Florida Statutes.
142. Fla. Stat. §375.021 (1979). The current plan, entitled Outdoor Recreation in Florida, 1976, is to be completely updated by early 1981. The previous practice of developing the plans at five-year intervals will be supplemented with annual "action plans" beginning in 1981 to "identify specific measures to implement policies of the five-year plan. Department of Natural Resources, Florida Conservation News, Vol. 15 at 15-17 (Feb. 1980).
143. Id. §§375.031-.061. In 1979, over \$23 million of federal and state funds were earmarked for outdoor recreation projects in Florida. Florida Conservation News, supra note 142 at 15.
144. Id. §§260.011-.018.
145. Fla. Laws 1977, Ch. 77-306; Fla. Stat. §20.261(13) (1977).
146. Fla. Laws 1979, Ch. 79-255; Fla. Stat. §20.25(f) (1979).
147. See Fla. Stat. §§372.925, 372.932 (1979).
148. Fla. Stat. §403.271 (1979).
149. Fla. Stat. Chapter 371 (1979).
150. The staff is responsible for the implementation and enforcement of Chapter 16N-27, Florida Administrative Code.
151. Fla. Stat. Chapter 376; Fla. Admin. Code, Chapter 16b-16.
152. Fla. Stat. §376.16 provides for the imposition of a civil penalty of up to \$50,000 per violation per day to be assessed by the Department for damages caused by such discharges. Any such penalty would negate an additional penalty for water pollution under Chapter 403. Id.
153. Fla. Laws 1979, ch. 79-255.
154. Fla. Stat. §20.25(f) (1979).
155. See generally, Fla. Stat. ch. 177 (1979).
156. See generally, Fla. Stat. Chapters 253 and 270 (1979).
157. Fla. Stat. §253.03(7) (1979). This plan should be distinguished from the land element of the State Comprehensive Plan which is prepared by the Executive Office of the Governor pursuant to Chapter 23, Part I, Florida Statutes 1979.
158. Fla. Laws 1979, ch. 79-255, §8; Fla. Stat. §253.023 (1979).

159. Fla. Stat. §211.02, §253.023 (1979). The Fund is not to exceed \$3 million for fiscal years 1979-1980 and 1980-1981 and \$20 million thereafter.
160. Id. §253.025. An elaborate system for insuring objective appraisals of lands considered for purchase is outlined in this section.
161. Id. §§259.01 - .07.
162. Id. §259.035.
163. See section 5, infra.
164. Act Sept. 28, 1850, c. 84 §1, 4, 9 Stat. 519, 520, 43 U.S.C. §982 (19).
165. Fla. Laws 1855, Ch. 124. The fund was subsequently renamed the "Internal Improvement Trust Fund" by Fla. Laws 1961, Ch. 61-119.
166. Fla. Laws 1975, Ch. 75-22. See section 2, supra.
167. Fla. Stat. §20.261(6) (1979).
168. Id. §253.76.
169. Id. §253.03(1). These lands do not include certain lands identified in this section, including those held for canal and road right-of-way and lands, title to which is vested in any port authority, flood control or water management district, etc.
170. Fla. Stat. §253.02(2) (1979).
171. Id. §253.02(3). See also §253.1241.
172. Id. §253.12(4) (d), (e).
173. Id. §253.12(4).
174. Id. §258.17-258.33.
175. Id. 258.35-258.46.
176. Id. §258.39.
177. Id. §258.42. For example, dredging is prohibited except in certain limited areas and no excavation of minerals is permitted. Id.
178. See note 165, supra.
179. See generally, Fla. Stat., Chapter 161 (1979).
180. For more information concerning beach erosion control districts, see Section 10, infra.

181. Fla. Stat. §161.161 (1979).
182. Id.
183. Id. §161.191.
184. See discussion of the common law of ambulatory boundaries in Chapter 6 .
185. This is expressly stated in Fla. Stat. §161.191(2). But see the statutory caveats in that section and in §161.141 that were created by Fla. Laws 1979, Ch. 79-233, §§1, 3.
186. Fla. Laws 1979, Ch. 79-255, §1; Fla. Stat. §253.001 (1979).
187. See section 2, supra.
188. See section 4, supra.
189. Fla. Stat. §253.023 (1979).
190. Id. §259.035.
191. Id. §253.03(8).
192. "There shall be a game and fresh water fish commission, composed of five members appointed by the governor subject to confirmation by the senate for staggered terms of five years. The commission shall exercise the regulatory and executive powers of the state with respect to wild animal life and fresh water aquatic life, except that all license fees for taking wild animal life and fresh water aquatic life and penalties for violating regulations of the commission shall be prescribed by specific statute. The legislature may enact laws in aid of the commission, not inconsistent with this section. The commission's exercise of executive powers in the area of planning, budgeting, personnel management, and purchasing shall be as provided by law. Revenue derived from such license fees shall be appropriated to the commission by the legislature for the purpose of management's protection and conservation of wild animal life and fresh water aquatic life." Fla. Const. art. IV, §9 (1968).
193. The Commission's functions pursuant to Chapter 372 were transferred by a type one transfer to DNR. A type one transfer is defined in Fla. Stat. §20.06(1) as a transfer of an existing agency "so that the agency becomes a unit of a department" and its powers,

duties and functions are subject to the department's review and approval.

195. Fla. Stat. §372.01 (1979).
196. Id. §372.65.
197. Id. §372.663 (alligators).
198. Id. §372.75 (explosives).
199. See §372.31 (seizure and forfeiture of illegal nets, traps and fishing devices); Fla. Admin. Code, chapter 16E-9.
200. Fla. Stat. §372.925 (1979). See discussion of DNR's role in aquatic weed control in Section 5, supra.
201. Telephone interview with Clayton Phillippe, Aquatic Weed Control Section, Division of Fish Management, Game and Fresh Water Fish Commission, Tallahassee, Florida, Dec. 6, 1977.
202. For more information about Florida's flood control districts, see Section 8, infra.
203. Fla. Laws 1977, Ch. 77-375; Fla. Stat. §372.072(1979).
204. Fla. Laws 1979, ch. 79-217, §2; Fla. Stat. §372.073 (1979).
205. Fla. Stat. §372.072(2) (1979).
206. The rules of the Commission define an "endangered species" as one "which is in danger of extinction throughout all or a significant portion of its range in the State...." A "threatened species" is one "which may become an endangered species within the foreseeable future...." Fla. Admin. Code, chapter 16E-3.
207. Id. §16E-3.01.
208. Six members are appointed by the Director of the Game and Fresh Water Fish Commission and four are appointed by the Executive Director of DNR. Fla. Stat. §372.072 (4) (a) (1979).
209. Fla. Stat. §372.072(4) (b) (1979).
210. Id. §372.072(6). A similar process has been established for the protection and propagation of wild ducks and geese. Id. §§372.5712, .5714.

211. Id. §372.72 (1979).
212. Id. §732.073.
213. Id. §372.12.
214. Id.
215. Fla. Laws 1972, Ch. 72-300, embodied in Chapter 259, Florida Statutes.
216. 223 So. 2d 330 (Fla. 1969).
217. Id. at 331. The court in Whitehead was interpreting language in article IV, section 30 of the Constitution of 1885 but the clause as it now appears in article IV, section 9 of the Constitution of 1968 is nearly identical.
218. Fla. Const. art. IV, §30.
219. 18 So. 2d 892 (Fla. 1977).
220. Id. at 898.
221. Id. at 899, citing Bailey v. Van Pelt, 78 Fla. 337, 82 So. 789, 793 (Fla. 1919).
222. "The legislature may enact laws in aid of the commission, not inconsistent with this section." Fla. Const. art. IV, §9 (1968).
223. The authority of the Commission to regulate the game and fresh water fish industry has been described as "exclusive." Price v. St. Petersburg, 29 So. 2d 753, 755 (Fla. 1947). "[T]he power to regulate or control the taking of [fresh water fish] had been divested from the legislature by Sec. 30 of Article IV of our Constitution." Id. However, the opinion in Price also contained dictum implying that the Legislature is not totally excluded: "The power to pass acts in aid of the amendment does not contemplate power to prescribe a method of taking [fresh water fish] different from that prescribed by the Commission." Id.
224. Fla. Laws 1979, ch. 79-190. See Stryker, Planning & Budgeting Reunited: A Contract Marriage, 7 Fla. Env. Urban Issues 12 (1979).
225. Fla. Laws 1972, ch. 72-295.
226. Fla. Stat. §23.0113 (1975).

227. Id. §23.0114.
228. Id. §373.036.
229. Id. §373.036(2).
230. For more information about the water management districts, see Section 8, infra.
231. Fla. Stat. §373.036(4) (1979).
232. Florida Water Resources Study Commission, Florida Water Resources, A Report to The Governor and The 1957 Legislature (1956).
233. Fla. Laws 1949, ch. 25270.
234. Fla. Laws 1961, ch. 61-691.
235. Fla. Laws 1957, ch. 57-380.
236. Id. §8(1)(a).
237. Id. §8(1)(b).
238. Fla. Laws 1972, ch. 72-299.
239. The Department of Natural Resources was the state agency originally charged with consumptive water use regulation under the 1972 act. Fla. Stat. §373.019(1) (1972). At that time, the Department of Pollution Control was in charge of water quality control. Fla. Stat. §403.503(8) (1972). To improve coordination of these two water management functions, the 1975 Florida Legislature, placed both under the Department of Environmental Regulation. Florida Environmental Reorganization Act of 1975, Fla. Laws 1975, ch. 75-22; see Section 1, supra.
240. Fla. Stat. §373.069(1979).
241. See note 239, supra.
242. Fla. Stat. §373.073 (Supp. 1979). To provide for even more balanced local representation, residency requirements relate membership on the board of governors to specific basin areas or subdistricts within each water management district. Id.
243. Id.
244. Id. §373.0693. The number of basins within a district can vary considerably. For example, the Southwest Florida Water Management District is divided into nine

basins while the South Florida Water Management District is composed of only two basins.

245. Id.
246. Id. §373.0695.
247. Id. §373.086.
248. Id. §373.114. See Op. Att'y. Gen. Fla. 77-95 (1977).
249. Id. §373.219.
250. Id. §373.216.
251. The Central and Southern and Southwest Districts were both created before the State adopted a new Constitution in 1968. Under the new Constitution, no new ad valorem taxes could be levied by the legislature without a favorable referendum vote of the people in the affected area. Since the three northern districts were created after the enactment of the 1968 Constitution, they are subject to this restriction. A constitutional amendment designed to remove this restriction for water management districts was adopted in March, 1976. Meanwhile, the northern districts had to rely entirely on statewide general revenue appropriations for their funding. The first ad valorem taxes were not received by these districts until November 30, 1977.
252. On August 20, 1974, the Governor and Cabinet, as the official head of the Department of Natural Resources, passed a resolution which delegated to the three northern districts the authority to implement a consumptive use permit program on any future date that the governing boards of the districts decided to do so. Interview with James Stedham, Staff, Northwest Florida Water Management District, Tallahassee, Florida (January 16, 1978).
253. "Reasonable-beneficial use" is defined by Chapter 373 as a "use of water in such quantity as is necessary for economic and efficient utilization for a purpose and in a manner which is both reasonable and consistent with the public interest." Fla. Stat. §373.019(5) (1979). See, Maloney, Capehart & Hoofman, Florida's "Reasonable-Beneficial" Water Use Standard: Have East and West Met?, 31 U. Fla. L. Rev. 253 (1979).

254. Fla. Stat. §373.223(1)(1979). The last criterion may be redundant and unnecessary since consistency with the public interest is an element of the meaning of "reasonable-beneficial."
255. Id. §373.236.
256. Id. §373.106. An exception is provided for such projects permitted by Chapter 377, Florida Statutes, concerning oil and gas extraction processes. Id.
257. Id. §373.313; Fla. Admin. Code, chapter 17-21.
258. Id. §373.413;
259. Id. §373.323; Fla. Admin. Code, chapter 17-20.
260. Id. §373.085.
261. Id. §373.016(3).
262. Much of the discussion which immediately follows draws heavily from an excellent article which deals more elaboratively with this problem: Wershow, Water Management, The Future of Florida Legal Implications, 51 F.B.J. 136 (1977).
263. Fla. Stat. §373.219(1)(1979).
264. Op. Att'y Gen. Fla. 075-16 (1975).
265. The regulatory overlap was not just a problem in the area of consumptive use permits, but affected other regulatory responsibilities as well. See note 262, supra at 140.
266. See note 262, supra at 142.
267. DER Newsletter, Tallahassee, Florida (May, 1977).
268. Id.
269. Id. The joint DER/Corps of Engineers form is discussed in Section 3, supra.
270. The role of local governments, generally in water resource management is evolving as a result of new statutory planning requirements. See Chapter 2, which addresses water resource planning in Florida and the role played by local governments.
271. Fla. Stat. §165.09 (1973).

272. Fla. Laws 1974, Ch. 74-192. This act created a new Chapter 165, providing the exclusive procedure for dissolution or creation of municipalities and special districts.
273. "Municipalities shall have governmental, corporate and proprietary powers to enable them to conduct municipal government, perform municipal functions and render municipal services, and may exercise any power for municipal purposes except as otherwise provided by law."
274. Fla. Laws 1973, Ch. 73-129, codified as Chapter 166, Florida Statutes.
275. Fla. Stat. §166.021(3)(b)(c)(d) (1979).
276. Id. §373.023(1).
277. Id. §373.217(4). "If any provision of Part II of the Florida Water Resources Act of 1972, as amended, as set forth in §§373.203-373.249, is in conflict with any other provision, limitation, or restriction which is now in effect under any law or ordinance of this state or any political subdivision or municipality, or any rule or regulation promulgated thereunder, Part II shall govern and control, and such other law or ordinance or rule or regulation promulgated thereunder shall be deemed superseded for the purpose of regulating the consumptive use of water."
278. Fla. Stat. §373.023(2) (1979).
279. Id.
280. Id. §373.196(1).
281. Id. §373.196(2) (emphasis added).
282. Id. §170.01.
283. Id. §170.03.
284. All municipalities must notify DER or the governing board of a water management district prior to exercising that power. Id. §373.023(3).
285. See Juergensmeyer and Wadley, 1 Florida Land Use Restrictions §§13.01-13.09 for a detailed discussion of municipal flood plain zoning, including an examination of the taking issue in this regard. See also Maloney & Dambly, The National Flood Insurance Program, 16 Nat. Res. J. 665 (1976).

286. Fla. Stat. §125.01(j).
287. Id., Chapter 121 (1975).
288. Id. §373.023(3).
289. Id. §153.03(1).
290. Id. §153.03(10).
291. Pollution of the waters of the State are prohibited except as provided in Chapter 403. Fla. Stat. §403.161(a) (1979).
292. Fla. Stat. §373.023(2) (1979).
293. Id. §403.1826 (grants); §403.1835 (loans).
294. Id. §373.1962.
295. Id. §125.563(3).
296. Id. §125(2).
297. Id. §125.563(5).
298. Id.
299. Id. §§775.082, 775.083.
300. Fla. Stat. §§403.087, 403.088 (1979). DER may grant exemptions from the permit requirement to sanitary sewer facilities if a good faith effort to build or improve the facilities to comply with the rules and regulations of the Department is shown. Id. §403.088(5).
301. Id. §403.182(1) (1979). See also Op. Att'y. Gen. Fla. 72-71 (1972).
302. Id. §403.182(1)(b).
303. Id. §403.182(2).
304. Department of Environmental Regulation, Newsletter, Tallahassee, Florida (May, 1977).
305. The following discussion is adopted from an unpublished paper prepared by the Palm Beach County Environmental Control Officer, Dennis Koehler. The paper was prepared for distribution to persons attending a lecture sponsored by the Environmental Law Society of the University of Florida College of Law and given by Mr. Koehler at the Holland Law Center, University of Florida, Gainesville, Florida (August 1977).

306. Fla. Laws 1967, Ch. 67-436, codified as new Chapter 403, Florida Statutes. Section 403.182 provided for local pollution control programs.
307. Fla. Laws 1970, Ch. 70-862. "It is the intent and purpose of this act to authorize the board of county commissioners of Palm Beach County to provide and maintain for the citizens and visitors of said county standards which will insure sanitary practice and freedom of the environment from contaminants or synergistic agents injurious to human, plant or animal life, or which unreasonably interfere with the comfortable enjoyment of life or property, or the conduct of business." Ch. 70-862, §2.
308. Palm Beach County Ordinance No. 70-386 (1970).
309. 33 U.S.C. §1342 et. seq. (Supp. 1977).
310. Note 305, supra.
311. Fla. Laws 1975, Ch. 75-466.
312. Fla. Stat. §403.1826(2) (1979).
313. Id. §403.1826(9).
314. Id.
315. Id. §403.1828(1).
316. Fla. Laws 1975, Ch. 75-257, codified as Fla. Stat. §163.3161 et. seq. (1979).
317. Fla. Stat. §163.3177(1) (1979).
318. Id. §163.3177(6)(c).
319. Although not discussed here, it should be noted that other single purpose districts in Florida include water supply districts, aqueduct districts and mosquito control districts. These were usually created by special act, and although important in some aspects, do not lend themselves to comprehensive discussion.
320. Fla. Laws 1913, ch. 6456.
321. Id., Ch. 6458.
322. Fla. Laws 1978, ch. 78-158, §1; Fla. Stat. §298.001 (1979). This was the second redesignation that occurred. In 1972, the drainage districts had been renamed "water management districts

Fla. Laws 1972, ch. 72-291. The first redesignation caused these limited purpose districts to be confused with the five water management districts that have been created pursuant to Chapter 373. Water "management" more accurately describes the functions of Chapter 373 districts which exercise numerous water-related powers and is less appropriate in the context of Chapter 298 districts which continue to be operated primarily for drainage purposes.

323. Fla. Stat. § 298.01(1)(2)(3)(4)(1979).
324. L. Carter, The Florida Experience: Land and Water Policy in a Growth State, at 73 (1974).
325. Fla. Laws 1974, Ch. 74-192, codified as Fla. Stat. Chapter 165 (1975).
326. Fla. Stat. § 165.041(2)(1979).
327. The counties that are referred to in section 165.022 are Duval, Monroe, Dade and Hillsborough counties whose home rule charters under the 1885 Florida Constitution were preserved by Art. VIII, s. 6(e) of the 1968 Constitution.
328. Op. Att'y. Gen. Fla. 75-18 (1975). This opinion was re-affirmed in a subsequent response on a related issue. Op. Att'y. Gen. Fla. 76-87 (1976).
329. The Barron Water Management District in Hendry County.
330. Fla. Laws 1975, Ch. 75-204, codified as Fla. Stat. Ch. 163, Part V (1979).
331. Fla. Stat. § 298.11 (1979).
332. Id.
333. Id. This statute also allows for appointment of a board of supervisors by DER if there is no quorum at the election meeting.
334. Id.
335. Id. § 298.12.
336. Id. § 298.14. The secretary may or not be one of the supervisors.
337. Id. § 298.17.
338. Id. § 298.18.
339. Id. § 298.19.

340. Id. § 298.21.
341. Id. § 298.20.
342. Id. § 298.22 sets out the many, seemingly overspecific powers given to such districts. This statute would seem redundant inasmuch as another statute, § 298.35, gives districts "full power and authority to build, construct, excavate and complete any and all works and improvements which may be needed to carry out, maintain, and protect 'the plan of reclamation.'" Additional provisions for condemning land are set forth in § 298.23.
343. Id. § 298.26.
344. Id. § 298.28. If the board refuses consent, the aggrieved landowners may file a petition to the circuit court which will finally decide the matter.
345. Id. § 298.29.
346. Id.
347. Id. § 298.30. The commissioners (assessors) must be freeholders residing in Florida but also must be disinterested in that they cannot be owners of land in the district or related within the fourth degree of consanguinity to any person holding land within the district.
348. Id. § 298.32.
349. Id.
350. Id. § 298.34.
351. Simmons v. Dover Drainage Dist., 93 Fla. 1035, 113 So. 383 (1927).
352. Fla. Stat. § 298.36 (1979).
353. Id. § 298.365.
354. Id. § 298.366.
355. Campbell v. State ex rel. Garrett, 135 Fla. 638, 183 So. 340 (1938); Martin v. Dade Muck Land Co., 95 Fla. 530, 116 So. 449 (1928).
356. Martin v. Dade Muck Land Co., 95 Fla. 530, 116 So. 449 (1928).
357. Lainhart v. Calts, 73 Fla. 735, 75 So. 47 (1917).
358. Fla. Stat. § 298.54 (1979).
359. Id.

360. Id. § 298.47.
361. Id. § 298.50.
362. Id. § 298.56. Many provisions under this act set out in great detail various aspects of drainage bonds, including the mechanics of suretyship and liens, etc. It was felt that only the basic provisions are of interest here.
363. Fla. Laws 1937, Ch. 18144.
364. Id. § 2. Fla. Stat. § 582.05 (1979).
365. Fla. Stat. § 582.10 (1979).
366. Id. § 582.11.
367. Id. § 582.12.
368. Id. § 582.20.
369. Id. § 582.21.
370. Id. § 582.22.
371. Fla. Laws 1969, Ch. 69-235. Fla. Stat. § 582.231 (1979).
372. Fla. Stats. §§ 582.35, 582.36, 582.37 (1979).
373. Id. § 582.34.
374. Wershow, Water Management: The Future of Florida Legal Implications, 51 Fla. B.J. 136, 138 (1977).
375. Fla. Stat. § 582.43 (1979).
376. Id.
377. Fla. Laws 1965, Ch. 65-408.
378. Fla. Stat. § 161.36 (1979).
379. Id. § 161.25.
380. Id. § 161.31(1).
381. Id. § 161.28.
382. Id.
383. Id. § 161.37.
384. Id. § 161.38.
385. Id. § 161.35. See also §5 which discusses the powers, duties and functions of the Department of Natural Resources in this context.

CHAPTER III

STATE REGULATION OF CONSUMPTIVES USES

A. Water Use Permit Systems in the Eastern United States.

Most eastern water allocation statutes are not aimed at regulating water users, but rather are concerned with extending the access of nonriparian users to available supplies of water. The chief beneficiaries of this policy are municipalities (who are not considered riparian owners at common law) and large-scale water users such as manufacturers.

These statutes typically contain a number of prior appropriation features. For example, water rights under these statutes are no longer based on ownership of riparian land, but instead are generally granted to any qualified applicant by an administrative agency with authority to issue water use permits.¹ Moreover, these permits are usually quite specific about the quantity of water that may be used as well as the time, place, and rate of withdrawal.² The concept of beneficial use, another prior appropriation feature, is often found in eastern permit systems.³ Normally, the agency may issue a water use permit to any applicant who will put the water to a beneficial use; but since almost any productive use is considered beneficial, water is usually allocated on a first-come, first-served basis as long as it is available.⁴

Although the water use permit systems of the eastern states are an improvement over the doctrine of riparian rights, nevertheless, most of them have serious deficiencies. One problem is exempted uses, another is the failure to deal adequately with water shortages, while a third weakness is the lack of provisions for long-range planning. In addition, instream uses are often neglected and the problem of reallocating water uses is almost always ignored.

1. Exempted Uses

As a practical matter, few permit systems in the East are very comprehensive and most contain exemptions of one sort or another. Indiana, New Jersey, North Carolina and South Carolina, for example, regulate only ground water⁵--an approach which ignores the hydrologic interrelationship between surface water and ground water. A number of states also exempt certain classes of water users from regulation either partly or completely.⁶ In these states common-law riparian doctrines are applied to exempted water users, while others are subject to the provisions of the permit system. This results in a two-tiered system of water allocation in which the rights of permit holders are often subordinated to those of the exempt users.⁷

2. Water Shortages

Almost no permit system in the East deals effectively with droughts and other temporary water shortages.

Under the prior appropriation system, of course, where the rule is "first in time, first in right," water is allocated on the basis of temporal priority.⁸ Typically in the East, however, the administrative agency is not required to apportion the available water in any particular manner and the permit holder seldom knows in advance how much, if any, water he will receive during this period.⁹ Moreover, exempt users usually remain beyond the agency's regulatory jurisdiction and thus are free to continue their accustomed uses of water, or perhaps even to increase them, while permit holders face the prospect of a cutoff.

3. Comprehensive Planning

Although regulatory agencies in most states engage in some sort of long-range planning, all too frequently these efforts are limited to data collection or are concerned with specific programs such as flood control or navigation. Moreover, planning responsibility is often fragmented among various agencies within a state.¹⁰ Consequently, most states have failed to develop overall long-range water resources plans and even when they have, there has seldom been any real connection between water resources development objectives and the administration of the water use permit system.

4. Protection of Instream Uses

As a society we are just beginning to recognize the value and importance of instream uses. While these uses are protected in many states, water permit statutes rarely deal with them specifically. Some states authorize the

regulatory agency to establish a minimum flow for all surface watercourses. No permit may be granted that would cause the water level in a stream to fall below this point.¹¹ The purpose of the minimum flow concept is to protect such activities as commercial navigation, recreational boating, fishing, hunting and swimming. It may also be used for purposes of water quality control and general environmental protection.¹²

5. Reallocation and Transfers of Water Rights

Since water is allocated on a first-come, first-served basis in most eastern statutory permit jurisdictions, the initial water use pattern within the state is often less than optimal.¹³ Therefore, once all of the available water has been allocated the regulatory agency must concern itself with ensuring that water will eventually be transferred from less productive uses to more productive uses. Most of the eastern water use statutes provide for permits of relatively short duration such as ten or twenty years.¹⁴ When a water user's permit expires, in theory the agency is free to allot the water to a more productive use and no one would have to compensate the original user since an expired permit has no value.

Unfortunately, short-term nonrenewable permits also have disadvantages. Unless the duration of the permit is long enough to allow the water user to amortize the cost of his initial capital investment he suffers a severe loss

if the permit is not renewed. Consequently, he is forced to gamble on whether or not his permit will be renewed when it expires. This lack of security may have an adverse effect on investment decisions.¹⁵ In addition, few statutes in the East provide an explicit criteria upon which renewed decisions can be made. As a practical matter, the regulatory agency is usually given a great deal of discretion when it comes to choosing between completing applicants. This has resulted in a great deal of uncertainty.¹⁶

One solution is to increase the duration of the permit to allow for amortization of the water user's investment. It is not necessary to grant a water right of perpetual duration, as in the West, but permit periods of fifty or even seventy-five years might be appropriate for some types of water uses.¹⁷ Another possibility would be to retain the short-term permit but require full compensation to the original permit holder if his permit is not renewed.¹⁸ Not only would this provide water users with more security, but it would also insure that the agency would not reallocate the water to a less productive use. Another problem is lack of transferability. Ideally, a water use statute should allow voluntary transfers of water rights among water users. In this way reallocation can be encouraged without giving up the security provided by long-term permits.¹ As long as the agency is free to prohibit transfers that adversely affect the interests of third parties, the general welfare would be advanced by a shift from less productive to more productive water uses.

6. State-by-State Description

Permit systems vary considerably from state to state. The following description will point out both similarities and the differences among the permit systems of the East.

(a). Model Water Use Act

The Model Water Use Act was drafted after extensive studies by the Legislative Research Center at the University of Michigan Law School, and was approved in 1958 by the National Conference of Commissioners on Uniform State Laws.²⁰

In general, it contemplates the creation of a state water resources agency and the issuance of permits for some definite period of time (Fifty years is the suggested maximum). It also provides for the exemption of domestic uses, and for preservation of other existing uses. An optional provision would allow the Commissioner to award permits among competing applicants on the standard of beneficial use, without regard to priority in time of application.²¹ The model act also specifies that each permit be issued subject to a condition that the authorized use must not interfere substantially or materially with domestic uses, preserved pre-existing uses, or uses covered by permits previously issued. Although the model statute has been enacted only in Hawaii;²² it has influenced the water rights legislation of a number of eastern states.

(b). Iowa

Iowa has adopted one of the most far-reaching water regulatory systems in the East. The permit system under the control of the Natural Resources Council, administered by a Water Commissioner, regulates both surface and ground water. Though the law purports to leave unimpaired all "vested rights," it regulates both existing and unused rights to water.²³

The law prohibits the diversion, storage, or withdrawal of water for most substantial uses from any natural watercourse, underground basin or watercourse, drainage ditch, or settling basin (except for ordinary household purposes and use for domestic animals) without a permit.²⁴ These permits have a general limitation of ten years. The Water Commissioner may suspend the operation of permits if necessary during an emergency, establish priorities for water distribution, and thus protect the public interest from danger.²⁵

The Iowa law requires that all substantial use of water be "beneficial." That term is defined to mean the application of water to a useful purpose enuring to the benefit of the water user and subject to his dominion and control.²⁶ In general, the commissioner has not sought to discriminate on the basis of differences among beneficial uses. The effect of this policy, along with the abundant rainfall in the state, has been that in the first ten years of operation only two applications

for permits were denied. Both involved the disposition of drainage waters. Not a single application to divert, store, or withdraw water was denied during this period.

(c). Georgia

According to the provisions of a 1977 amendment to the Georgia Water Quality Control Act,²⁷ a permit is required for any withdrawal, diversion or impoundment of surface water involving more than 100,000 gallons per day calculated on a monthly average. The act also authorizes the Georgia Board of Natural Resources to establish a reasonable system of classification for dealing with competing applications.²⁸ However, no permits are required for agricultural uses.²⁹ In addition, those who were withdrawing surface water prior to the statute's effective date generally are allowed to continue their existing water uses.³⁰

Georgia also regulates ground water under a separate statute.³¹ The Environmental Protection Division is authorized to establish regulations concerning timing of withdrawals, protection against saltwater encroachment, prevention of adverse effects on other water users within the area, well depth and spacing controls, pumping levels, and pumping rates. This act provides that no one may withdraw more than 100,000 gallons of ground water per day without obtaining a permit from the Environmental Protection Division of the Department of Natural Resources.³² However, the act exempts from the permit requirements all persons utilizing or withdrawing water for agricultural or poultry processing purposes.³³ Persons withdrawing ground water

prior to the Act will be granted a permit meeting their reasonable needs as they existed prior to the Act. Moreover, director is authorized to take into consideration in the granting of permits the prior investments of persons in lands and plans for the usage of water in connection with such lands.³⁴

(d). Kentucky

Kentucky's present water rights law was enacted in 1966. The state Department for Natural Resources and Environmental Protection administers the permit system³⁵ which regulates both surface water and ground water. Permits must be specific as to quantity, time, place and rate of diversion, but no period is specified for the duration of the permit. Moreover, during periods of water shortage, the Department may suspend the operation of the permit system and temporarily allocate the available water on some other basis.³⁶ Nonriparian owners, including municipalities, may apply for permits and no permit will be denied, as long as water is available, "to a responsible applicant who has established an amount of water for which he has a need for a useful purpose."³⁷ However, no permit is required for domestic users, agricultural users and irrigators, uses exempted by administrative regulation, steam-generating plants, and water injected underground in connection with oil and gas production.³⁸

(e). Maryland

Maryland's permit system is administered by the Department of Water Resources, which operates within the Department of Natural Resources. Domestic, farming and municipal uses are exempted from regulation, as well as water uses in existence before 1934.³⁹ The Department may grant a permit if the proposed use provides for the greatest practicable utilization of the waters of the state and will promote the general welfare. Conversely, the Department may reject any proposed use that is "inadequate, wasteful, dangerous, impracticable" or detrimental to the public interest.⁴⁰ The permit specifies the amount of water to be used, as well as the nature and location of the proposed diversion.⁴¹ There is no time limit on these permits, but water rights may be reduced or lost through nonuse.⁴²

(f). Minnesota

In Minnesota, the Commission of Natural Resources supervises the use and allocation of surface and underground water.⁴³ Under the Minnesota statute any person, including state agencies, must acquire a permit to use water, unless the use is specifically exempted.⁴⁴ However, domestic uses serving less than twenty-five persons, are exempted.⁴⁵

The legislature has also established a category of water use priorities. The stated priorities upon which the rules are to be based are as follows: first priority, domestic supply excluding industrial or commercial uses of water supply; second, any use that involves consumption of

less than 10,000 gallons per day; third, agricultural uses; fourth, power production; fifth, other use involving consumption of more than 10,000 gallons per day.⁴⁶

(g). Mississippi

The Mississippi Legislature in 1956 enacted a surface water appropriation act embracing the principal concepts of the California doctrine of prior appropriation.⁴⁷ The act protects riparian rights being exercised prior to its passage by giving the riparians the first opportunity to perfect their rights. The system is appropriative in nature, since there are no time limits on the rights granted, and they may be lost only by prescription, abandonment, and forfeiture. Water allocations are granted by a Board of Water Commissioners which limits grants to that portion of available water which is in excess of an established minimum streamflow or lake level. The act is specifically limited in its application to surface waters.⁴⁸ It also exempts the "dredging or washing of sand and gravel"⁴⁹ and the use of water for domestic purposes.⁵⁰ In 1976, Mississippi, authorized a permit system for ground water in capacity use areas when such areas are established by the Board.⁵¹

(h). Wisconsin

The Wisconsin legislature enacted a limited permit system in 1935 after a severe drought. A permit is required for either agriculture or irrigation. The application must state times of diversion, amounts, and place

of diversion. The permit must be issued if surplus water exists, or if there is no surplus water, when affected riparians have consented.⁵² The Department is required to review annually all permits issued since 1957 and may revoke a permit if the permitted use is found to be detrimental to other riparians.⁵³ Water can be diverted for iron ore mining and transported to another watershed if a permit is obtained.⁵⁴

(i). Other States

Some states have enacted statutes which require compulsory permits only in regions specifically designated as "problem areas." Generally these acts do not attempt to alter the existing uses of water but merely regulate the enlargement and future use in those areas.

The Indiana 1951 Ground Water Conservancy Act gives the Department of Conservation power to restrict withdrawal of groundwater if natural replenishment is insufficient. In a restricted area, users of groundwater, except public utilities, may not increase their use by more than 100,000 gallons per day without first obtaining a permit⁵⁵ from the Department.

New Jersey's permit system, administered by the Water Policy and Supply Council,⁵⁶ applies only to those areas of the state where the Council determines that the surface or ground water resources need to be protected.⁵⁷ No person may divert or use surface water in excess of 70 gallons per minute for any private use, in those areas

other than a reasonable domestic use, without obtaining a permit.⁵⁸ A permit is also required in such areas for extraction of ground water in excess of 100,000 gallons per day.⁵⁹ However, existing surface water uses are given priority and existing ground water uses are exempted from the permit requirement.⁶⁰

Surface water permits may be granted for any period up to 25 years.⁶¹ There are no provisions for revocation or transfer of permits, or for suspension of water rights during periods of water shortage.

In North Carolina, the Environmental Management Commission is authorized to establish "capacity use areas" in any area where regulation is necessary to protect public or private interests.⁶² The Commission may adopt regulations to conserve either surface and ground water supplies in these areas and permits may be required for water uses in excess of 100,000 gallons per day.⁶³ However, the act also provides that if the applicant is able to prove that he was using water prior to the date of the declaration of a capacity use area and the agency finds that the use was "reasonably necessary," it must grant a permit as long as the use will not adversely affect existing or potential public and private uses in the area.⁶⁴ Moreover, in granting a permit, the Commission is directed to consider the prior investments of any person in the land or plans made for utilizing water in connection with such land.⁶⁵

permits may be granted for either ten years, the duration of the existence of the capacity use area, or a period found by the agency to be necessary for reasonable amortization of the applicant's water withdrawal or water-using facilities.⁶⁶

Since 1969 the South Carolina Water Resources Commission has been authorized to establish "capacity use areas" and require permits in such areas for water users who withdraw more than 100,000 gallons of ground water per day.⁶⁷ Permits for nonconsumptive uses may be granted without a hearing, but one is required where a consumptive use is involved.⁶⁸ Permits may be issued for up to 10 years, or the duration of the existence of the capacity use area, or a period sufficient to amortize the applicant's water withdrawal and water use facilities.⁶⁹

In Virginia the State Water Control Board is authorized by the Ground Water Act of 1973 to designate ground water management areas⁷⁰ and to require permits for new water uses within them.⁷¹ Existing uses are exempt but must be registered with the Board and are subject to a beneficial use requirement.⁷² Domestic, municipal and agricultural uses are also exempt from the permit requirements as are industrial or commercial uses of less than 50,000 gallons per day.⁷³

B. The Florida Water Resources Act of 1972

1. Introduction

(a). Historical Background

Florida is a state in which prudent management of water resources is crucial. The State's three major sources of income, tourism, agriculture, and phosphate mining, are heavily dependent on abundant supplies of water. Although Florida has an ample share of both fresh and salt water resources, it also has some serious water problems. Extreme water conditions often seem to be the norm with years of drought followed by years of flooding.

For many years, the most popular management tool was a single-purpose district established to handle the specific problem at hand. The legislature passed special acts to create irrigation districts,⁷⁴ water supply districts,⁷⁵ aqueduct districts,⁷⁶ sewer districts,⁷⁷ and mosquito control districts.⁷⁸ Drainage districts could be formed by decree of the circuit courts of the state under the General Drainage Act of 1913.⁷⁹ However, these districts all shared the same structural weakness - authority to exercise only one water management function.

The first major multipurpose water management district, the Central and Southern Florida Flood Control District, was established in 1949.⁸⁰ The district was created to comply with federal requirements for expending flood control funds made available to prevent a recurrence of the disastrous South Florida flood of 1947.⁸¹

A similar district, the Southwest Florida Water Management District, was created in 1961 in response to hurricane damages in 1959 and 1960.⁸²

In the mid-1950's, the legislature established a number of other multi-purpose districts including water conservation districts⁸³ and sanitary districts.⁸⁴ These districts also shared a common problem - the lack of state-wide administration or oversight of their activities.

These problems with management of Florida's water resources were highlighted by the unusually dry weather from 1954 to 1956. In 1955, the Florida Legislature created the Florida Water Resources Study Commission to study the water resources of the state and to "determine whether or not there is a need for a comprehensive water law in the state administered by a board and, if so, the extent of the jurisdiction of the board."⁸⁵ These studies led to enactment of the 1957 Florida Water Resources Act⁸⁶ which established a statewide administrative agency to oversee the development of Florida's water resources. The agency, originally set up as a division within the State Board of Conservation, was authorized to issue permits for the capture and use of excess surface and ground water,⁸⁷ and to establish rules for the conservation of water in areas of the state where over-withdrawals were endangering the resource through salt water intrusion or other causes.⁸⁸

The 1957 Water Resources Law, amended in 1963,⁸⁹ provided a cumbersome procedure for establishing water regulatory districts.⁹⁰ Water management districts were given authority

to create the water regulatory districts with the water management district board serving as the governing board of any water regulatory district it had created.⁹¹ This power to create water regulatory districts had previously resided exclusively with the State Board of Conservation.⁹²

Experts began to conclude that water regulatory districts with hydrologically sound boundaries should be established on a statewide basis. Starting with this concept, a group of water law authorities at the University of Florida Holland Law Center developed "A Model Water Code," designed to provide a vehicle for comprehensive state regulation of Florida's water resources along hydrologically sound lines, taking into consideration the interrelationship of all types of water resources in the hydrologic cycle.⁹³ The Code called for a system of administrative regulation based on the best features of both the prior appropriation system and the riparian system of water law. In 1972, the Code was used by members of a legislative committee drafting new water resources legislation for Florida. Its essential chapters with minor modifications were enacted by the Florida legislature as the 1972 Water Resources Act.⁹⁴

(b). Administrative Framework

The 1972 Florida Water Resources Act provides for a two-tiered administrative structure headed at the state level by the Department of Environmental Regulation.⁹⁵ The act initially placed statewide responsibility for consumptive

use permitting in the Department of Natural Resources.⁹⁶ Later, in 1975, the Florida Legislature placed both water quality and water quantity control authority under a single agency, the Department of Environmental Regulation.⁹⁷

The second tier of the administrative structure is composed of five regional water management districts⁹⁸ designed to provide the diverse types of regulation necessary in different areas of the State. The Department has general supervisory authority over all water management districts, has the authority to exercise any power exercisable by water management districts, and has the power to rescind or modify any policy, regulation or order of such districts.⁹⁹ However, the legislature clearly stated its intention that the Department delegate its powers of water management to the greatest extent practicable to the governing boards of the water management districts.¹⁰⁰

(i). The Department of Environmental Regulation

The Department of Environmental Regulation, created by the legislature through the 1975 Environmental Reorganization Act,¹⁰¹ received the statutory responsibility and power granted by the Water Resources Act to "accomplish the conservation, protection, management and control of the waters of the state."¹⁰² In addition to its role as statewide administrative coordinator of the provisions of the Act, the Department is given other responsibilities.

Among these are the authority to: (1) conduct investigations into all aspects of water use and water quality; (2) collect and analyze any data needed for administering the water resource laws of the state; (3) cooperate with other state, regional or local agencies involved with use and conservation of water; (4) identify areas threatened by salt water intrusion; (5) conduct weather modification studies; and (6) prepare, with the Division of State Planning, a state water use plan.¹⁰³

The Department has general supervisory authority over the water management districts and is given the right to exercise any powers exercisable by the districts. In addition, as a check on the water management districts, the Department has the power to review and to rescind or modify any policy, rule, regulation or order of a district other than internal management policies and rules.¹⁰⁴

(ii). Water Management Districts

The Water Resources Act initially created six districts,¹⁰⁵ but in 1977, the Ridge and Lower Gulf Coast Water Management District was abolished and its territory divided between the Southwest Florida Water Management District and the South Florida Water Management District (formerly the Central and Southern Florida Flood Control District).¹⁰⁶ The other three water management districts are the St. Johns River, the Suwannee River and the Northwest Florida Water Management Districts.

Each water management district is controlled by a governing board composed of nine members appointed by the Governor and subject to confirmation by the Senate.¹⁰⁷ The members who serve 4-year terms must reside within the district. Each board employs an executive director and a legal and technical staff.¹⁰⁸

The water management districts were established so that their boundaries conform closely to hydrologic lines. Although a water management district may have more than one river basin within its geographic area, the lands affected by or affecting any given river basin should be within the jurisdiction of a single water management district. The independence of these districts from one another permits diverse approaches to management of water resources. Water management problems vary from one district to another and solutions acceptable to a district's residents may also vary from district to district.

General powers given to the water management district governing boards include the power to contract, to sue and be sued, to hire and fire employees, to issue orders enforcing or implementing the Water Resources Act, and to survey the water supplies and resources of the district.¹¹⁰ The governing boards are also granted broad powers to carry out public works projects within their districts.¹¹¹

In addition to the powers dealing with the management of surface waters, the water management districts are granted broad authority to handle the problems of ground water supply in the district. The legislature gave districts the power to "do any act necessary to replenish the ground water of said district," including buying water; exchanging water; spreading, sinking or injecting water into the ground water; storing, transporting, recapturing, reclaiming, purifying, treating or otherwise managing and controlling water for the beneficial use of persons or property within the district.¹¹²

Beyond the powers granted directly to the water management district boards are those powers which may be delegated to the boards by the Department of Environmental Regulation. The legislature expressed its clear intention more than once that the water management districts should have the power to conserve, protect, manage and control the waters of the State.¹¹³ The Florida Water Resource Act enumerates the powers which the Department may authorize the districts to exercise. Those powers include authority to: administer and enforce all provisions of [the Water Resources Act]...; plan, construct, operate, and maintain works of the district; determine, establish and control the level of waters to be maintained in all bodies of water controlled by the district; prepare, in cooperation with the department, that part of the state water use plan applicable to the district.¹¹⁴

The Department may also authorize a water management district to implement a permit program regulating the consumptive use of water.¹¹⁵

Water management districts receive funds to finance their activities from four sources. A direct appropriation from the State's General Revenue Fund is to be used for administrative and regulatory expenses incurred by the district.¹¹⁶ The districts have limited authority to issue bonds.¹¹⁷ The districts may also assess fees for permit applications.¹¹⁸

The most significant source of funding available to the districts comes from their power to levy ad valorem taxes.¹¹⁹ A constitutional amendment approved in 1976 authorized ad valorem taxation for purposes of water management and a specific millage ceiling of 0.05 mills for the Florida Panhandle area and 1.0 mill for the rest of the state.¹²⁰ The legislature has now established limits within this constitutional ceiling for each district.¹²¹ The legislature placed further limits on the water management ad valorem tax by requiring that only water management districts could levy this tax and that the funds raised by the tax could not be passed on by the districts to other governmental units.

2. The State Water Plan

(a). The Statutory Mandate

Planning is a necessary and vital part of comprehensive water management. Intelligent decisions regarding

the allocation of water resources must be formed on knowledge of the physical availability of water, demands for the use of it, environmental needs and alternatives for action. With respect to this need, the drafters of the Model Water Code stated:

[A]dditional measures toward more efficient management of water resources must be implemented at all levels of government. This will require a determination of needs and capabilities, and the formulation of long-range plans for the development of all water resources and related land resources within a hydrologic unit ... Regulation of water use remains a primary state function. This requires state planning for many purposes including enforcement of existing laws, enactment of new legislation, coordination of local regulatory efforts, and administration of consistent state regulatory policies. Unfortunately, state planning and resource management agencies are frequently understaffed and lacking in sufficient expertise to carry out meaningful planning responsibility... It is essential that state agencies be staffed to discharge their water resources planning responsibilities competently. Failure of the states to respond to this challenge can only result in inadequate and uncoordinated water management.¹²²

Accordingly, the Florida Water Resources Act of 1972 provides for the development of the Florida Water Plan, which combines a State Water Use Plan with state water quality standards and classifications.¹²³ Responsibility for developing the State Water Use Plan is explicitly given to the Department of Environmental Regulation (DER),¹²⁴ which is directed to undertake studies of existing water resources, present and contemplated uses and needs for water, and such other subjects as drainage and flood plain zoning.¹²⁵ Based on these studies, the Department is

"progressively to formulate, as a functional element of a comprehensive state plan, an integrated, coordinated plan for the use and development of the waters of the state..."¹²⁶

A listing of general objectives which the State Water Use Plan should seek to reconcile and implement is contained in the Act. It requires that the Department of Environmental Regulation give due consideration to:

- (a) the attainment of maximum reasonable-beneficial use of water ...
- (b) the maximum economic development of the water resources consistent with other uses.
- (c) the control of such waters for such purposes as environmental protection, drainage, flood control, and water storage.
- (d) the quantity of water available ...
- (e) the prevention of wasteful, uneconomical, impractical or unreasonable uses ...
- (f) presently exercised domestic use and permit rights.
- (g) the preservation and enhancement of the water quality of the state ...
- (h) the state water resources policy....¹²⁷

The Department is further directed to "...give careful consideration to the requirements of public recreation and to the protection and procreation of fish and wildlife."¹²⁸ In the plan it may "... prohibit or restrict other future uses on certain designated bodies of water which may be inconsistent with these objectives."¹²⁹ In addition, it can designate undesirable or desirable uses

for particular bodies of water and either deny permits or grant preferences on that basis.¹³⁰

The Act clearly contemplates that preparation of the State Water Use Plan would be undertaken by the state land agency.¹³¹ The water management districts appear to have been given primarily an advisory or consulting role.

"During the process of formulating or revising the State Water Use Plan, the department shall consult with, and carefully evaluate the recommendations of, concerned federal, state, and local agencies, particularly the governing boards of the water management districts, and other interested persons."¹³²

Each governing board of a water management district, in turn,

"... is directed to cooperate with the department in conducting surveys and investigations of water resources, to furnish the department with all available data of a technical nature, and to advise and assist the department in the formulation and drafting of those portions of the state plan applicable to the district."¹³³

(b). The History of Implementation

Development of the State Water Use Plan has never proceeded as envisioned by the statutory drafters. Initially, the Legislature failed to appropriate sufficient funds for the State to undertake the type of water resource planning required by the statute. The Department of Natural Resources, originally charged with administration of Chapter 373, therefore did nothing to prepare a plan. Instead, in 1974, it delegated this responsibility to the water management districts.¹³⁴ The two largest water

management districts immediately began to invest large sums of money in planning.¹³⁵ Indeed, by December of 1973 the Central and Southern Florida Flood Control District (C&SFFCD) had already formulated "A 'Rough Cut' Model of a South Florida Water Supply Plan."¹³⁶ Over 2.6 million dollars was spent by the C&SFFCD in the fiscal years 1974-76 on resource planning.¹³⁷ The Southwest Florida Water Management District (SWFWMD) also emphasized planning. As a result, these water management districts soon developed strong ideas about how water should be managed within their respective areas.

There was a renaissance of state level interest in the State Water Use Plan following the transfer Chapter 373's powers to the newly created Department of Environmental Regulation.¹³⁸ DER began to work on the plan in 1976. An agreement was soon reached with the Division of State Planning whereby DER agreed to use the water element of the State Comprehensive Plan as the policy basis of the State Water Use Plan.¹³⁹ An agreement was also reached with the water management districts reaffirming their delegated authority to continue developing plans for their respective areas, but providing for some standardization of format.¹⁴⁰ DER was to take the five regional plans together with the water element and "synthesize" a consistent State Water Use Plan.¹⁴¹

Attainment of such consistency was very difficult. The water management districts had been planning for several

years in the absence of state direction. Consequently, when the Division of State Planning developed a document that was at variance with their established policies¹⁴² the water management districts vigorously objected. Negotiations ensued in the Governor's Office and a compromise water section was developed.¹⁴³ DER prepared a document consisting of a short introduction, the water section of the State Comprehensive Plan, and five executive summaries of the water management district plans¹⁴⁴ and prepared to hold public hearings on adoption of that collection as a technical and advisory document to be termed Phase I of the State Water Use Plan.¹⁴⁵ These hearings, however, were cancelled when the Graham administration entered office and at this date the State Water Use Plan remains in limbo pending further executive or legislative direction.

(c). The Failure of State Water Use Planning

After several years of effort and despite a legislative mandate, there is no State Water Use Plan. There are several reasons for this apparent failure. The Legislature's initial failure to fund development of a plan by the state was a primary cause. While the water management districts were planning and developing policies for their respective areas, the state offered no guidance or direction and the districts naturally rejected later attempts by the state to reshape those plans.

In addition, there has been no clear conception of how a State Water Use Plan would be used or of what

governmental activities it would control. Despite the statutory language, the Department of Environmental Regulation has had relatively little to do with the implementation of the Florida Water Resources Act. Water management districts, not DER, have been building and operating water management structures and issuing permits. The statute vests much authority to undertake these activities in DER, but, in a practical sense, the agency has neither the resources nor the political strength to exercise it.

In fact, DER has limited power to implement anything that is inconsistent with policies of the water management districts. Although Chapter 373 gives DER "general supervisory authority"¹⁴⁶ over the water management districts, this power is largely illusory since the Governor and Cabinet are exclusively empowered to "review and... rescind or modify, any rule or order of a water management district..."¹⁴⁷ It is also significant that the two larger districts are financially independent. Thus DER was put in the untenable position of attempting to write and adopt a plan that it could not implement and that was opposed by those who could implement it.

(d). The Future of State Water Use Planning

In January of 1979, Governor Graham appointed a Resource Management Task Force to analyze the state's land and water management laws and make recommendations for improving them. After a year of deliberation the Task

Force issued a report.¹⁴⁸ It noted two major failures thus far: First, resource management has been chronically underfunded. Good laws have not been implemented properly because the necessary money was not provided.¹⁴⁹ Second, there has been no integrated policy framework for guiding land and water management.¹⁵⁰

The Task Force particularly urged the development of consistent, unified policies to guide land and water management at the state, regional and local levels¹⁵¹ and it recommended that state policies be formally adopted and given legal force. According to the Task Force these policies should not be merely advisory, but should actually govern the activities of all state agencies and of state and regional agencies insofar as they affect state interests. They should be more concise and broader in scope than was the state comprehensive plan. One important part of the policy framework recommended by the Task Force would be a state water policy.¹⁵² State water policy would be developed through a joint effort of DER and the water management districts and then adopted by rule. Plans of the water management districts would then have to be consistent with the state water policy.

Although the report of the Resource Management Task Force has been accepted by the Governor, detailed proposals for implementing its recommendations have not yet been prepared. The House Natural Resources Committee, however, has proposed legislation directed at curing many

of the problems identified by the Task Force and discussed in this chapter.¹⁵³ The Committee bill, like the Task Force Report, emphasizes a need for developing a consistent state water policy, and it would create a new administration structure, a State Water Resources Board, for this purpose.

A State Water Resources Board was originally proposed in A Model Water Code.¹⁵⁴ It was to be composed of five members appointed by the Governor. Three of the members were to have specified expertise. One would have to be an attorney, one a hydrologist or engineer, and one a farmer or rancher. The other two would be chosen from the general public. The Board would be responsible for preparing the State Water Use Plan¹⁵⁵ and would have authority to "review and rescind any regulation of a water management district."¹⁵⁶

The State Water Resources Board proposed by the House Natural Resources Committee would have similarly strong, consolidated powers, but would have a very different membership. It would be composed of the Chairman of the five water management districts, the Chairmen of the eleven regional planning councils, and the Secretary of DER, who would chair the Board.¹⁵⁷ DER staff would assist the Board.¹⁵⁸

The Board would be responsible for developing principles and standards, similar to those promulgated by the Federal Water Resources Council, for guiding water management.¹⁵⁹ These principles and standards would be "binding

on all persons developing any report or plan, taking any action, or constructing any work affecting the waters and related land resources of the state."¹⁶⁰ In addition, the Board would "develop a planning manual to guide district and state agencies in the preparation of reports and the development of plans..."¹⁶¹ Each water management district, in turn, would prepare and adopt as a rule a Comprehensive Water Resources Management Plan for the district which would "govern any and all actions or works by any persons which affect the water and related land resources of the district."¹⁶²

The proposed State Water Resources Board would have substantial authority to enforce the implementation of its planning and policy decisions. It would have exclusive power to review, and could rescind or modify, any rule or order of a water management district.¹⁶³ In addition, the Board would review water management district budgets and make recommendations to the Legislature as to whether they should be approved.¹⁶⁴

It is, of course, unknown whether the proposed legislation described above will be enacted. Substantial opposition by the water management districts is already surfacing. At minimum, an amendment could be expected to give the water management districts representation on the board that is equal to that of the regional planning councils. Whatever the details of implementation, however, the Florida experience has shown the need for clear

and enforceable state policy guidance if regional water management is to meet state interests.

3. Water Use Permits

(a). Introduction

The permitting system established by the Florida Water Resources Act of 1972 (FWRA) is the primary tool for implementing the Act's regulatory policies. The Act's use of permitting as a regulatory device is something of a novelty in Florida. Prior to 1957 single purpose districts existed, with varying regulatory powers, but no extensive, statewide permitting was provided for. Florida considered switching from common law riparianism to a system of prior appropriation in 1956, but the proposal was rejected. The Florida legislature and water law experts at the University of Florida had been examining the possibilities for establishing a workable regulatory system for Florida, using the riparian system as its starting point.¹⁶⁵ Eventually these studies led to the 1957 Florida Resources Act, which established a statewide administrative agency to oversee the development of Florida's water resources.¹⁶⁶

The 1957 Act was made applicable to surface water in lakes and streams as well as ground water.¹⁶⁷ The law provided for a somewhat cumbersome procedure for establishing water regulatory districts as nearly as practicable to hydrologically controllable areas,¹⁶⁸ and provided for the promulgation of appropriate rules and regulations by such

districts to control the use of water in their individual areas.¹⁶⁹ This first statewide attempt at water management resulted in a limited permitting authority for the purpose of capturing and using excess ground and surface waters.¹⁷⁰

The studies at the University of Florida continued and in 1972 A Model Water Code¹⁷¹ was published with the stated purpose of providing a vehicle for comprehensive state regulation of water resources in Florida and other along hydrologically sound lines, taking into consideration the interrelationship of all types of water resources in the hydrologic cycle. The Code's regulatory structure was maintained in the 1972 Act¹⁷² although other provisions of the Code were either modified or deleted.¹⁷³

The Florida Water Resources Act provides for permitting of various activities which affect the state's water resources. The Department of Environmental Regulation (DER) was granted general supervisory authority over five regional water management districts, but the legislative intent favored delegation of powers to the districts to the greatest extent practicable.¹⁷⁴ Since the Central and Southern Flood Control District, now the South Florida Water Management District (SFWMD), and the Southwest Florida Water Management District (SWEWMD) were fully staffed and financially capable of assuming the new regulatory powers, they were promptly delegated full regulatory and permitting powers by the Department of Natural

Resources, at that time the state-level regulatory agency under the 1957 Act.¹⁷⁵ The St. John's Water Management District (SJWMD) is presently in the process of implementing a consumptive use permit system.¹⁷⁶ The Northwest Florida Water Management District (NFWMD) and the Suwanee Water Management District (SWMD) have both been delegated the permitting authority,¹⁷⁷ but at present have not implemented any permitting systems and continue to operate under common law principles. Under the Act various activities may be regulated through the use of permits,¹⁷⁸ but the consumptive use permitting power¹⁷⁹ is of the greatest significance.

(b). The Reasonable-Beneficial Use Standard

The Florida Water Resources Act provides for the regulation of consumptive uses of water in order to prevent harm to the water resources of an area and to assure that a use is compatible with the overall objectives of the particular district.¹⁸⁰ An applicant for a consumptive use permit must establish the following before a permit may be granted:

- 1) that the proposed use is a reasonable beneficial use;
- 2) that the use will not interfere with any presently existing legal water use; and
- 3) that the use is consistent with the public interest.¹⁸¹

"Reasonable beneficial use" is defined as "the use of water in such quantity as is necessary for economic and

efficient utilization for a purpose and in a manner which is both reasonable and consistent with the public interest."¹⁸² Although the term "reasonable beneficial use" is a new concept, its origins can be traced to principles in both riparian and prior appropriation water allocation systems.¹⁸³ In the eastern United States the common law "natural flow" doctrine evolved into a standard of "reasonable use" under which some diminution in quantity or quality of the watercourse would be allowed if other riparians were not unreasonably harmed.¹⁸⁴ The Florida courts adopted the reasonable use standard in regard to both surface¹⁸⁵ and ground waters.¹⁸⁶ The standard required reasonableness in regard to both other riparian owners¹⁸⁷ and the public interest.¹⁸⁸

The Restatement (Second) of Torts¹⁸⁹ has identified the following nine factors as those which courts have considered in determining whether a use is a "reasonable Use": (1) purpose of the use; (2) suitability of the use to the watercourse or lake; (3) economic values; (4) social values; (5) extent of harm; (6) avoidance of harm; (7) adjusting the quantity; (8) protection of existing values; and (9) burden of loss (or compensation).

Eastern states have also, through statutory modification and case law, increasingly relied upon "beneficial use" as a criterion in judging the reasonableness of water use.¹⁹⁰ Thus, appreciation of the reasonable use doctrine requires some familiarity with "beneficial use" precepts.

A fundamental principle of the water law of the western states is that the public waters must be used for a useful or beneficial purpose and in a useful or beneficial manner.¹⁹¹ The statement that "beneficial use shall be the basis, the measure, and the limit of the right to the use of water" is found in constitutions,¹⁹² statutes,¹⁹³ or court decisions¹⁹⁴ of every western state.

The determination of "beneficial use" requires making two separate inquiries with respect to water use. The first is whether the use is being made for a beneficial purpose. The second treats the manner in which the water is being used courts considering this aspect of beneficial use to evaluate the reasonableness of the appropriation¹⁹⁵ and the economy of the application of the water.¹⁹⁶ As a result, beneficial use resembles reasonable use in many respects. Many of the same activities which are considered "reasonable" under riparianism are thus considered "beneficial" under prior appropriation.¹⁹⁷

The other, and obviously interrelated, consideration used to determine beneficial use has been efficiency. Courts have uniformly held an extravagant or wasteful application of water is not a beneficial use.¹⁹⁸ Some states have placed a statutory ban on the waste of water.¹⁹⁹ Waste of water is not considered a reasonable use in an arid state. Thus, although a use may be economical for an appropriator, when such use deprives another

person of water and there is a less wasteful method which could be utilized, the law requires that water be used in a way that is reasonable and does not harm the rights of others.²⁰⁰

Briefly, western states consistently look to the following factors in defining beneficial use as the use of water for a purpose which (1) benefits the land of the appropriator,²⁰¹ (2) benefits society as a whole,²⁰² (3) is reasonable with respect to the rights of other appropriators,²⁰³ (4) is reasonable with respect to the rights of the public,²⁰⁴ (5) is economical,²⁰⁵ and, (6) is efficient.²⁰⁶

(i). The Background of the Reasonable Beneficial Use Standard

As the above discussion indicates, the reasonable use and beneficial use standards have often been merged through statutes and court decisions. Upon occasion the actual phrase "reasonable beneficial use" has appeared, most significantly in both California law and the Model Water Code.²⁰⁷

California Water Law

California is one of two states which have judicially recognized the term "reasonable beneficial" as applied to water use.²⁰⁸ The California constitution provides that: "the conservation of [the water resources of the State] is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare."²⁰⁹

In 1933, the California Supreme Court, while deciding the respective rights of riparian landowners and appropriators on the same stream, discussed the concept of reasonable and beneficial use of water, saying:

[W]hat is a useful and beneficial purpose and what is an unreasonable use is a judicial question depending on the facts in each case. Likewise, what is a reasonable or unreasonable use of water is a judicial question to be determined in the first instance by the trial court. There would seem to be no more difficulty in ascertaining what is a reasonable use of water than there is in determining probable cause, reasonable doubt, reasonable diligence, preponderance of evidence, a rate that is just and reasonable, public convenience and necessity, and numerous other problems which in their nature are not subject to precise definition but which tribunals exercising judicial functions must determine.²¹⁰

The California court was called upon in a later case to determine the quantity of water required for reasonable beneficial use.²¹¹ The court first considered how to determine a reasonable quantity, then concluded that as long as there was no unnecessary waste, the user need not employ the best known diversion methods but only those methods in general use in his locality.²¹² The court then analyzed "beneficial use" and reiterated its previous opinion that "what is a beneficial use, of course, depends upon the facts and circumstances of each case."²¹³ The court noted further that whether a use was reasonable beneficial depended on the type of need and the amount of water available

for all needs. Changed conditions, meanwhile, could change a use from reasonable beneficial to wasteful.²¹⁴

In a more recent case, the California Supreme Court, deciding that the use of water for replenishing rocks and gravel on the plaintiff's land was not a reasonable use, said that "beneficial use" and "reasonable use" were not synonymous under the California constitution.²¹⁵ The court held that it was not enough to show that a use was beneficial if it could not also be shown to be reasonable.²¹⁶ It is significant, however, that the court examined beneficial use strictly from the aspect of purpose rather than adopting the view of other western states which evaluate the reasonableness of the method of use as a part of the beneficial use analysis.

From these cases, it appears that in California a use must be considered beneficial before it qualifies for a permit. In addition, the use must be deemed reasonable. Because reasonableness is a question of fact to be determined from the circumstances of each case.²¹⁷ It is impossible to specify in advance what uses are reasonable within the broad confines of a statute. However, when reasonableness becomes an issue, the California courts feel qualified to make such a determination.

The Model Water Code

"Reasonable beneficial use" is defined by the Model Water Code²¹⁸ as: "The use of water in such a quantity as is necessary for economic and efficient utilization,

for a purpose and in a manner which is both reasonable and consistent with the public interest."²¹⁹ The commentary to the Code states that the term "reasonable beneficial use" is a term of art that should not be confused with either the "beneficial use" standard of prior appropriation water law or the "reasonable Use" term of riparian water law.²²⁰ The authors of the Code intended the term to include a standard of reasonable use which embraced the rights of the general public as well as the rights of riparians and to require efficient economic use of water regardless of the sufficiency of available water.²²¹

In a further discussion of the "reasonable beneficial use" standard, the authors of the Code explained that the term was intended to combine the best features of the rules of both reasonable and beneficial use.²²² Thus, the term was said to require first that the quantity of water used be efficient, and second that the purpose of the use be reasonable in relation to other uses.²²³ The standard would not require that a valid use be the most economical use but would require that the method of use be economically efficient.²²⁴ Coupled with this requirement is the related requirement that the method for diverting the water be reasonable and consistent with the public interest.²²⁵

(ii). Summary of Reasonable Use, Beneficial Use, and Reasonable Beneficial Use

Although the water allocation principle differs in riparianism and prior appropriation, the respective

standards for water use have coalesced over the years because the western states have added a requirement of reasonableness to the beneficial use inquiry and the eastern states have attached the element of beneficial purpose to the reasonable use standard. Comparison of the standards shows substantial correlation. Each standard examines the purpose of the use; generally uses for domestic purposes, irrigation, recreation, manufacturing, stock watering (to a limited extent) and power production (in some cases) are approved in both systems of water law.²²⁶

Although differences clearly exist,²²⁷ a list of factors common to both systems can be identified as: (1) the purpose of the use; (2) its economic value; (3) its social value; (4) the extent and amount of harm caused to one having a prior right to use of the water; (5) the practicality of avoiding harm; (6) the practicality of adjusting the quantity; and (7) protection of existing values. A determination that a use is both reasonable and beneficial would involve, at a minimum, examination of these seven factors. Inclusion of the two remaining reasonable use factors of suitability and compensation would ensure that the water use met all criteria of both standards. California's "reasonable beneficial use" analysis parallels the common factors listed above.²²⁸

According to the authors of A Model Water Code, the "reasonable beneficial" standard was intended to incorporate

the "best features of both reasonable use and beneficial use".²²⁹ In determining what is a "reasonable beneficial use" factors such as the value of the use to society, including consideration of possible harm to society through harm to the water body, and a balancing of any harm caused by the use against methods currently available to reduce or eliminate the harm, should be included in the analysis to fully incorporate the "best" features of the two water use standards. The standard should reflect an increased emphasis on the rights of the public over the traditional rights of riparian proprietors. It should also emphasize flexibility toward changed conditions.²³⁰

(c). Recognition Of Environmental Considerations

As mentioned previously, the Florida Water Resources Act provides for the establishment of minimum flow levels for surface watercourses and minimum water levels for lakes and ground water.²³¹ Such flows and levels are to be utilized in setting limits on water withdrawals and other activities which affect water resources within a district.²³² Minimum flows and levels differ from natural flows and levels in that they recognize that society's water needs are such that it may be impossible to preserve natural flows and levels. Minimum flows and levels are a method of protecting such instream uses as commercial navigation, recreational boating, fishing, hunting, swimming, and protection of the ecology.²³³

For ground water, the minimum level is defined as the level of water in an aquifer at which further withdrawals would be significantly harmful to the water resources of the area.²³⁴ The water management districts are allowed to calculate minimum flows and levels to reflect seasonal variations. Thus, minimum flows and levels are designed to serve as guidelines in the granting of permit rights. They should additionally provide protection for non-consumptive uses of water, recharge areas, and other important natural ecosystems (such as estuarine areas).

Presently, the minimum flow and level calculations developed by the water management districts are uniformly based on averages and percentages which result in an objective formula to be applied to all water resources of a particular type (e.g., surface waters; lakes and impoundments; ground waters).²³⁵ These calculations appear to indicate an acceptance of the gradual diminishment of water resources. Whether this method of calculating minimum flows and levels can adequately protect non-consumptive uses of water and the ecology is open to question.²³⁶

Another provision of the Act allows for a type of environmental zoning, where certain uses are declared undesirable on the basis of potential environmental harm to the surrounding area.²³⁷ The governing board of each water management district is authorized, but not compelled, to deny a consumptive use permit for proposed "undesirable" uses. Such a system of ranking water uses has the potential to be a beneficial aid in protecting Florida's water resources. The success of such a system would ultimately depend on governing boards exercising their authority in a rational, equitable manner. DER, as the state-level agency, should consider developing general guidelines to be applied in determining preferences within the individual districts.

(d). Implementation by the Water Management Districts

Although the Florida Water Resources Act was based on the Model Water Code,²³⁸ a number of the provisions in the Code were changed or omitted by the Florida legislature. The Code envisioned a mandatory permit system for withdrawals of water for consumptive use,²³⁹ but the Florida Act merely authorizes such a system, rather than requiring it.²⁴⁰ Before the consumptive use permit system can be put into effect in a particular water management district, that district must first petition the DER for permission to implement that system, and the DER must give its consent to such implementation.²⁴¹ Once the permit system becomes operative, it is mandatory that it

be followed, but the provisions of the statute with respect to such a system do not come into play until the program itself is adopted.²⁴² If the DER or the district does not choose to implement the system, then common law rules still control the right to withdraw and use the water, whether from surface or ground sources.

(i). Fully Implemented Consumptive Use Permit Systems

South Florida Water Management District

The SFWMD, formerly the Central and Southern Flood Control District, was already in existence when the Florida Water Resources Act became law. It was fully staffed and authorized to levy ad valorem taxes to pay for regulatory functions. It was therefore promptly delegated full regulatory and permitting powers by the Department of Natural Resources, at that time the state-level regulatory agency.²⁴³ The SFWMD had implemented nearly all of the requirements of the Act by the time its boundaries were modified in January, 1977.²⁴⁴

The district requires permits for all uses, diversions, or withdrawals of water which exceed 100,000 gallons per day.²⁴⁵ The governing board may impose any reasonable conditions upon permits which are necessary "for the conservation, protection, management, and control of the waters of the district, except that no individual shall be required to have a permit for any domestic use of water."²⁴⁶ Water used for fire fighting purposes is similarly exempt from permitting requirements.²⁴⁷ The

district applies the term "domestic use" only to individual households and not to community water systems of more than one household.²⁴⁸

The rules also contain a provision for "general permits" for water use in conjunction with oil well drilling in specified south Florida counties.²⁴⁹ General permits are utilized by the district in cases where other agencies or municipalities regulate the activity to an acceptable degree. This usually involves cases where local standards are more stringent than district standards, particularly in regard to Dade County. These permits are granted upon a filing with the district of the proposed use of water and upon satisfactory demonstration that the use is one within the scope of the general permitting process.²⁵⁰ In the case of oil well drilling, a permit from the Department of Natural Resources and a water quality certificate or waiver from DER are required in order to procure a general permit.²⁵¹ Additionally, logs are required at the drilling sites and water is periodically tested for quality.²⁵² Water tables are to be measured at specified times as well.²⁵³ General permits are often limited to the duration of the specific activity with new permits required for each new drilling or other activity.

The general permit appears to be a method of allowing the district to have input into activities often exclusively regulated by other agencies. In addition, the use of such

permits reduces administrative burdens, since the general permit procedure is less complicated than that associated with the granting of a standard consumptive use permit. This process also avoids duplication of functions by different agencies and municipalities, thus allowing the district to concentrate on more important regulatory activities.

Although the statute authorizes permits of up to 20 years in length, SFWMD usually limits them to 10 years.²⁵⁴ Frequently the district will issue permits of only two or three years when environmental impacts to the area of consumptive use are not fully determined.²⁵⁵ This facilitates frequent review of the permit's appropriateness and additionally allows time for the district to assess possible hazards to the area by means of testing and monitoring. Such short term permits are highly effective in determining future consequences to an area where consumptive uses are steadily increasing. However, they seem to be at variance with the Act's policy of promoting security in the area of water rights.

Southwest Florida Water Management District

The SWFWMD had also implemented consumptive use permitting.²⁵⁶ Permits are required for water withdrawals which average 100,000 gallons per day on an annual basis or which exceed 1,000,000 gallons on any single day. Thus, the threshold differs from that utilized in the SFWMD, appearing to require larger withdrawals before the permitting

process comes into play. Permits are also required if a water well has an inside diameter exceeding six inches or if the withdrawal equipment has the capacity to withdraw more than 1,000,000 gallons of water per day. Domestic uses are again exempt, but if a domestic use exceeds the minimum quantities referred to above it is presumed to be nondomestic and a consumptive use permit is required.²⁵⁷

Even if the three statutory conditions found in Florida Statutes § 373.223(1)²⁵⁸ are met, the district will deny a permit if issuance will:

- 1) Cause the rate of flow of a stream to be less than the established minimum flow rate; or
- 2) Cause the potentiometric surface to be lowered below the regulatory level of the district; or
- 3) Lower the surface of a water body below the established minimum level; or
- 4) Significantly induce salt water encroachment; or
- 5) Lower the water table to a point which will adversely affect lake stages or vegetation on lands not belonging to the permit applicant.¹²⁸

The SWFWMD's governing board also relies on the water crop concept. The water crop is defined as "the amount of water that is annually available for man's use from a given area; or, the total amount of rainfall less the amount of evapotranspiration".²⁵⁹ The water crop is assumed to be 13 inches per year or 365,000 gallons per acre per year.²⁶⁰ This figure is reached by assuming rainfall to average 53 inches and evapotranspiration to be 39 inches per acre per year. The SWFWMD states that

an applicant for a consumptive use permit should not assume that he had a right to use 365,000 gallons of water per acre per year.²⁶¹ The actual quantity of water permitted to be used by a particular applicant will depend on other water users' needs and may be either more or less than the standard water crop figure.²⁶²

It was developed, according to SWFWMD, to avoid arbitrary and biased judgments in evaluating requests for consumptive use permits.²⁶³ The stated goal was to utilize objective criteria in such evaluations.

The SWFWMD maintains that the water crop concept is merely a regulatory tool to be utilized until better methods become available.²⁶⁴ The district recognizes that the water crop concept is open to various criticisms. In the first place, land ownership is a key element of the concept and some water users such as manufacturers, can not be expected to own or control sufficient land to generate an adequate water crop to supply their needs. In addition, the water crop varies from place to place so that an objective average is too imprecise.²⁶⁵ The district proposes to deal this problem by developing more accurate estimates of water crop, area by area, in order to measure varying water crop yields.²⁶⁶

Finally, the use of the water crop approach appears to be contrary to the statutory concept of reasonable beneficial use. The Act specifies that consumptive uses of water must be judged in light of the reasonable

beneficial use standard and stresses that each use must be consistent with the public interest.²⁶⁷ The water crop concept shifts the focus from reasonable-beneficial use to property ownership or control. To the extent that the water crop concept displaces reasonable beneficial use in the permitting process, it injects a standard that is both too narrow and too broad to serve as a basis for allocating the state's water resources. It is too narrow because it relates water rights to land ownership in a manner that evokes the place-of-use restrictions of the riparian system. The Florida Water Resources Act, like most other statutory permit systems in the East, was enacted in large part to abolish place-or-use restrictions which promoted inefficient water use patterns. The water crop concept is also too broad in the sense that it appears to allocate water on the basis of the size of land holdings rather than the utility of the proposed water use. This can also lead to inefficient and even wasteful water use and is, therefore, directly contrary to the Act's express goal of conserving, developing and protecting Florida's Water resources.²⁶⁸

(ii). Partially Implemented Consumptive Use Permit Systems
St. Johns River Water Management District

At the present time, the SJRWMD issues consumptive use permits (referred to as "water use permits") only in those areas of the district which were transferred to it from the old Central and Southern Florida Flood Control District.²⁶⁹ These areas were already subject to the permitting process and the SJRWMD is thus continuing an established program.

In those areas where permits are required, they are required for any use, diversion, or withdrawal of water if:

(1) The average annual daily withdrawal exceeds 100,000 average gallons per day; or

(2) The withdrawal equipment or other facility has a capacity of more than 1,000,000 gallons per day; or

(3) The withdrawal is from a combination of wells or other facilities or of both, where the combined capacity is more than 1,000,000 gallons per day.²⁷⁰

Any reasonable conditions necessary to conserve, protect, manage, or conduct the waters of the district will be imposed on the permit by the governing board.²⁷¹ Private individuals are not required to have a permit for domestic uses of water.²⁷² The district charges a fee for processing permits based on the amount of water used.²⁷³ A permit may be transferred to another party if the use remains the same. Such a transfer is subject to approval by the district with all terms and conditions of the permit being binding on the transferee.²⁷⁴

The Executive Director of the district may authorize water use under conditions creating an emergency for an individual applicant unless the use is already under consideration for a permit.²⁷⁵ The emergency must be due to unforeseeable circumstances rather than carelessness or lack of planning by the affected party.²⁷⁶

The SJRWMD is studying the effects of water use within the district. Consumptive use permitting will likely be implemented in additional specific geographic areas which have demonstrated actual or potential water problems such as salt water intrusion rather than on a district-wide basis.

(e). The Water Shortage Plan

A water allocation system usually issues permits for water

uses based on some predetermined amount of water expected to be available for use. While this system should function smoothly during periods of normal or greater-than-normal rainfall, if rainfall is significantly below normal the system is likely to break down if the total demand for water exceeds available supply.

During periods of drought, it is important that the water allocation authority be able to apportion available water among the various users. Adoption of a water shortage plan provides water users with advance knowledge of the means by which water apportionments and reductions will be made. Giving prior notice to water users of the extent to which they may be required to cut back their uses promotes the overall goal of the Model Water Code of providing greater security of water rights.²⁷⁷ Also, it allows permit holders to make contingent plans to minimize the adverse effects of a water shortage. These measures might include such things as constructing storage reservoirs or making advance arrangements for alternative supplies of water.²⁷⁸ Thus, water shortage planning should be considered a mandatory element of any water management program.

The authors of the Model Water Code understood the importance of advance planning in dealing with water shortages. Thus, the Code requires formulation of a plan for implementation during a water shortage.²⁷⁹ The first step in this plan is to develop a system for classifying consumptive use permits so that restrictions on water use can be applied to classes of water users rather than to individual users. These permit classifications will

allow an individual permit holder to know his relative priority in case of shortage at the time his permit is issued, and to do his own water shortage planning. The implementation plan is the heart of the Code's philosophy of water shortage legislation. Because public input through the hearing process will be required during development of the plan and because the permit holders will have prior knowledge of the plan, the framers of the Code felt justified in giving the governing board considerable discretion in its ability to impose restrictions in time of shortage.²⁸⁰

Under the Model Water Code, a water shortage may be declared either when there is not enough water available to meet the requirements of the permit system or the State Water Plan, or when the total water use in an area must be reduced to protect the water resources from serious harm.²⁸¹ Since all permit holders are entitled to the full amount of water allowed under the terms of the permit, in theory a water shortage may be declared if even one permit holder cannot obtain sufficient water.

The Code provides for notices of water shortages which will help keep both permittees and the general public fully informed of water conditions throughout the entire water shortage period.²⁸² Notice to the general public is to be published weekly in area newspapers. Permit holders whose use is restricted are to be notified by mail.

If a water shortage has created an emergency condition and the restrictions imposed on the various classes of permit holders are not sufficient to protect public health, safety, or welfare; the health of animals, fish, or aquatic life; a public water supply; or recreational, commercial, industrial, agricultural, or other reasonable uses, then a water emergency may be declared.²⁸³ Any action to meet the emergency, such as apportioning, rotating, limiting or prohibiting the use of water is authorized. These emergency provisions may be directed at individual users rather than classes of permit holders. Anyone affected by an emergency order must comply but may have an appeal expedited.²⁸⁴

(i). The Florida Water Resources Act

The Florida Water Resources Act contains two separate sections dealing with water shortages and emergencies. The first section, § 373.175, is found in Part I of the Act which deals with the state water resource plan.²⁸⁵ The second section, § 373.246, is located in Part II which covers consumptive use permits.²⁸⁶ Because of the dual authority apparently provided by the legislature, a careful analysis of the differences between the two sections is necessary.

A water shortage may be declared under the provisions of § 373.175 when "insufficient ground or surface water is available to meet the needs of the users..."²⁸⁷ This contrasts with § 373.246 which looks to "requirements of the permit system"²⁸⁸ rather than "needs of the users."

This difference may have arisen to aid districts which implemented consumptive use permitting for some but not all of their water users. These districts would be more likely to need § 373.175 as a basis for water shortage declarations. Obviously, if there are users outside the permit system, more water may be used than can be accounted for under the permit system's water budget. Thus, an actual water shortage could arise even though there appeared to be sufficient water to meet the requirements of the permit system. However, it is debatable whether the dual declaration authority is the appropriate means for handling this problem. The permit system is intended to provide a district with fairly accurate knowledge about the amount of water being used. Therefore, any substantial use of water that is likely to have a definite impact on the total amount of water used in a district should be under permit.

Under § 373.175 a district may impose restrictions on individual users in the event of a shortage; under § 373.246, restrictions are to be imposed on classes of permits rather than individual users. This difference is the most probable area of future litigation. An individual users singled out by a water management district for restrictions on their water use may well seek legal justification for noncompliance. If a district is not authorized to proceed under § 373.175, an individual user who could demonstrate that he was required to reduce his

water use more than would have been required if all members of his class of permit holders had also had to curtail usage might have a legitimate action for damages.

Notice provisions also differ between these sections. The first section, § 373.175, provides only for notice by publication, with no requirement for actual notice to the affected individual users.²⁸⁹ The second section, § 373.246, requires actual notice by mail to restricted permit holders.²⁹⁰ The provision for actual notice to those whose uses are to be restricted seems necessary to meet the constitutional requirements of due process. Otherwise, enforcement attempts may be rendered meaningless.

Perhaps the most significant difference between the two water shortage sections is the provision in § 373.246 requiring development of a plan of implementation to be used during water shortage periods.²⁹¹ Planning, which was completely omitted from § 373.175, is the heart of the Model Water Code's philosophy. Advance planning for handling of water shortages is as critical to their successful management as is similar planning to the success of the permit system as a whole. It should be noted that the language of § 373.246 is mandatory rather than discretionary. "The governing board ... shall formulate a plan for implementation during periods of water shortage."²⁹² The legislature clearly recognized the importance of advance planning when it chose to make the plan mandatory even though the permit system is optional.

A description of the legislative background of the two sections should help to explain how the two sections came into being. Section 373.246, patterned after the Model Water Code, was enacted in April, 1972 by the Florida Legislature as part of the 1972 Water Resources Act, but the effective date of the Act was July 1, 1973.²⁹³ In December, 1972, the Legislature passed an amendment to Chapter 378, of the Florida Statutes, which authorized the declaration of water shortages and emergencies by flood control districts.²⁹⁴ This provision which had an effective date of December 1, 1972, also had a repealer clause which was to take effect on July 1, 1973.²⁹⁵ Thus, Central & Southern Florida Flood Control District and Southwest Florida Water Management District, the two districts established under the statutory auspices of Chapter 378, were given the power to declare water shortages or emergencies prior to Chapter 373's water shortage/emergency section becoming effective.

In 1973, yet another bill was passed by the Legislature. This bill, entitled, "An Act relating to flood control districts, water shortage emergencies; ...", repealed the repealer clause effective June 30, 1973.²⁹⁶ This meant that after July 1, 1973, there were two separate statutes granting power to deal with water shortages - § 373.246 and § 378.152 which was subsequently renumbered and placed in Chapter 373 as § 373.175 by the statutory revisor because most Chapter 378 had been repealed.

However, although there are now two separate sections in Chapter 373 dealing with water shortages and emergencies, it is not clear that both apply to water management districts. As noted above, when § 373.175 was initially passed in 1972 and amended in 1973, it was referred to as "relating to flood control districts."²⁹⁷ "Flood control district" is not defined in Chapter 373 but the definition of "water management districts" in § 373.019(3) includes flood control districts. By definition, then, a flood control district is a water management district but a water management district need not be a flood control district. Therefore, § 373.175, enacted to apply to flood control districts, should apply only to those water management districts which are flood control districts.

There are, at most, two water management districts which might be considered flood control districts. The first is the South Florida Water Management District, originally established as the Central and Southern Flood Control District in 1949.²⁹⁸ The Southwest Florida Water Management District could perhaps claim to be a flood control district since it was established in 1961 under Chapter 378, titled "Flood Control."²⁹⁹ However, even at that time, the district was not called a flood control district but a water management district. The term "water management district" was not defined in Chapter 378 but water management districts are referred to in a section covering "Cooperation between districts." This section

states "Any flood control district created under the authority of Chapter 378 is authorized to advise other flood control districts or water management districts of the state..."³⁰⁰ This suggests that there was a distinction between flood control districts and water management districts. Thus, it appears that the South Florida Water Management District is the only district which is clearly entitled to use § 373.175 for declaration of water shortages and emergencies since there is considerable room for doubt as to SWFWMD's authority.

The question thus arises as to whether any of the water management districts can actually use the provisions of § 373.175 to declare water shortages and emergencies. The three newest districts, St. Johns, Suwannee and Northwest Florida Water Management Districts, were not organized as flood control districts so clearly they cannot use § 373.175. South Florida and Southwest Florida Water Management Districts have consumptive use permitting systems in place. They are mandated by § 373.246(1) to develop a water shortage plan. Once the plan is developed and included in their rules, failure to follow the guidelines of the plan could result in litigation by affected water users. Therefore, these two districts should be effectively precluded from using § 373.175 if they have developed their water shortage plans. The only justification either of these districts would have for use of § 373.175 would be that they had not developed water shortage plans. At this point, failure to have developed the plans could also

lead to litigation by affected water users. Section 373.246 requires formulation of a water shortage plan. Although no time limit is placed on water management districts for development of the plan, the legislature certainly intended that these plans be developed within a reasonable time. Arguably, the seven years that have elapsed since the Act was passed is more than sufficient.

(ii). Water Shortage Planning at the District Level

Development of water shortage plans and water emergency plans is vitally important to the successful operation of a water management district. Thus, uses should be examined and a relative priority assigned for times of shortages. Three of Florida's five water management districts have promulgated rules dealing with water shortage and water emergency declarations.³⁰¹ These districts are the South Florida Water Management District, the Southwest Florida Water Management District and the St. John's River Water Management District. Currently, only the South Florida District has developed any implementation planning.³⁰²

South Florida Water Management District

The rules of the South Florida Water Management District allow the governing board to declare a water shortage when the water available is insufficient to meet the requirements of the permit holders or when the total use within the area must be temporarily reduced to protect the water resources from serious harm.³⁰³ Each water use

permit must be classified according to source and use for the purpose of the water shortage plan.

Source classifications are grouped into surface and ground water categories. Within these categories, the permits may be further classified, with the ground water permits specifying the aquifer or other ground water source from which the water is to be withdrawn and the surface water permits specifying the source of surface water from which the water is to be withdrawn, diverted or impounded.³⁰⁴ A permit may allow withdrawals from both ground and surface waters.

Classification of permits by use is also required for purposes of the water shortage plan. A permit may have more than one use classification. The categories are domestic, essential service, public supply, live-stock, agricultural, industrial, mining, power and recreational use.³⁰⁵

Once a water shortage is declared, the governing board may:

1. allow the water users in an affected area to make voluntary agreements among themselves for mutual reduction, sharing or rotation of use;
2. allow distribution of water to permit holders who stop or reduce ground water withdrawals;
3. provide for metering and reporting of all water used;
4. make provisions for maintaining minimum flows and minimum levels;

5. make provisions for preventing deterioration of water quality from such causes as salt water intrusion;
6. restrict the total amount of water that may be used during any day, month or year;
7. restrict timing of use and pumping rates.³⁰⁶

The South Florida Water Management District Board uses the standard of public interest to determine which class of permits will be restricted.³⁰⁷ The Board, in making a public interest determination, sets priorities of uses but does not create priorities between the users within a class. Domestic use is given the highest priority.³⁰⁸ Users supplying necessities to the people of the district or the state are preferred over users not supplying such necessities.³⁰⁹ Public users are given preference over private users of the same type of use and source.³¹⁰ A user who would suffer a serious loss of invested capital from a reduction in water supply will be referred over one who is not subject to such a loss. However, this preference will only be given for so long as is reasonably necessary to protect the investment.³¹¹

The Board is required to publish notice when a water shortage is declared every day of the first week and weekly thereafter for the duration of the shortage. Each permittee affected by the declaration must be notified by certified mail of any restrictions placed on his permitted right to use water.³¹² These notice provisions are designed to keep

both the affected permit holders and the general public fully informed of water conditions during the water shortage period.

When a water shortage reaches the point where implementation of the water shortage plan is not sufficient to protect the public, the ecosystem and competing water uses, a water emergency can be declared.³¹³ Declaration of a water emergency allows the district to restrict the permit holders individually rather than by classes. The same public interest standard used for water shortage priorities is to be used in deciding which users to restrict.³¹⁴

The board is required to publish notice of the water emergency as well as mail notice to each permittee affected by the order.³¹⁵ The regulations require immediate compliance by the permit holder because delay in compliance in an emergency situation might cause injury to lives and property. However, procedures are made available for challenge of any emergency order.³¹⁶

Although the rules governing declaration of water shortages and water emergencies are quite thorough, the South Florida District has in fact adopted only two water shortage plans. These plans are for the Lake Istokpoga-Indian Prairie Area³¹⁷ and the St. Lucie County Agricultural Area.³¹⁸ The St. Lucie water shortage plan is implemented by conditions in the consumptive use permits of the District requiring the pump intakes from the

District's canals to be placed at a minimum elevation of 14 feet which corresponds to the minimum allowable canal elevation.³¹⁹ When the canals are at or below minimum elevation, the pumps have no water to withdraw.

The water shortage plan adopted for the Lake Istokpoga-Indian Prairie Area places permit classifications in priority status groups and spells out the reductions in water use required for each group under various shortage conditions.³²⁰ A water shortage has been declared in the area nearly every year since the plan was adopted and each year the plan has been implemented in a different fashion.³²¹ Apparently the district has over-allocated water in this region, a practice which is manifestly contrary to the Act. Shortages should be the exception rather than the norm if the permit system is being administered properly.

Southwest Florida Water Management District

The rules of the Southwest Florida Water Management District (SWFWMD) governing water shortage declaration differ from those of the South Florida Water Management District in several respects. SWFWMD classifies sources into three categories: aquifers, streams and lakes.³²² The use categories established by the district include all those listed by the South Florida District except the public supply use. SEFWMD rules refer to irrigation use where South Florida calls this agricultural use. Additional use categories included by SWFWMD are: attractions, defined as application of water to golf courses, cemeteries, parks,

and public attractions; lawns, defined as application of water to lawns and shrubs; and perishable food processing.³²³

The SWFWMD rules allow imposition of restrictions on individual users rather than classes of users once a water shortage is declared.³²⁴ This type of restriction does not appear permissible under § 373.246, the statute governing water shortage declarations in districts which regulate consumptive water uses by permit. That statute, as discussed above, provides that restrictions be imposed on classes of users rather than individual users.³²⁵ The latter approach is appropriate only under water emergency declarations.³²⁶

Other provisions of the rules dealing with water shortages include notice to affected parties and to the general public. Notice of the declaration of a water shortage is published in a newspaper. Publication is daily for the first week of the shortage and then weekly until the shortage is over.³²⁷ Any permit holder whose permit is affected by the shortage will be notified by mail.³²⁸

In case of an emergency situation, the district may issue emergency orders which include, but are not limited to, such actions as apportioning, rotating, limiting or prohibiting the use of the water resources of the district.³²⁹

The Southwest Florida Water Management District has thus adopted rules governing declaration of water shortages

and water emergencies and classifying permits according to use. However, the District has not yet responded to the Water Resources Act's mandate to begin water shortage planning. This failure is most unfortunate in a District which frequently suffers from severe water problems.

St. Johns River Water Management District

The St. Johns River Water Management District has adopted rules governing declaration of water shortages which are essentially the same as those adopted by the South Florida Water Management District.³³⁰ The source classifications are identical: ground and surface water sources. The use categories include: emergency service, industrial, irrigation, lawns, livestock, mining, perishable goods processing, power, public supply and recreational uses. The provisions and restrictions the district may impose on a permit classification are also similar with two exceptions. One is that the public interest standard is not made a part of the determination of which class to restrict.³³¹ The other is that restrictions may be imposed on individual users during a water shortage rather than only during a water emergency.³³² This provision cites § 373.246 as the law being implemented as does the Southwest Florida District rule. Again, it should be noted that § 373.246 does not provide for restrictions on individuals and, accordingly, the rule should be changed to conform with the statute.

Notice procedures require daily publication for the first week of the shortage with weekly notice thereafter until the shortage ends.³³³ Notice by mail to each affected permittee is also required.³³⁴ The St. Johns District has the same provision for water emergencies as the Southwest Florida Water Management District except that the St. Johns District requires immediate compliance with emergency orders by affected parties and provides for subsequent challenge as does South Florida.³³⁵

The St. Johns District has also apparently failed to adhere to the statutory mandate for water shortage planning. Although its water problems may not be so severe as those of the Southwest District, the St. Johns District should also undertake a planning program as soon as possible.

(iii). Review of Water Shortage Plans

At the present time, there is no formal administrative review process for examining the actions of a water management district. The Governor and Cabinet, sitting as the Land and Water Adjudicatory Commission, have the power to review and rescind or modify district rules to insure compliance with the provisions and purposes of the Water Resources Act,³³⁶ but have not yet exercised this oversight capacity.

Because of the Land and Water Adjudicatory Commission's exclusive jurisdiction for review, the Department of Environmental Regulation (DER) has no power

comparable to that of the federal Environmental Protection Agency which can review state plans in many environmental permitting programs and take over the planning process if the state fails to perform satisfactorily.³³⁷ However, the Secretary of DER is granted standing to request a review of water management district rules.³³⁸ Thus, DER could take the lead in forcing an examination of water management district policies. In the case of water shortage planning, such a review should be initiated promptly.

The Florida Legislature is beginning to consider amendments to the Water Resources Act which could have an effect on water shortage planning. The House Natural Resources Committee has drafted a bill to create a State Water Resources Board which will have, among its purposes, the responsibility for setting state policy and for reviewing rules of the five districts.³³⁹ This Board could potentially alleviate some of the problems existing with water shortage planning. However, the proposed make up of the Board includes the five water management district chairman as members. Therefore it does not seem likely that the chairman collectively would do what their boards individually had failed to do.

(iv). Conclusion

Development of a water shortage plan provides a mechanism for orderly adjustment of uses in periods of water shortage, thus mitigating the long term costs of serious droughts through the foresight of careful planning.

Development of geographically specific water shortage plans, as South Florida has done, does not appear to be the intent of the Model Water Code or the Water Resources Act. A district-wide plan which details the basis for making a water shortage determination, establishes the priority system to be applied among different classes of users, and indicated how restrictions on uses will be imposed should be sufficient to meet the requirements of the statute. However, plans for specific geographic regions may be appropriate where water shortages affect only parts of a district or where uses vary from one region to another. For example, if shortages occur most frequently in urban areas of a district and curtailment of agricultural use would have no effect on the availability of urban water, separate plans might be adopted for urban and rural areas.

The importance of planning has been stressed in this chapter because it is the strong conviction of the authors that crisis anticipation leads to wiser decision-making than does crisis reaction.³⁴⁰ Furthermore, the whole purpose of regulating water uses is undercut if there is no planning for use. Planning, and implementation of planning, will help create a system of water rights in Florida with some security as to the future availability of water. Lack of planning places an unjustifiable burden on the water users who have no idea when a crisis may occur or what their required contribution to the solution will be.

The water management districts of Florida should tackle the problems of water shortage planning before a severe water shortage results in the sort ill-considered action the Florida Water Resources Act was intended to avoid.

4. Permits for the Management and Storage of Surface Water

Part IV of the Florida Water Resources Act of 1972 provides for the management and storage of surface waters within the state.³⁴¹ Regulation is achieved through a permit system which applies to the construction or alteration of dams, impoundments, reservoirs and any appurtenant works.³⁴² These will be collectively referred to in the discussion below as surface water "works".

Although Part IV of the Act contains provisions essentially identical to those recommended in Chapter 4 of the Model Water Code, the legislation contains an exemption from the permit requirements for "closed systems".³⁴³ Such systems are regulated by Part II of the Act, which provides for the consumptive uses of water.³⁴⁴ Persons engaged in "the occupation of agriculture, floriculture, or horticulture" may alter the "topography of any tract of land for purposes consistent with the practice of such occupation" without being affected by Part IV as well.³⁴⁵ However, such alterations may not be for "the sole or predominant purpose of impounding or obstructing surface waters."³⁴⁶

The governing boards of the water management districts may impose reasonable conditions on permits which are necessary to assure the surface water "works" are not harmful to the water resources of the state.³⁴⁷ In addition, the owner of any surface water "work" may be required to install a headgate or valve to measure the amount of water diverged or discharged.³⁴⁸ If an owner is directed to so install a headgate or valve and fails to do so within 60 days, the governing board or the DER may force installation, with the costs of installation constituting a lien against the owner's land until paid by him.

Permits are of two types: (1) those for construction or alteration of surface water "works"; and (2) those for maintenance or operation of surface water "works". Both categories of activity are considered legitimate targets of regulation due to their propensity for substantial harm to Florida's water resources. Permits for maintenance or operation of surface water "works" are permanent and transferrable to new owners upon 30 days notice being given to the appropriate water management district.³⁴⁹ The only instances where permits are not permanent is where there is an abandonment, revocation or modification of a permit.³⁵⁰

During the construction or alteration stage, the governing board or the DER is required to make periodic inspections as are deemed necessary to insure conformity

with the approved plans and specifications included in the permit application.³⁵¹ Noncompliance results in a compliance order, which if ignored results in permit revocation proceedings being initiated.³⁵² After construction or alteration is complete, annual or more frequent inspections are required.³⁵³

If the owner of a surface water "work" desires to abandon or remove the structure, he may be required to obtain a permit to do so and to meet any reasonable conditions which are attached to the abandonment permit in order to further the objectives of the issuing water management district.³⁵⁴ Any surface water "work" which is not used or maintained by the owner for a period of at least three years will be presumed to have been abandoned and dedicated to the district. Title to the structure will be established in the district's name by a court proceeding.

If a surface water "work" becomes a danger to the public health and safety or its operation becomes inconsistent with district objectives, revocation or modification of the permit may result after the owner is afforded a public hearing.³⁵⁵ Remedial measures, similar in procedure to the installation order for headgates and valves, may be taken subsequent to inspections. Compliance with ordered alterations or repairs may be enforced in similar fashion as well.³⁵⁶ Remedial measures of any kind may be employed in emergency situations.³⁵⁷ Typical examples include the lowering of the water level

or completely draining a reservoir where necessary to preserve life or protect property.³⁵⁸

Surface water management regulations have been adopted by three of the state's five water management districts: the SFWMD, SWFWMD and SJRWMD.³⁵⁹ None of these regulatory programs, however, are as comprehensive and protective as the Act authorizes. The DER has developed no regulations in regard to surface water management, and this applies to the remaining two water management districts as well. The most comprehensive programs developed thus far is that employed by the SFWMD.

(a). South Florida Water Management District

In SFWMD's public document which explains its permitting activities it is stated:

Generally, all construction, alteration or operation of dams, impoundments, reservoirs, appurtenant works or works as defined in the Act require a permit from the district. Closed systems and some projects in coastal areas may be exempt, however. To satisfy the permit requirement an applicant must either receive an individual permit or qualify for a general permit. . . both individual and general permits are subject to revocation, suspension, or modification³⁶⁰

General permits are usually limited to small projects, special projects and highway projects.³⁶¹ "Small projects" are generally defined as those surface water management projects with less than 10 acres total land area, less than two acres of impervious land area, less than or equivalent to a 24 inch pipe discharge facility and on land classified as upland.³⁶² In addition, local subdivision regulations must be in effect in the area, thereby

assuring a degree of environmental safeguarding.³⁶³ A specific requirement for a general permit is that the permittee must act in such a manner as to minimize any degradation of water quality and safeguard against adverse impacts on fish, wildlife and the natural environment.³⁶⁴ Different threshold size requirements have been developed for particular areas of the district, specifically Dade and Palm Beach Counties.³⁶⁵ The applicant for a general permit must notify the district 30 days prior to construction and supply adequate information by which the district may determine if the project qualifies for a general permit.³⁶⁶

In this area, the district has essentially delegated its permitting authority to both Dade and Palm Beach Counties. The district has said that district permits will automatically be granted in these two counties if the projects: (1) are not located in environmentally sensitive areas; (2) are not located in areas in which the general permit rules are not applicable; (3) meet certain minimum acreage requirements; and (4) have been approved by the proper county agency.³⁶⁷ Whether this delegation is permissible under the Act or is subject to challenge as unconstitutional is open to some question. The Florida Water Resources Act allows water management districts to delineate areas where permits may be required and to establish minimum size limitations below which permits may be issued without a public hearing.³⁶⁸ The SFWMD interpretation of this provision has resulted in a set

of regulations which delineates three separate areas, Dade County, Palm Beach County and the rest of the district, and which then establishes different minimum size limitations for each area for a project to receive a permit without a public hearing.

This apparent delegation could lead to constitutional challenges to the district's actions. One constitutional issue that might be raised is whether the difference in minimum size limitations creates an equal protection problem. The district must be able to show a rational basis for the different minimums in order to prevail on this issue.

A second challenge could be based on an unconstitutional delegation of powers. Delegation by the legislature to an administrative agency is permissible but subsequent subdelegation by the agency is not allowed unless specifically authorized by statute.³⁶⁹ However, if the regulation which requires approval by the appropriate county agency, may simply be a condition on the permit rather than a delegation of district powers to another agency, and the issue then would be whether that approval is a "reasonable condition" under the Act.³⁷⁰

General permits for public highway projects are available for federal, state, county and municipal governments, but not for special districts.³⁷¹ However, an individual permit is required if any public highway project (1) uses district project works; (2) involves major freshwater bodies

including inland navigable waters, their primary tributaries and adjacent freshwater wetlands, and lakes larger than five acres; (3) is in an environmentally sensitive area; (4) uses a borrow pit for dewatering or for drainage; (5) does not require a DER permit; (6) drains lands outside the governmental unit's jurisdiction; (7) will lower the dry season water table outside the project's drainage area; or (8) will interfere with natural drainage patterns.³⁷²

Projects with more than two acres of impervious land area are generally required to be initiated under an individual permit. If local criteria control if they are more restrictive than the district's rules.³⁷³ The basic objectives of the district are to insure that the applicant's system is not harmful to the water resources of the district and is consistent with the public interest. This means that "the system should function consistently with the environment" through maintenance of satisfactory water quality, flood drainage protection and water conservation.³⁷⁴

The district acknowledges that problem prevention is not always feasible and requires that the permittee designate someone to be responsible for the system.³⁷⁵ The district is concerned about sources of pollution and methods for minimizing activities which presumptively aggravate environmental conditions. Provisions for water quality improvement are now important factors considered by the district in reviewing surface water "works" permits.³⁷⁶ Applicants are urged to meet with other interested agencies,

organizations and citizens prior to submitting a formula permit application.

The SFWMD has apparently integrated a number of environmental safeguards into its permitting process, thereby conforming with the stated purposes of the Act.³⁷⁷ The district also requires the permit applicant to supply most of the technical data required for permit decision-making, thus reducing the burden on its own staff.

(b). Southwest Florida Water Management District

The SFWMD's rules and regulations in regard to the storage and management of surface water are similar to those in the Act,³⁷⁸ although additional clarification of policy is provided. However, the district seems reluctant to go beyond those regulations until a District Plan is completed.³⁷⁹

Permits are required to construct, alter, abandon or remove any surface water "work" which impound water on or divert water from an area of land exceeding 40 acres.³⁸⁰ Permits are also required to operate or maintain any "work" which engages in the same activities when the land area involved exceeds 160 acres.³⁸¹ The threshold falls to 40 acres again if the "work" has a headgate or valve or is located on a stream or watercourse.³⁸²

Permits will be denied if the activity will lower rates of flow of any watercourse or stream; lower the level of any surface water; or lower the water table below the minimum standards set by the governing board of the district.³⁸³ In addition, streams and watercourses

may not have their flows altered by more than 10% at the time and point of withdrawal (except for dams). Lakes and impoundments may not have their levels lowered more than one foot, and the water table may not be lowered by more than three feet where the land is not owned, leased or otherwise controlled by the applicant.³⁸⁴ The governing board may grant exceptions where all data, including economic data, shows the activity to be consistent with the public interest.³⁸⁵ Conditions may be placed on any permit.³⁸⁶

(c). St. Johns River Water Management District

The SJRWMD only regulates surface water works in the areas transferred to it by the SFWMD in January of 1977.³⁸⁷ These areas are regulated in substantial conformity to the rules and regulations discussed above in regard to the SEFWMD.³⁸⁸

C. The Vested Rights Problem

If common-law allocation rules have created "vested rights" on behalf of property owners, the abrogation of these rules by legislation such as the Florida Water Resources Act may cause constitutional problems. Although a number of eastern states have modified the common-law system of water rights, so far there have been no direct challenges to the constitutionality of these statutory permit systems.³⁸⁹ However, with the exception of Florida and Iowa, these regulatory schemes are not very comprehensive or restrictive. Thus, the remarkable

absence of litigation on this issue does not mean that constitutional challenges may not be brought in the future.

1. The Taking Issue

The solution to the vested rights problem requires an inquiry into the nature of the state's police power upon which water rights legislation, like other regulations, is ultimately based. The state may regulate private property through the exercise of its police power, but these restrictions must bear a rational relation to the safety, health, morals or general welfare of the community. In addition, the exercise of the police power must be reasonable and not arbitrary or oppressive.³⁹⁰ Otherwise, the regulation is regarded as a taking of property without due process of law. American courts generally follow one of two approaches: the "diminution in value" test and the "residual beneficial use" test.³⁹¹ To a large extent, the difference between the two approaches is a matter of judicial perception; one court might view the glass as being half-empty, another, half-full. Under the "diminution in value" approach, the court looks to the potential value of property and measures the loss incurred as a result of regulation. Adoption of this approach usually indicates a restrictive judicial attitude toward land use control and will often result in a determination that a taking has occurred.³⁹² When the diminution in value "reaches a certain magnitude, in most

if not all cases there must be an exercise of eminent domain and compensation to sustain the act."³⁹³ No clear standard exists, however, for determining how great the diminution must be. Indeed, courts adopting the diminution test have upheld regulations resulting in extensive losses without requiring public compensation.³⁹⁴

Other jurisdictions, including Florida, emphasize the beneficial uses remaining to a landowner under a given regulation. If some beneficial use to which the property may be reasonably adapted exists, these courts normally will reject a taking claim.³⁹⁵ In recent years, the "residual beneficial use" approach has tended to expand considerably the permissible scope of land use regulation. This tendency is especially pronounced if disputed regulations have been imposed for purposes of flood control and environmental protection.³⁹⁶ Indeed, a number of flood plain zoning cases have allowed complete prohibition of development without requiring the state to compensate the affected landowner. Emphasizing the magnitude of public harm prevented by these restrictions, courts have regarded beneficial uses such as agriculture or recreation sufficient to avoid a compensable taking.³⁹⁷

Another approach is the "public rights" test which combines an expanded notion of public rights with a presumption that the needs of the public outweigh any burden imposed on an individual landowner.³⁹⁸ The leading case is Just V. Marinette County,³⁹⁹ which upheld restrictions

on dredge and fill operations in wetland areas contiguous to navigable waters. The court distinguished between restrictions designed to prevent harm to the public and those intended to secure a benefit not presently enjoyed by the public: Compensation would not be required in the former instance, though it might be in the latter. In Just, the court concluded that the wetlands protection regulations merely prevented a harm and, therefore, did not constitute a taking of property even though the value of the plaintiff's land for development purposes was substantially reduced.

2. The Taking Issue in Florida

The prohibition against an uncompensated taking by the state arises not only from the fifth amendment, but in Florida, from Article X, Section 6(a) of the 1968 Constitution as well.⁴⁰⁰ The older Florida cases employed an invasion theory and required "a trespass upon or a physical invasion of the abutting property" to constitute a taking.⁴⁰¹ More recent Florida cases emphasize the beneficial uses remaining to a landowner under a given regulation.⁴⁰² The test for determining how much value must be lost to the landowner before police power limits are exceeded has been stated as follows in Forde v. City of Miami Beach:

Property owners must show that the application of the zoning ordinance has the effect of completely depriving them of the beneficial use of their property by precluding all uses or the only use to which it is reasonably adapted, or that the ordinance has invaded their personal or property right unnecessarily or unreasonably in violation of the Federal or Florida Constitution.⁴⁰³

In that case, the court determined that the subject property was unfit for the purpose to which it was restricted (single family dwellings), and that to continue the restriction would be to exceed the police power limitation and result in a taking without compensation.⁴⁰⁴

In Moviematic Industries Corporation v. Board of County Commissioners of Metropolitan Dade County,⁴⁰⁵ the plaintiff corporation argued that a county resolution which rezoned an area over the Biscayne Bay Aquifer from heavy industry to single family had no reasonable relation to health, safety, or welfare, and was thus an unreasonable restriction of its beneficial use and amounted to a taking. Both the trial court and the Third District Court of Appeals rejected that argument in finding that preservation of an adequate drinking water supply and ecological system are clearly within public health objectives and, in fact, long overdue. The court declared that the public interest must prevail when it becomes necessary to balance private and public interests.⁴⁰⁶ Because alternate development was available and plaintiff had not tried to develop the area prior to the rezoning, the court could find no taking.⁴⁰⁷

Another recent Florida decision, Askew v. Gables-by-the-Sea,⁴⁰⁸ arose from a resolution by the Board of Trustees of the Internal Improvement Trust Fund prohibiting dredging pursuant to a preexisting permit unless dredging operations had already begun. One developer, Gables-by-

the-Sea, had 220 days remaining on its permit, but was denied permission to dredge because operations were not begun prior to the adoption of the resolution. In finding for the developer, the Court held that the corporation had been denied the right to use its bottomland in the only way it could be of any value, and ordered the State to pay the corporation for the right to prohibit dredge and fill activities.⁴⁰⁹ The First District Court's finding that a taking had occurred under these facts is not a move away from recognition of the State's great interest in sovereignty lands below navigable waters. Rather, the holding was a reasonable one because of the injustice that would have resulted if the developer had been denied the right to develop the submerged lands he had recently purchased from the State.

Another recent holding is Estuary Properties, Inc. v. Askew.⁴¹⁰ In that case, the property owner sought zoning to develop approximately 6,500 acres in Lee County. The proposed development would have destroyed about 1,800 acres of black mangroves. The developer concurrently filled an application with the Southwest Florida Regional Planning Council and Lee County for developmental approval. The Council expressed concern about destruction of the black mangroves, and recommended that the application be denied. After a series of public hearings, Lee County denied both the proposed rezoning request and the application for development approval.⁴¹¹

The property owner appealed the development order to the Land and Water Adjudicatory Commission which is comprised of the Governor and Cabinet. The case was assigned to a hearing officer who conducted a de novo review. The hearing officer concluded that the proposed development would have an adverse impact on the ecology and economy of the area and recommended denial of the appeal. The Land and Water Adjudicatory Commission agreed. On appeal, however, the district court held that the restriction of development rights upon alleged environmentally sensitive land constituted a "taking" of real property without just compensation in violation of the Florida Constitution. According to the court:

This principle is universally accepted in more traditional contexts of governmental taking and is, in fact, the essence of constitutional property rights. The true constitutional issue in this case is whether there has been a taking of Petitioner's property rights, not whether the public benefits of preserving mangrove wetlands outweigh the private injury to Petitioner. The Adjudicatory Commission has failed to indicate any meaningful changes in the proposed development that would enable Petitioner to make an economically beneficial use of its land and, in fact, observed that " . . . once the hearing officer decided against the construction of the interceptor waterway and the mangroves, there were no changes possible within the record, to make the development eligible for approval." 412

Thus, the landowner was entitled to proceed with his proposed development unless the government was prepared to compensate him for the taking of his property.

3. Cases from the Western States

Although there are no cases from eastern jurisdictions on the constitutionality of restricting the exercise

of common-law water rights, decisions from the western states provide some guidance. Most of these cases, which involve the validity of replacing riparian rights with prior appropriation, arose in states where riparian rights had been recognized before the prior appropriation system was adopted. In addition, some of the most recent cases involve the replacement of common-law ground water doctrines with statutory permit systems based on prior appropriation principles.

Lux v. Haggin,⁴¹³ a California decision, was one of the first cases to consider the status of riparian rights in a prior appropriation jurisdiction. In the Lux case the court held that the riparian doctrine had become part of California law as a result of the state's adoption of the common-law when it was admitted to the Union and declared that the riparian owner was entitled to the full natural flow of the watercourse. The court also declared that this right attached to the land and was not created by use nor lost by nonuse. Finally, the court held that the legislature could not authorize appropriations which interfered with these rights unless the riparian owners were compensated.⁴¹⁴

Nevertheless, many western states have abrogated unexercised common-law water rights without compensation. For example, Kansas did so in 1945 when it enacted a comprehensive prior appropriation statute. Litigation arose over this statute when the state's chief engineer granted

a permit which allowed an irrigation district to divert water for use on nonriparian land in such a manner as to diminish substantially the flow available to downstream riparians. The riparian owners argued that the Act was unconstitutional interference with vested property rights. However, the Kansas Court upheld the statute in State ex rel. Emery v. Knapp,⁴¹⁵ concluding that the legislature had the power to modify or reject the doctrine of riparian rights if it was unsuited to conditions in the state and adopt the doctrine of prior appropriation. Moreover, it held that a landowner had no vested right in underground waters underlying his land which he has not appropriated and applied to beneficial use.⁴¹⁶

Litigation also arose in the West when a number of states abolished the traditional ground water doctrines in favor of a statutory allocation system based on prior appropriation.

For example, South Dakota's statute was challenged in Knight v. Grimes.⁴¹⁷ The plaintiff had only irrigated a small part of land with ground water prior to the effective date of the statute. When he sought to increase his water use he was required to obtain a permit to appropriate additional water. Under the permit his right to the additional water would have been subordinate to existing users. The plaintiff instead brought suit, contending that he had a vested right to the underlying ground water. The court upheld the appropriation statute, observing that since common

law water rights were not property in the constitutional sense, water use doctrines could be modified or rejected entirely without constituting a taking of property. In addition, the court declared that even if water rights were regarded as vested property interests, they were still subject to regulation under the police power if required by the general welfare.⁴¹⁸

A similar controversy occurred in North Dakota where a 1955 Act made ground water available for appropriation. In Vokmann v. City of Crosby,⁴¹⁹ the court declared that presently exercised uses of precolating ground water were vested in the overlying landowner and held that the plaintiff's vested water rights were superior to those of one who made a subsequent appropriation under the 1955 Act. Nevertheless, the same court in Baeth v. Hoisvenn⁴²⁰ held that unused rights to ground water were not protected from appropriation pursuant to the Act, and that the state in the exercise of its police power make unused ground water available to appropriators without impairing the property rights of surface owners.

The taking issue also arose in Idaho in Baker v. Ore-Ida Foods, Inc.,⁴²¹ where a senior appropriator sued to prevent a junior appropriator from withdrawing ground water in excess of the annual recharge rate. Idaho's ground water appropriation statute prohibited such "mining" of the resource. In response, the junior appropriator argued that the court should apply the common law correlative

rights rule, under which each overlying landowner is entitled to a pro-rata share. The court, however, rejected this argument even though it conceded that the correlative rights doctrine might have applied at one time in Idaho. In the court's words "[t]he doctrine of correlative rights is repugnant to our constitutionally mandated prior appropriation doctrine."⁴²² In effect, the court held that any allocation rights a landowner formerly possessed under the correlative rights doctrine had been validly abrogated by passage of the appropriation statute.

These and other western cases support the following principles: First, conservation of the state's water resources is an appropriate area of legislative concern.⁴²³ Second, common law doctrines of judicial origin are not inflexible, but may be modified within limits, as warranted by changing economic and social conditions. This applies to both surface water⁴²⁴ and ground water⁴²⁵ doctrines. Third, in the interests of promoting the efficient use of the state's water resources, the legislature may extinguish riparian rights which are not being exercised.⁴²⁶ Unused common law rights to ground water can likewise be terminated without compensation.⁴²⁷ Fourth, although common law rights may be terminated, presently exercised water uses are "vested rights" which cannot be completely destroyed by the legislature without compensation.⁴²⁸

4. Vested Rights and the Florida Water Resources Act

Although the constitutionality of the Florida Water Resources Act has not been directly challenged, the Florida Supreme Court's recent decision in Village of Tequesta v. Jupiter Inlet Corporation⁴²⁹ indicates that the state can extinguish unexercised common-law water rights without compensation. The case arose when the Jupiter Inlet Corporation brought an inverse condemnation action against the City of Tequesta for depriving it of the beneficial use of its property rights in the shallow-water aquifer beneath its land. The city, under the terms of a permit issued by the South Florida Water Management District, was pumping more than a million gallons a day from the aquifer to supply its residents with water. Jupiter, which owned property near one of Tequesta's well fields, planned to build a condominium project on its land. However, Jupiter was not allowed to withdraw water from the aquifer because Tequesta's withdrawals had created a salt-water intrusion problem. Instead, the only means by which Jupiter could supply water to its property was to drill a well to the Floridan aquifer, located 1200 below the surface, at a substantially greater cost. The trial court held in favor of Tequesta, but the immediate appellate court reversed and certified the question to the Florida Supreme Court.⁴³⁰

According to the Court, Florida recognized the reasonable use rule with respect to percolating ground water,

but had never considered the meaning of "ownership" as applied to such waters. However, the Court agreed with the rule in other jurisdictions that the right of the owner to ground water underlying his land was a usufructory one and did not include a proprietary interest in the corpus of the water itself.⁴³¹

Moreover, Jupiter had not acquired any rights under the Florida Water Resources Act. This conclusion rested on the Statute's distinction between exercised and unexercised common-law water rights. Landowners who were withdrawing water on the effective date of the Act were required to convert their common-law water rights into permit water rights in accordance with the procedures of section 373-226(3). Otherwise the right was abandoned and extinguished, requiring a new application for a permit. On the other hand, as the Court observed, "The Florida Water Resources Act makes no provision for the continuation of an unexercised common-law right to use water." In the Court's words, "Jupiter had perfected no legal interest to the use of the water beneath its land which would support an action in inverse condemnation."⁴³² Not only had Jupiter lost its unperfected rights under the common-law allocation rules, it could no longer acquire any right to withdraw water except by obtaining a permit from the Water Management District.

Tequesta was not required to compensate the plaintiff since its activities did not constitute a physical invasion

of Jupiter's property nor did they destroy the plaintiff's right to the use of his land. The additional costs Jupiter incurred because it was forced to drill a deep well were characterized as "consequential" and, therefore, noncompensable.

To the extent that it upholds the right of the state to abrogate unexercised common-law water rights the Tequesta case is consistent with the decisions, discussed earlier, from western jurisdictions. A more difficult question is whether the state can limit the rights of permit holders who were withdrawing water at the time the Florida Water Resources Act became law. Although the Court in Tequesta did not address itself to this issue specifically, it did suggest that some regulation of water users was permissible:⁴³³

Legislation limiting the right to the use of the water is in itself no more objectionable than legislation forbidding the use of property for certain purposes by zoning regulations.

In addition, the Court acknowledged that the state could substitute one form of water rights form another when it characterized the procedure under section 373.226(3) as a "transitional procedure." In effect, that is what happened in many western states when they replaced their common law ground water rules with a prior appropriation system. Existing ground water uses were quantified and converted into appropriative rights.

However, while common law rights were exchanged for permanent appropriative rights in the West, the owner of such rights in Florida merely obtains a permit right of limited duration. Arguably, the loss that he has suffered on the transaction may represent a taking of property without due process.

If an existing water use was terminated by denial or nonrenewal of a water use permit, the validity of the agency's action in that particular case would probably depend on the court's choice of a taking test. Even under the public rights test of Just v. Marinette County, discussed earlier, presently exercised water rights would probably be entitled to protection. If the court applied the more conventional diminution-in-value test, it would have to determine the extent of actual harm that a landowner suffers when common law water rights are restricted or completely abrogated. Since common-law water rights in Florida are not transferable, the value of a water right must be measured primarily in relation to a particular tract of land. Thus, if a water right was completely destroyed, we would look at the diminution-in-value not of the water right itself, but the land to which it is appurtenant. For example, in an area where irrigation is necessary, loss of a common law water right might virtually destroy the value of a farm. If the farm was not suitable for some other productive use, the diminution in value as a result of the regulation would

probably be sufficient to constitute a taking. In cases where the regulatory agency forced a permit holder to obtain his water from a more distant source of supply, the courts might also treat the capitalized cost of obtaining water from this new source as a diminution-in-value. No doubt in some instances this sum would be large enough to require compensation.

1. E.g. Iowa Code Ann. § 455A.21 (1971); K.R.S. § 151.170 (1978).
2. E.g. KRS § 151.170(1) (1978); Md. Ann. Code § 8-807(b) (1974).
3. See Maloney, Capehart & Hocfman, Florida's "Reasonable Beneficial" Water Use Standard: Have East and West Met?, 31 U. Fla. L. Rev. 253 (1979).
4. Ausness, Water Use Permits in a Riparian State: Problems and Proposals, 66 Ky. L.J. 191, 234-5 (1977).
5. Burns Ind. Stat. Ann., tit. 13-2-2 (1973); N.J. Stat. Ann. § 58: 1-36 (1966); N.C. Gen. Stat. § 143-215.13 (1978); S.C. Code § 49-5-40 (1977).
6. Burns Ind. Stat. Ann., tit. 13-2-2-5 (1973); Md. Ann. Code § 8-802(b) (1974); K.R.S. § 151.140 (1978).
7. Ausness, supra note 4, at 229-232.
8. City of Pasadena v. City of Alhambra, 207 P.2d 17 (Cal. 1949); Bailey v. Idaho Irr. Co., 227 P. 1055 (Idaho 1924).
9. Iowa Code Ann. § 455A.28 (3) (1971); K.R.S. § 151.200 (1)

10. Maloney & Ausness, Administering State Water Resources: The Need for Long-Range Planning, 73 W.Va. L. Rev. 209, 213 (1971).
11. Iowa Code Ann. § 455A.22 (1971); N.J. Stat. Ann. § § 58: 1-35, 1-40 (1966); Wash. Rev. Code § 90.22.010 (1976).
12. Ausness, *supra* note 4, at 240.
13. See generally Johnson, An Optional State Water Law: Fixed Water Rights and Flexible Market Prices, 57 Va. L. Rev. 345 (1971).
14. Iowa Code Ann. § 455A.25 (1971); Fla. Stat. § 373.236 (1977).
15. Ausness, *supra* note 4, at 257-8.
16. Trelease, The Model Water Code, the Wise Administrator, and the Goddam Bureaucrat, 14 Nat. Res. J. 207, 211-17 (1974).
17. Ausness, *supra* note 4, at 258-60.
18. National Water Commission, Water Policies for the Future 286-7 (1973).

19. Ausness, *supra* note 4, at 236.
20. Model Water Use Act (1958).
21. Id. at Sec. 407(d).
22. Hawaii Rev. Stat. Ch. 177 (1976).
23. Iowa Code Ann. § 455A.21 (1971).
24. Iowa Code Ann. § 455A.25 (1971).
25. Iowa Code Ann. § 455A.28(3) (1971).
26. Iowa Code Ann. § 455A.1 (1971).
27. Ga. Code Ann. § 17-510.1 (1978 Supp.)
28. Ga. Code Ann. § 17-510.1(5) (1978 Supp.)
29. Ga. Code Ann. Sec. 17-510-1(1) (1978 Supp.)
30. Bomar, Water Law in Georgia, in *Legal and Administrative Systems for Water Allocation and Management* 104, 106 (W. Cox, ed. 1978).

31. Ga. Code Ann. § 17-1101 to 1115 (1978 Supp.).
32. Ga. Code Ann. § 17-1106 (1978 Supp.).
33. Ga. Code Ann. § 17-1113 (1978 Supp.).
34. Ga. Code Ann. § 17-1107 (1978 Supp.).
35. See generally Ausness, Water Use in a Riparian State:
Problems and Proposals, 66 Ky. L.J. 191, 224-232 (1977).
36. KRS § 151.200(1) (1978).
37. KRS § 151.170 (1978).
38. KRS § 151.140 (1978).
39. Md. Ann. Code § 8-802(b) (1974).
40. Md. Ann. Code § 8-807(a) (1974).
41. Md. Ann. Code § 8-807(b) (1974).
42. Md. Ann. Code § 8-811 (1974).
43. Minn. Stat. Ann. § 105.39 (1977).

44. Minn. Stat. Ann. § 105.41 (1978 Supp.).
45. Minn. Stat. Ann. § 105.41 (1978 Supp.).
46. Minn. Stat. Ann. § 105.41 (1978 Supp.).
47. Champion, Prior Appropriation in Mississippi: A
Statutory Analysis, 39 Miss. L.J. 1 (1967).
48. Miss. Code Ann. § 51-3-5 (1973).
49. Miss. Code Ann. § 51-3-5 (1973).
50. Miss. Code Ann. § 51-3-7 (1978 Supp.).
51. Miss. Code Ann. § 51-4-1 to 19 (1978 Supp.).
52. Wis. Stat. Ann. § 30.18 (1973).
53. Wis. Stat. Ann. § 30.18(5) (1973).
54. Wis. Stat. Ann. § 107.05 (1979 Supp.).
55. Burns Ind. Stat. Ann., Tit. 13-2-2-5 (1973).
56. N.J. Stat. Ann. § 58:1-35B (1966).
57. N.J. Stat. Ann. § 58:1-36.

58. N.J. Stat. Ann. § 58:1-37.
59. N.J. Stat. Ann. § 58:4A-2 (Supp. 1979).
60. N.J. Stat. Ann. § 58:4A-4 (1966).
61. N.J. Stat. Ann. § 58:1-44 (1966).
62. N.C. Gen. Stat. § 143-215.13 (1978).
63. N.C. Gen. Stat. § 143-215.15 (1977).
64. N.C. Gen. Stat. § 143-215.16(e) (1977).
65. N.C. Gen. Stat. § 143-215.16(F) (1977).
66. N.C. Gen. Stat. § 143-215.16(a) (1977).
67. S.C. Code § 49-5-40 (1977).
68. S.C. Code § 49-5-60 (1977).
69. S.C. Code § 49-5-70 (1977).
70. Va. Code Ann. § 62.1-44.96 (1978 Supp.).
71. Va. Code Ann. § 62.1-44.100 (1978 Supp.).

72. Va. Code Ann. § 62.1-44.93 (1978 Supp.).
73. Va. Code Ann. § 62.1-44.87 (1978 Supp.).
74. E.g., Fla. Spec. Acts 1951, ch. 27428 (Trindall Hammock Irrigation and Soil Conservation Dist., Broward County).
75. Fla. Spec. Acts 1953, ch. 29505 (North Beach Water Dist., St. Lucie County); Fla. Laws Ext. Sess. 1925, ch. 11641 (Monroe Water Supply Dist., Monroe County).
76. Fla. Spec. Acts 1953 ch. 29301 (Florida Keys Aqueduct Dist., Monroe County).
77. Fla. Spec. Acts 1953, ch. 29425 (Long Key Sewer Dist., Pinellas County).
78. E.g., Fla. Spec. Acts 1925, ch. 11128 (Indian River Mosquito Control Dist., St. Lucie County).
79. Fla. Stat. ch. 298 (1955).
80. Fla. Laws 1949, ch. 25214.
81. The flood inundated about 3,500,000 acres of land in central and southern Florida causing approximately \$59,700,000 in damages. Florida Water Resources Study

Comm'n Florida's Water Resources, A Report to the
Governor of Florida and the 1957 Legislature (1956).

82. Fla. Laws 1961, ch. 61-691.
83. Fla. Spec. Acts 1953, ch. 29222, § 13; see also Fla. Spec. Acts 1957, ch. 57-1119.
84. E.g., Fla. Spec. Acts 1955, c. 30558 (authority given Board of County Commissioners of Alachua County to create sanitary districts within the county); Fla. Spec. Acts 1953, c. 29587 (Volusia County Sanitary Dist.); Fla. Spec. Acts 1953, c. 29503 (St. Lucie County Sanitary Dist., includes mosquito control); Fla. Spec. Acts 1953, 29425 (Long Key Sewer Dist., Pinellas County); Fla. Spec. Acts 1953, c. 29064 (various sanitary districts, Escambia County); Fla. Spec. Acts 1953, c. 29063 (Pen Haven Sanitary Dist., Escambia County). Authority has sometimes been given to such districts to provide additional services unrelated to water management functions, such as paving, playgrounds, fire and police protection. The districts are then referred to as improvement service districts. E.g., Fla. Spec. Acts 1955, c. 30927 (authorizing creation of Special Improvement Service Districts by Board of County Commissioners, upon petition, in unincorporated areas of Lee County).

85. Fla. Laws 1955, ch. 29748, § 2.
86. Fla. Laws 1957, ch. 57-380.
87. Id., ch. 57-380, § 8(1)(a).
88. Id., § 8(1)(b).
89. Fla. Laws 1963, ch. 63-336.
90. See Maloney, Plager & Baldwin, Water Law and Administration - The Florida Experience, § 62.2(b), (1st ed. 1968) for a discussion of the Water Resources Law.
91. Fla. Laws 1963, ch. 63-336, § 4-5.
92. Id., § 4.
93. Maloney, Ausness & Morris, A Model Water Code (1972).
94. Fla. Stat. 373 (1972).
95. Fla. Stat. § 373.026 (1977).
96. Fla. Laws 1972, ch. 72-299.

97. Fla. Laws 1975, ch. 75-22, § § 8, 11.
98. Fla. Stat. § 373.069 (1977). The legislature originally established six water management districts but the sixth, the Ridge and Lower Gulf Coast Water Management District, was later dissolved and the region divided between the South Florida WMD and the Southwest Florida WMD.
99. Fla. Stat. § 373.026(7) (1977).
100. Id., § 373.016(3).
101. Fla. Laws 1975, ch. 75-22.
102. Fla. Stat. § 373.016(3) (1977).
103. Id., § 373.026.
104. Id., § 373.026(7).
105. Id., § 373.069.
106. Fla. Laws 1976, ch. 76-243, § 4.
107. Id., § 373.073.
108. Id., § 373.079.

109. Fla. Stat. § 373.069 (1977).
110. Id., § 373.083.
111. Id., § 373.086(1).
112. Id., § 373.016(3); § 373.103.
113. Id., § 373.103.
114. Id., § 373.216.
115. Id., § 373.501.
116. Id., § 373.563.
117. Id., § 373.503(1).
118. Id., § 373.503.
119. Fla. Const. Art. VII, § 9(b).
120. Fla. Stat. § 373.503(3) (1977).

121. Id., § 373.503 (Northwest Florida Water Management District: 0.05 mill; St. Johns River Water Management District: 0.375 mill; Suwannee River Water Management District: 0.75 mill; South Florida Water Management District: 0.80 mill; Southwest Florida Water Management District: 1.0 mill.)
122. A Model Water Code, supre note 93, at 70-71 (1972).
123. Fla. Stat. § 373.039 (1979).
124. Fla. Stat. § 373.035(1) (1979).
125. Id.
126. Id. In performing its duty the Department of Environmental Regulation is specifically directed to cooperate with the Division of State Planning of the Department of Administration or its successor agency. Id. DSP was disbanded in 1978 and its planning functions transferred to the Office of the Governor.
127. Fla. Stat. § 373.036(2) (1979).
128. Fla. Stat. § 373.036(7) (1979).

129. Id. A related provision of the Act requires the establishment of minimum flows and levels of water to protect the water resources or ecology of the area. Fla. Stat. § 373.042 (1979).
130. Fla. Stat. § 373.036(8), (9) (1979).
131. Fla. Stat. § 373.036(1) (1979).
132. Fla. Stat. § 373.036(3) (1979).
133. Fla. Stat. § 373.036(4) (1979).
134. Governor's Resource Management Task Force, Committee Seven, Integrating Planning and Policy for Water Resources, Appendix C, p. 25, Final Staff Draft (Oct. 10, 1979).
135. At the time the Florida Water Resources Act of 1972 was passed, the Central and Southern Flood Control District and the Southwest Florida Water Management District were already operating and funded by property tax revenues. See, Maloney, Plager, and Baldwin, Water Law and Administration: The Florida Experience, § 101 (1968).

136. W. Storch, A Rouch Cut Model of a South Florida Water Supply Plan Vol 1, No. 9, (Central and So. Fla. Flood Control District, Dec.-Jan. 1973). See also, S. Winn, A Progress Report on the South Florida Water Use and Supply Development Plan Vol. 3, No. 3, (August, 1976).
137. Annual Report for the Years 26 (Central and So. Fla. Flood Control District, Oct. 1, 1974 - Sept. 30, 1976).
138. Fla. Laws, ch. 75-22.
139. Appendix C, supra note 134, at 26. One of several major pieces of environmental legislation enacted in the early 1970's in addition to the Florida Water Resources Act of 1972 was the Florida State Comprehensive Planning Act of 1972. Fla. Laws, ch. 72-295; codified at Fla. Stat. § § 23.011-.013 (1979). This Act required the Division of State Planning to prepare a state comprehensive plan designed to "provide long-range guidance for the orderly social, economic and physical growth of the state by setting forth goals, objectives and policies." Fla. Stat. § 23.0114 (1979).

In 1976, the Governor ordered the Division of State Planning to prepare the comprehensive plan as

a compilation of eighteen sections (sometimes termed "elements"), each of which focused on a particular area of concern such as agriculture, economic development, environmental resources, land development, utilities and water. Exec. Order No. 76-29; 6 Fla. Admin. Code 22E-3.02. When the plan was ultimately developed, however, it was submitted to the Legislature for approval and was summarily rejected. Fla. Stat. § 23.013(2) (1979).

140. Appendix C, supra note 134, at 25.

141. Id., at 27.

142. The water section, for example, proposed that it should be state policy:

"In substantially unaltered watersheds, maintain runoff/infiltration and other hydrologic relationships (soil profile, rate of soil erosion or improverishments, etc.) to achieve as nearly as practical the natural hydrologic conditions and to provide for a balance of urban, agricultural, and natural systems recognizing that natural productivity is optimized under unaltered conditions." The Florida State

- Comprehensive Plan, 174 (Feb. 9, 1978). This policy is exactly contrary to the popular and lucrative tradition in Florida of ditching, diking, draining and otherwise modifying natural hydrologic systems.
143. Appendix C, supra note 134, at 27.
144. Phase I, State Water Use Plan (December, 1978).
145. Appendix C, supra note 13, at 28.
146. Fla. Stat. § 373.026(7) (1979).
147. Fla. Stat. § 373.114 (1979). The director of the department administering Chapter 373 was originally vested with this power, but it was removed in 1975. Fla. Laws, ch. 75-22, s.11.
148. Final Report to Governor Bob Graham of the Resource Management Task Force, Volume I-Recommendations (January, 1980).
149. Id., 2, 9.
150. Id.

151. Id., 11-15
152. Id., 31, 33.
153. The proposed revision of Chapter 373 to which reference is made hereinafter is marked "1st Draft 2-27-80" and bears the numbers "195-164-2-0".
154. A Model Water Code, supra note 93, § § 1.05, 1.06.
155. Id., § 1.07.
156. Id., § 1.06(10).
157. Fla. Stat. § 373.026 (proposed).
158. Id.
159. Fla. Stat. § 373.0266(5) (proposed). Principles would "establish the specific objectives, the conceptual basis, and the planning framework necessary to implement the state water policies," as expressed in § 373.016 (proposed). Id. Standards would "provide detailed methods for uniformly and consistently comparing, measuring, and judging the beneficial and adverse effects of alternative courses of action designed to achieve the principles." Fla. Stat.

§ 373.0266(5)(b) (proposed).

160. Fla. Stat. § 373.0266(5) (proposed).

161. Fla. Stat. § 373.0266(6) (proposed).

162. Fla. Stat. § 373.083(8) (proposed).

163. Fla. Stat. § 373.0266(11) (proposed).

164. Fla. Stat. § 373.0266(7) (proposed). A related bill

would require approval by the Legislature of water management district budgets.

165. See, Florida Water Resources Study Commission, Florida's Water Resources, A Report to the Governor and the 1957 Legislature 14, 15 (1956).
166. Florida Laws 1957, ch. 57-380.
167. Id., § 2(3).
168. Id., § 8(2).
169. Id., § 11.
170. Id., § 4.
171. See note 93, supra.
172. See generally, Fla. Stat. ch. 373 (1979).
173. Most notably deleted from the new statute was any reference to the public trust doctrine. As incorporated in A Model Water Code, the doctrine would have given greater authority to the state to enter private land for purposes of monitoring and inspection.
174. Fla. Stat. § 373.016(3) (1978).

175. This delegation of authority is specifically provided for in Fla. Stat. § 373.216 (1979).
176. See 4 Fla. Admin. Code. ch. 16I-2.
177. On August 20, 1974, the Governor and Cabinet, as the official head of the Department of Natural Resources, passed a resolution which delegated to the three northern districts the authority to implement a consumptive use permit program on any future date that the governing boards of the districts decided to do so. Interview with James Stedham of the Northwest Florida Water Management District, Tallahassee, Florida (Jan. 16, 1978).
178. See e.g., Fla. Stat. §§ 373.085, .106, .313, .323, .416 (1979).
179. Fla. Stat. § 373.219 (1) (1979).
180. Id.
181. Fla. Stat. § 373.223 (1) (1979).
182. Fla. Stat. § 373.019 (5) (1979).

183. See, Maloney, Capehart & Hoofman, Florida's "Reasonable Beneficial" Use Standard: Have East and West Met?, 31 U. Fla. L. Rev. 253 (1979).
184. "All that the law requires of the party, by or over whose land a stream passes, is that he should use the water in a reasonable manner, and so as not to destroy or render useless, or materially diminish, or affect the application of the water by the proprietors below on the stream". 3 J. Kent, Commentaries, 354 (1st ed. 1828); see Marquis, Freeman & Heath, Jr., The Movement for New Water Rights Laws in the Tennessee Valley States, 23 Tenn. L. Rev. 797, 807 (1955) (citing 2 H. Farnham, Waters and Water Rights § 464 (1904); 4 Restatement of Torts, ch. 41, topic 3 at 341-42 (1939); 1A Thompson, Real Property § 260 (Grimes ed. 1964).
185. Tampa Waterworks Co. v. Cline, 37 Fla. 586, 20 So. 780 (1896).
186. Village of Tequesta v. Jupiter Inlet Corp., 349 So. 2d 216 (Fla. 1979). The Tequesta opinion contains a lengthy discussion of the evolution of Florida water law.

187. Tampa Waterworks Co. v. Cline, 37 Fla. 586, 20 So. 780 (1896).
188. Dimmock v. City of New London, 157 Conn. 9, 17, 245 A.2d 569, 574 (1968).
189. The final draft of the Restatement (Second) of Torts has been approved and made available early in 1979. Citations in the text refer to § 850A of the final draft.
190. See e.g., Harrell v. City of Conway, 224 Ark. 100, 102, 271 S.W.2d 924, 925 (1954); Clark v. Lindsay Flight and Chem. Co., 405 Ill. 139, 141, 89 N.E.2 900, 902 (1950); Poire v. Serra, 99 N.H. 154, 155, 106 A.2d 391, 392 (1954); Chain O'Lakes Protective Ass'n v. Moses, 53 Wis.2d 579, 581, 193 N.W.2d 708, 710 (1972).
191. 1 W. Hutchins, Water Rights Laws in the Nineteen Western States 9 (1971)
192. N.M. Const. art. 16, § 3.
193. Ariz. Rev. Stat. Ann. § 45-101(B) (1956); Nev. Rev. Stat. § 533.035 (1973); N.D. Cent. Code. § 61-04-01.2 (1977); Okla. Stat. Ann. § 105.2(a) (1972); S.D. Compiled Laws An

§ 46-1-8 (1967); Utah Code Ann. § 73-1-3 (1953); Wyo. Stat. § 41-2 (1957).

194. E.g., In re Water Rights of Escalante Valley Drainage Area, 10 Utah 2d 77, 82, 348 P.2d 679, 684 (1960).
195. E.g., State Water Resources Control Bd. v. Forni, 126 Cal. Rptr. 851, 54 Cal. App. 3d 743 (1976).
196. E.g., Allen v. Petrick, 69 Mont. 373, 222 P. 451 (1924).
197. Professor Wiel noted in 1915 that there was a "tendency to resort to reasonableness in determining the allowances and restrictions surrounding 'beneficial use' [so that] the test between appropriators is becoming increasingly like the test at common law between riparian owners; namely 'reasonable use'." Wiel, What is Beneficial Use of Water?, 3 Cal. L. Rev. 460, 474 (1915).
198. See, e.g., Wayman v. Murray City Corp., 23 Utah 2d 97, 458 P.2d 861 (1969).
199. E.g., S.D. Comp. Laws Ann. § 46-1-4 (1967) ("such right does not and shall not extend to waste. . .").
200. Schodde v. Twin Falls Land & Water Co., 224 U.S. 107 (1912); Erickson v. McLean, 62 N.M. 264, 308 P.2d 983

- (1957); Tudor v. Jaca, 178 Or. 126, 164 P.2d 680 (1945).
201. In re Water Rights of Escalante Valley Drainage Area, 10 Utah 2d 77, 348 P.2d 679 (1960); Tudor v. Jaca. 178 Or. 126, 104 P.2d 680 (1945); Erickson v. McLean, 62 N.M. 264, 308 P.2d 983 (1957).
202. Basey v. Gallagher, 87 U.S. (20 Wall.) 670 (1875); Wash. Rev. Code Ann. § 90.54.020(2) (1971).
203. In re Water Rights of Escalante Valley Drainage Area, 10 Utah 2d 77, 348 P.2d 679 (1960); Tudor v. Jaca, 178 Or. 126, 164 P.2d 680 (1945).
204. Basey v. Gallagher, 87 U.S. (20 Wall.) 670 (1875); Schodde v. Twin Falls Land & Water Co., 224 U.S. 107 (1912).
205. Wayman v. Murray City Corp., 23 Utah 2d 97, 458 P.2d 861 (1969); In re Water Rights of Escalante Drainage Area, 10 Utah 2d 77, 348 P.2d 679 (1960).
206. Erickson v. McLean, 62 N.M. 264, 308 P.2d 983 (1957); Worley v. United States Borax & Chemical Corp. 78 N.M. 112, 428 P.2d 651 (1967); In re Water Rights of Deschutes River & Tributaries, 134 Or. 623, 286 P.563 (1930); Fairfield Irrigation Co. v. Cooperative Security Corp., 18 Utah 2d 93, 416 P.2d 641 (1966).

207. Cal Const. art. 10, § 2; A Model Water Code, supra note 93, at 4. The term is also used sometimes in applying the western doctrine of correlative rights in ground water. See, Farmers Investment Co. v. Bettway, 113 Ariz. 520, 558 P.2d 14 (1976); Bristor v. Cheatham, 75 Ariz. 227, 255 P.2d 173 (1953); Undlin v. City of Surrey, 262 N.W.2d 742 (N.D. 1978).
208. The other is South Dakota, which has enacted a statutory provision identical to article 10, section 5 of the California constitution. S.D. Comp. Laws § 46-1-4(1967).
209. Cal. Const. art. 10, § 2 (formerly art. 14, § 3).
210. Gen S. Chow v. City of Santa Barbara, 217 Cal. 673, 22 P.2d 5 (1933).
211. Terlare Irrigation Dist. v. Lindsay - Strathmore Irrigation Dist., 3 Cal. 2d 489, 45 P.2d 972 (1935).
212. Id. at 547, 45 P.2d at 972.
213. Id. at 567, 45 P.2d at 1007.
214. Id.
215. Joslin v. Marin Nun. Water Dist., 67 Cal. 2d 132, 60 Cal. Rptr. 377, 429 P.2d 889 (1967).

216. Id. See also, State Water Resources Control Bd. v. Forni, 54 Cal. App. 3d 743, 126 Cal. Rptr. 851 (1st Dist. 1976) (the case of river water for frost protection of a vineyard was held unreasonable because of insufficient amount of water available to all users).
217. Gins S. Chow v. City of Santa Barbara, 217 Cal. 673, 22 P.2d 5 (1933).
218. F. Maloney, R. Ausness & J. Morris, A Model Water Code (1972). The legislative Committee which drafted the Florida Water Resources Act of 1972 adopted large parts verbatim or with minor changes.
219. Id. § 1.03(4).
220. Id. § 1.03; Commentary at 86-87.
221. Id.
222. Id. at 171.
223. Id.
224. Id. For example, drip irrigation might be the most economically efficient method for watering a crop.

Therefore, a permit could be issued for the needed amount of water even though another crop needing the same amount of water might bring a greater income. The decision on economic value would be left to the farmer so long as his method of use was economical.

225. Id. at 171-72.

226. See note, 183, supra, at 257-58, 263-65.

227. The "reasonable use" standard looks to the protection of existing values of land, investments and enterprises. In contrast, this factor is not examined in "beneficial use" jurisdictions because the very nature of prior appropriation law is such that these values are protected in perpetuity. In addition, the "reasonable use" factor of requiring the user causing the harm to bear the class, is not significantly examined under the "beneficial use" standard. Harm can only be caused to a right which has been invaded, and a person desiring to make an appropriation has no such right under western law unless unappropriated water is available.

228. Tulare Irrigation Dist. v. Lindsay- Strathmore Irrigation Dist., 3 Cal. 2d 489, 45 P.2d 972 (1935).

229. Model Water Code, supra note 218, at 171.

230. Note 183, supra, at 274
231. Fla. Stat. § 373.042 (1979).
232. See 6 Fla. Admin. Code ch. 16J-8.
233. Fla. Stat. § 373.042 (1) (1979).
234. Fla. Stat. § 373.042(2) (1979).
235. Interview with John Wehle, Southwest Florida Water Management District (Nov. 1979).
236. See California Trout, Inc. v. State Water Resources Control Bd., 90 Cal. App. 3d 816, 153 Cal. Rptr. 672 (1979), where a nonprofit corporation failed in a novel attempt to appropriate minimum stream flows in a California river.
237. Fla. Stat. § 373.036(8) (1979).
238. See note 218, supra.
239. A Model Water Code supra note 218, at 177.
240. Fla. Stat. § 373.216 (1979).
241. Id.

242. Id.
243. Fla. Stat. § 373.216 (1979).
244. South Florida Water Management District, Permit Information Manual, Volume I, at ii (Jan. 1979).
[Hereinafter cited as Permit Information Manual].
245. 6 Fla. Admin. Code 16k-2.03(1)(a).
246. 6 Fla. Admin. Code 16k-2.03(1)(b).
247. 6 Fla. Admin. Code 16k-2.03(3).
248. Id.
249. 6 Fla. Admin. Code 16k-2.031.
250. 6 Fla. Admin. Code 16k-2.031(3).
251. 6 Fla. Admin. Code 16k-2.031(1)(c).
252. 6 Fla. Admin. Code 16k-2.031(2).
253. 6 Fla. Admin. Code 16k-2.031(2)(f).
254. Permitting Information Manual, supra note 244, Volume II
at 2.

255. Id.
256. 6 Fla. Admin. Code 16J-2.
257. 6 Fla Admin. Code 16J-2.04.
258. Fla. Stat. § 373.223(1) (1979).
259. 6 Fla. Admin. Code 16J-2.11(2).
260. Southwest Florida Water Management District, Water Management Plan, Appendix A, at A-3 (1980). [Hereinafter cited as Water Management Plan].
261. Id. at A-4.
262. Id. at A-5.
263. 6 Fla. Admin. Code 16J-2.11(3).
264. Water Management Plan, supra note 260, at A-10, 11.
265. Id., Appendix B at B-9.
266. Id. at B-5.
267. Fla. Stat. § 373.223(1) (1979).

268. Fla. Stat. § 373.016(2) (1979).
269. See Fla. Stat. § 373.069 (1979).
270. 6 Fla. Admin. Code 16I-2.04(1).
271. 6 Fla. Admin. Code 16I-2.04(2).
272. Id.
273. 6 Fla. Admin. Code 16I-2.20.
274. 6 Fla. Admin. Code 16I-2.35.
275. 6 Fla. Admin. Code 16I-2.45(1).
276. 6 Fla. Admin. Code 16I-2.45(2).
277. See generally, A Model Water Code, supra note 218.
278. Id., Commentary at 192-95.
279. Id., § 2.09.
280. Id., § 2.09(3).

281. Id., § 2.09(2).
282. Id., § 2.09(5), (6).
283. Id., § 2.09(7).
284. Id., § 2.09(8).
285. Fla. Stat. § 373.175 (1979).
286. Fla. Stat. § 373.246 (1979).
287. Fla. Stat. § 373.172(1) (1979).
288. Fla. Stat. § 373.246(2) (1979).
289. Fla. Stat. § 373.175(3) (1979).
290. Fla. Stat. § 373.246(5) (1979).
291. Fla. Stat. § 373.246(1) (1979).
292. Id.
293. Fla. Laws 1972, ch. 72-299 Part VI.

294. Id., ch. 72-730.
295. Id., ch. 72-730, § 2.
296. Fla. Laws 1973, ch. 73-295.
297. Fla. Laws 1972, ch. 72-730; Laws of Florida, ch. 73-295.
The importance of the title of a statute arises from Art. III, § 6 of the Florida Constitution which is designed to prevent the use of misleading titles. When the legislature makes a title restrictive, the provisions of the bill are limited to that restriction. State ex.rel. Moodie v. Bryan, 50 Fla. 293, 39 So. 929 (1905). The scope of an act cannot be extended further than its title warrants. Re Barber, 130 Fla. 342, 177 So. 708 (1937).
298. Fla. Laws 1949, ch. 25270.
299. Fla. Laws 1961, ch. 61-691.
300. Id., ch. 61-245 [Fla. Stat. § 378.52 (1961)].
301. See, 6 Fla. Admin. Code (1979), ch. 161-2.51-2.53, ch. 16J-2.16-2.24, ch. 16K-2.12-2.15.
302. 6 Fla. Admin. Code ch. 16K-2.12(1).
303. 6 Fla. Admin. Code ch. 16K-2.12(1).

304. 6 Fla. Admin. Code ch. 16K-2.12(2)(a).
305. 6 Fla. Admin. Code ch. 16K-2.12(2)(b).
306. 6 Fla. Admin. Code ch. 16K-2.12(3).
307. 6 Fla. Admin. Code ch. 16K-2.12(4).
308. 6 Fla. Admin. Code ch. 16K-2.12(4)(a).
309. 6 Fla. Admin. Code ch. 16K-2.12(4)(b). "Necessities"
are not defined in the rule.
310. 6 Fla. Admin. Code ch. 16K-2.12(4)(c).
311. 6 Fla. Admin. Code ch. 16K-2.12(4)(d).
312. 6 Fla. Admin. Code ch. 16K-2.13.
313. 6 Fla. Admin. Code ch. 16K-2.14(1).
314. 6 Fla. Admin. Code ch. 16K-2.14(2).
315. 6 Fla. Admin. Code ch. 16K-2.14.
316. 6 Fla. Admin. Code ch. 16K-2.14(3).

317. 6 Fla. Admin. Code ch. 16K-30.
318. 6 Fla. Admin. Code ch. 16K-31.
319. Id.
320. 6 Fla. Admin. Code ch. 16K-30.09.
321. Letter from John H. Wheeler, Attorney for South Florida Water Management District to Dean Frank Maloney, August 8, 1979.
322. 6 Fla. Admin. Code ch. 16J-2.16(1).
323. 6 Fla. Admin. Code ch. 16J-2.16(2).
324. "The Board may impose such restrictions on one (1) or more users of the water resources as may be necessary to protect water resources of the area from serious harm" 6 Fla. Admin. Code ch. 16J-2.20(2).
325. "In accordance with the plan adopted under subsection (1), the governing board . . . may impose such restrictions on one or more classes of permits as may be necessary to protect the water resources of the area from serious harm" [Emphasis added.] Fla. Stat. § 373.246(3) (1979).
326. Fla. Stat. § 373.246(7) (1979).

327. 6 Fla. Admin. Code ch. 16J-2.22.
328. 6 Fla. Admin. Code ch. 16J-2.23.
329. 6 Fla. Admin. Code ch. 16J-2.24.
330. 6 Fla. Admin. Code ch. 16I-2.51-2.53.
331. 6 Fla. Admin. Code ch. 16I-2.51(3).
332. 6 Fla. Admin. Code ch. 16I-2.51(4).
333. 6 Fla. Admin. Code ch. 16I-2.53(1).
334. 6 Fla. Admin. Code ch. 16I-2.53(2).
335. 6 Fla. Admin. Code ch. 16I-2.54.
336. Fla. Stat. 6 373.114 (1979).
337. See, e.g., 42 U.S.C. § 1857 et.seq. (Clean Air Act);
30 U.S.C. § 1201 et.seq. (Surface Mining Control and
Reclamation Act); 33 U.S.C. § 1251 et. seq (Clean
Water Act).
338. Fla. Stat. § 373.114 (1979).

339. House Natural Resources Committee Bill (1st Draft)
(2-27-80) (bill not filed yet).
340. A Model Water Code, supra note 218, § 2.09.
341. Fla. Stat. § 373.403-.443 (1979).
342. Fla. Stat. § 373.413 (1979).
343. Fla. Stat. § 373.406 (1979).
344. Fla. Stat. § 373.203-.249 (1979). "Closed Systems" are defined in Fla. Stat. § 373.403(6) as "any reservoir or works located entirely within lands owned or controlled by the user and which requires water only for filling, replenishing, and maintaining the water level thereof".
345. Fla. Stat. § 373.406(2) (1979).
346. Id.
347. Fla. Stat. § 373.403(1) (1979).
348. Fla. Stat. § 373.409 (1979).
349. Fla. Stat. § 373.416(2) (1979).
350. Fla. Stat. § 373.416 (1979).

351. Fla. Stat. § 373.423 (1979).
352. Id.
353. Id.
354. Fla. Stat. § 373.413: .416 (1979).
355. Fla. Stat. § 373.429 (1979).
356. Fla. Stat. § 373.436 (1979).
357. Fla. Stat. § 373.439 (1979).
358. Id.
359. 6 Fla. Admin. Code 16K-4.
360. South Florida Water Management District, Permit In-
formation Manual, Vol. IV, at 2 (1978).
361. Id., at 5-25.
362. Id., at 7.
363. Id.
364. Id., at 8.

365. Id., at 10-11.
366. Id., at 9.
367. 6 Fla. Admin. Code 16K-4.021(2).
368. Fla. Stat. § 373.413(1) (1979).
- 369.
370. Fla. Stat. § 373.413(1) (1979).
371. 6 Fla. Admin. Code 16K-4.022.
372. 6 Fla. Admin. Code 16K-4.022(b) (3).
373. Permit Information Manual, supra note 360, n.20 at 29.
374. 6 Fla. Admin. Code 16J, at 29.
375. Id.
376. Id., at 6.
377. Permit Information Manual, supra note 360, Appendix 1-3.
378. Compare Fla. Admin. Code 16-J with Fla. Stat. ch. 373, Part IV (1979).

379. Interview with Mr. Dale Hardin, permitting staff, South-west Florida Water Management District (Sept. 7, 1979).
380. 6 Fla. Admin. Code 16J-4.04.
381. Id.
382. Id.
383. 6 Fla. Admin. Code 16J-4.06.
384. Id.
385. Id.
386. Id.
387. 6 Fla. Admin. Code 16I-4.
388. Id.
389. See generally Ausness, Water Use Permits in a Riparian State: Problems and Proposals, 66 Ky. L.J. 191, 240-256 (1977). An oblique challenge to Wisconsin's permit system, however, was made in Omernick v. State, 218 N.W. 2d 734 (Wis. 1974) and Omernick v. Department of Natural Resources, 238 N.W. 2d 114 (Wis. 1976).

390. See generally Berger, A Policy Analysis of the Taking Problem, 49 N.Y.U.L. Rev. 165 (1974); Sax, Takings, Private Property and Public Rights, 81 Yale L.J. 149 (1971); Van Alstyne, Taking or Damaging by Police Power: The Search for Inverse Condemnation Criteria, 44 S. Cal. L. Rev. 1 (1971).
391. Arverne Bay Constr. Co. v. Thatcher, 278 N.Y. 222, 15 N.E.2d 587 (1938), is generally regarded as the classic articulation of the residual use test.
392. See, e.g., Dooley v. Town Plan & Zoning Comm'n, 151 Conn. 304, 197 A.2d 770 (1964), in which a local flood plain ordinance prohibiting residential development was declared a taking despite the fact that such uses as marinas, clubhouses, recreation, and agriculture were permitted. The Dooley decision should be distinguished from a pure diminution in value case, however, for the court indicated that the entire purpose of the zoning "contemplates a diminution in land value and subsequent acquisition by some government agency." *Id.*, at 310, 197 A.2d at 773. See also State v. Johnson, 265 A.2d 711, 716 (Me. 1970), in which the Maine supreme court overturned the state's wetlands regulation as applied on the ground that it unduly diminished the value of the landowner's property.
393. Pennsylvania Coal Co. v. Mahon, 260 U.S. 393, 413 (1922).

394. See, e.g., *Goldblatt v. Town of Hemstead*, 369 U.S. 590, 594 (1962), in which the Supreme Court adopted the diminution test but declared that "a comparison of values before and after [regulation] . . . is by no means conclusive" to the taking issue. See also *Candlestick Properties, Inc. v. San Francisco Bay Conservation & Dev. Comm'n*, 11 Cal. App. 3d 557, 572, 89 Cal. Rptr. 897, 906 (1970), which found no impermissible diminution resulting from prohibition of coastal development.
395. See *Ocean Villa Apartments, Inc. v. City of Ft. Lauderdale*, 70 So.2d 901 (Fla. 1954).
396. See Plater, *The Taking Issue in a Natural Setting: Floodlines and the Police Power*, 52 Tex. L. Rev. 201, 233-34 (1974).
397. See *Turnpike Realty Co. v. Town of Dedham*, 284 N.E.2d 891 (March 1972), cert. denied, 409 U.S. 1108 (1973); *Turner v. County of Del Norte*, 24 Cal. App. 3d 311, 101 Cal. Rptr. 93 (1972).
398. Comment, *Regulation of Land Use: From Magna Carta to a Just Formulation*, 23 U.C.L.A.L. Rev. 904, 923-31 (1976).
399. 201 N.W. 2d 761 (Wis. 1972).

400. Section 6. Eminent domain.--(a) No private property shall be taken except for a public purpose and with full compensation therefor paid to each owner or secured by deposit in the registry of the court and available to the owner.
401. Seldon et al. v. City of Jacksonville, 10 So. 457 (1891).
402. For an excellent discussion of the residual beneficial use test to determine when land use regulation becomes a compensable taking, see F. Maloney, A.J. O'Donnell, Drawing the Line at the Oceanfront: The Role of Coastal Construction Setback Lines in Regulating the Development of the Coastal Zone, 30 U. Fla. L. Rev. 383 at 399-403 (1978).
403. 1 So.2d 642 (Fla. 1941).
404. Id. at 646-7.
405. 349 So. 2d 667 (3d DCA 1977).
406. Id. at 670, citing Nattin Realty, Inc. v. Ludewig, 324 N.Y.S. 2d 668 at 671 (1971).
407. The Court did not preclude future compensation if the plaintiff could show deprivation of his beneficial use for public benefit.

408. 333 So. 2d 56 (1st DCA 1976).
409. Id. at 61.
410. ___ So.2d ___ (Fla. 1st D.C.A., Case No. II-419 filed December 17, 1979).
411. Id. at page 6 of slipsheet opinion. Lee County recommended that an amended zoning application be filed which would permit a density of two units per acre (one unit per acre was permitted) and which would cluster the residential and incidental commercial uses on acreage not deemed environmentally sensitive.
412. The district court elected not to address the question of whether the Adjudicatory Commission's order contained competent substantial evidence to support its environmental findings. Further, the property owner's vested rights argument was rejected by the court, as was the constitutional attack upon § 380.06(8).
413. 10 P. 674 (Cal. 1886).
414. See generally Scurlock, Constitutionality of Water Rights Regulation, 1 Kan. L. Rev. 125, 139 (1952).
415. 207 P.2d 440 (Kan. 1949). See also Baumann v. Smrha, 145 F. Supp. 617 (D. Kan.), aff'd per curiam, 352 U.S. 863 (1956); Williams v. City of Wichita, 374 P.2d 578 (Kan. 1962).

416. 207 P.2d 440, 448 (Kan. 1949).
417. 127 N.W. 2d 708 (S.D. 1964).
418. See generally note, Water Rights and the Constitutionality of the 1955 South Dakota Water Act, 11 S.D.L. Rev. 374 (1966).
419. 120 N.W. 2d 18 (N.D. 1963).
420. 157 N.W. 2d 728 (N.D. 1968).
421. 513 P.2d 627 (Idaho 1973).
422. Id. at 635.
423. California-Oregon Power Co. v. Beaver Portland Cement Co., 73 F.2d 555 (9th Cir. 1934); Southwest Eng'r. Co. v. Ernst, 291 P.2d 764 (Ariz. 1955); Williams v. City of Wichita, 374 P.2d 578 (Kan. 1962); Baeth v. Hoisveen. 157 N.W. 2d 728 (N.D. 1968); Knight v. Grimes, 127 N.W. 2d 708 (S.D. 1964).
424. In re Hood River, 227 P. 1065 (Ore. 1924); Omernick v. Department of Natural Resources, 238 N.W. 2d 114 (Wis. 1976).
425. Baumann v. Smrha, 145 F. Supp. 617 (D. Kan. 1956); Baker v. Ore-Ida Foods, Inc. 513 P.2d 627 (Idaho 1973); Williams v. City of Wichita, 374 P.2d 578 (Kan. 1962);

- Knight v. Grimes, 127 N.W. 2d 708 (S.D. 1964).
426. McCook Irrigation & Water Power Co. v. Crews, 96 N.W. 996 (Neb. 1903); Belle Fourche Irrigation Dist. v. Smiley, 176 N.W. 2d 239 (S.D. 1970).
427. Baumann v. Smrha, 145 F. Supp. 617 (D. Kan. 1956); Baeth v. Hoisveen, 157 N.W. 2d 728 (N.D. 1968).
428. Herminghaus v. Southern Cal. Edison Co., 252 P. 607 (Cal. 1926); Lux v. Haggin, 10 P. 674 (Cal. 1886); Clark v. Cambridge; Arapahoe Irrigation & Improvement Co., 64 N.W. 239 (Neb. 1895); Volkmann v. City of Crosby, 120 N.W. 2d 18 (N.D. 1963); St. Germain Irrigating Co. v. Hawthorn Ditch Co., 143 N.W. 124 (S.D. 1913); Neilson v. Spomer, 89 P. 155 (Wash. 1907).
429. 371 So. 2d 661 (Fla. 1979).
430. 349 So.2d 216 (4th D.C.A. Fla. 1979).
431. 371 So.2d at 667.
432. Id. at 671.
433. Id. at 670.

CHAPTER IV
THE LAW AND ADMINISTRATION OF
POLLUTION CONTROL IN FLORIDA*

A. Common Law Development.

1. The Reasonable Use Rule.

The riparian owner, according to early natural flow doctrine, has no right to change the natural condition or characteristics of the water in a navigable waterbody, any such change being actionable without the necessity of showing actual harm.¹ The reasonable use rule modifies the strict approach of natural flow and grants the lower riparian only the right to have his water kept free from unreasonable interference. A use cannot be unreasonable if there is no actual injury to other riparian owners. Even if there is injury, the use nevertheless may be privileged if reasonable under the circumstances. Thus, in some instances the pollution of water may be reasonable and therefore lawful under the latter approach.²

The Florida Supreme Court in an early case involving pollution of an underground stream adopted the reasonable use modification of the natural flow doctrine.³ In language often cited in reference to both ground and surface waters the court declared: "The right to the benefit and advantage of the water flowing past one owner's land is subject to the similar rights of all the proprietors on the banks of the stream to the reasonable enjoyment of a natural bounty, and it is therefore only for an unauthorized

and unreasonable use of a common benefit that one has just cause to complain."⁴

Reasonableness is a factual question controlled by the circumstances of each case. In deciding how much pollution is reasonable courts have considered the stream's character, the stream's volume and velocity, past uses of the stream, location and use of the plaintiff's land, extent of plaintiff's damages, local customs and customs of the industry involved, and comparative public concern on the two sides of the controversy.⁵

The Restatement of Torts takes the position that pollution is unreasonable unless the utility of defendant's conduct outweighs the gravity of the harm.⁶ In determining the utility of the conduct, the Restatement considers the following factors to be important: (a) social value which the law attaches to the primary purpose of the conduct; (b) suitability of the conduct to the character of the locality; (c) impracticability of preventing or avoiding the invasion.⁷

2. Remedies.

Riparian owners whose "reasonable use" of adjacent waters is adversely affected by pollution may bring an action at common law based upon the alleged violation of their riparian rights.⁸ Another more commonly applied theory of action, which is applicable to non-riparian property owners as well, is the tort of nuisance, which is predicated upon an unreasonable interference with the use and enjoy-

ment of land and accompanying water rights.⁹ The interference must cause an appreciable, tangible injury which results in material physical discomfort and not a trifling annoyance or inconvenience.¹⁰ It is nontrespasory in nature, and the plaintiff need not prove that the polluter was negligent in the conduct of those activities which caused the pollution to occur.¹¹ Conduct which is "abnormal or out of place in its surroundings" may be considered as a nuisance, without regard to any particular act or omission which may have led to the invasion of property rights.¹²

A nuisance may be public or private, depending upon the number of persons affected thereby, and the type of injury that is suffered. When the public at large, or a significant portion thereof, suffers a common injury, the pollution is considered to be a public nuisance. In such instances, the attorney general or other public authority is given sole authority at common law to maintain an action to enjoin the nuisance.¹³ In order for a private individual or group of individuals to maintain an action to abate such a nuisance, it must be alleged and proven that plaintiff has suffered some type of special injury which differs not only in degree, but in kind, from that suffered by the general public.¹⁴ A private nuisance, on the other hand, is one that does not affect a large segment of the community, but rather, interferes with the use and enjoyment of a possessory interest in land, and affects a single plaintiff or a

small number of plaintiffs. This possessory interest may be as small as that of a tenant at will or on sufferance,¹⁵ but does not include occupancy of the premises as a servant or licensee.¹⁶

Because of the similarity between nuisance theory and the "reasonable use" theory of riparian rights, the Restatement of Torts, Second, has adopted a modified approach towards pollution cases, whereby such injuries are considered under nuisance theory instead of the law of riparian rights.¹⁷ This approach was taken to avoid confusion in the law and provide greater protection to plaintiffs suffering from pollution related injuries.¹⁸ Under riparian doctrine, the tendency of the courts is to consider reasonable, beneficial uses of water as a property right incident to ownership of the riparian land. Beneficial uses of water which cause pollution might then acquire the status of a property right under riparian doctrine. Pollution cases were therefore classified under nuisance law to emphasize "that pollution is a tort and not the exercise of a property right."¹⁹ Riparian law is still applied regarding disputes affecting the quantity of water to be allocated between riparian uses.²⁰

Other remedies at common law include trespass, negligence and strict liability. The trespass action has the advantage of being absolute in nature, with any direct invasion of a possessory interest in land being actionable in theory.²¹ In practice, however, courts have generally been

reluctant to consider invasions of property by particles not visible to the naked eye to be sufficiently direct to warrant the trespass action.²² Negligence theory has been relied upon in some instances for recovery of damages caused by pollution,²³ but has been quite limited in effectiveness for the control of pollution due to the fact that plaintiffs must prove that the polluter has failed to exercise due care. Moreover, because the negligence action is compensatory in nature, injunctive relief is generally unavailable to prevent further pollution.

The use of strict liability doctrine obviates the need to prove lack of due care in seeking damages for water pollution caused injuries, thereby being quite effective in this regard. Its application is limited, however, to pollution resulting from activities which create an abnormally dangerous condition of unusually high risk to surrounding property owners due to a non-natural use of the land in question.²⁴ Damages have been awarded under strict liability theory in cases involving such ultrahazardous activities as fumigation with cyanide gas,²⁵ the drilling of oil wells,²⁶ emission of noxious gases in urban areas,²⁷ or improper use of agricultural pesticides.²⁸ In Florida, the strict liability doctrine was first applied in the case of Cities Service Company v. State,²⁹ in which operators of a phosphate mine were held liable for water pollution caused by a break in an earthen dam which impounded phosphate slime derived from the processing operations. The court was im-

pressed by the "magnitude of the activity and the attendant risk of enormous damage," concluding that "the Cities Service slime reservoir constituted a non-natural use of the land such as to invoke the doctrine of strict liability."³⁰

In seeking relief from water pollution, the available remedy will depend upon the theory of action applied by the plaintiff. Under commonly applied nuisance theory, a cause of action is created for injunction, damages or both.

(a) Injunction.

Injunctive relief is preferable to damages as a remedy for the invasion of water rights for several reasons. In that most cases of water pollution involve a continuing nuisance rather than a completed tort, injunctive relief prevents further pollution and spares the plaintiff from successive actions to recover damages at law. The technical problems associated with segregating damages where several polluters have separately and independently contributed to the overall injury are also avoided. In cases where the provable damages are small, a judgment for damages may be valuable only in preventing the defendant from gaining prescriptive rights. Moreover, if a defendant is merely required to pay damages, the use and enjoyment of the plaintiff's land will have been diminished primarily for the benefit of a private interest not otherwise entitled to exercise the sovereign function of eminent domain.³¹

An injunction will be issued only if the plaintiff establishes facts that entitle him to an injunction accord-

ing to the usual rules governing equitable relief. Thus, the plaintiff must show not only that the defendant's use is unreasonable, but also that the injunctive relief is necessary because the threatened injury is irreparable,³² cannot be adequately compensated by damages at law,³³ and that a multiplicity of suits would result from failure to grant the injunction.³⁴

Because most cases of water pollution usually involve either continual or irreparable harm, these special conditions are usually not difficult to meet. Cases in which injunctive relief has been granted to abate or prevent water pollution in Florida are numerous. For example, in North Dade Water Co. v. Adken Land Co.,³⁵ plaintiff sought to enjoin the city of North Miami Beach and the North Dade Water Company from discharging effluent from a sewage plant into his lakes. On the basis of a chemist's testimony that sewage bacteria were in the lakes, the court found that defendant's actions created a private nuisance and a continuing trespass likely to endanger the plaintiff's health, welfare, and comfort, and granted a permanent injunction.³⁶ More recently, in Town of Surfside v. County Line Land Company,³⁷ on the complaint of an adjacent property owner, the court granted an injunction which prevented a municipally owned dump from receiving any further refuse from outside the city boundaries, noting that "Anything which annoys or disturbs one in the free use, possession or enjoyment of his property or which renders its ordinary use and occupation

physically uncomfortable may become a nuisance and may be restrained."³⁸

Despite the fact that a nuisance has clearly been established to exist, a court might decline to enjoin the operations of the polluter in favor of awarding monetary damages after balancing the harm that would result to the polluter and the public with the benefits that would accrue to the aggrieved party and the public should the pollution be abated. This is known as the balance of convenience doctrine, and is often invoked in defense of municipal or governmental operations and private polluters who are closely associated with the public interest.³⁹ In a leading Florida case, State ex rel. Harris v. City of Lakeland,⁴⁰ plaintiffs, residents and farmers, sought to enjoin the city from dumping sewage effluent into a small canal on the theory of public nuisance. The Florida Supreme Court recognized the inefficiency of the city's sewage plant, but applied the balance of convenience doctrine⁴¹ and refused to enjoin the city's operation. Instead, the court permitted "a reasonable period of time to allow the municipality to so improve its plant as to overcome the deleterious condition which may be found at present to exist."⁴² A final decree was later granted by the circuit court ordering the city to remove hyacinths and mosquito larvae from the canal and enjoining the discharge of sewage into the canal.⁴³

A court may also refuse to enjoin the operations of a

polluter under the so-called "state of the art" test, where it is determined that the polluter is using the most modern anti-pollution control measures available.⁴⁴ In St. Regis Paper Company v. State,⁴⁵ the court refused to enjoin the operations of a pulp and paper mill whose discharge was causing turbidity problems sufficient to create a nuisance. Noting that "A nuisance may exist regardless of whether or not there is an economically feasible method to eliminate it," the court nevertheless opted in favor of permitting the pollution to continue pending further research and development efforts regarding more effective methods of controlling the pollution.⁴⁶ Where pollution affects a large segment of the public, however, an injunction may be granted despite the fact that the polluter is a governmental operation which is willing to apply the latest pollution control technology. In City of Miami v. City of Coral Gables,⁴⁷ the court sustained an order enjoining the operation of the "Old Smokey" municipal incinerator, finding no error in the lower court's refusal to admit evidence regarding the measures the municipality was prepared to take to abate the pollution in the future. The balance of convenience doctrine may also be inapplicable where satisfactory alternatives exist to control the pollution.

(b) Damages.

When a court of equity assumes jurisdiction to abate a nuisance, damages for past harm are ordinarily granted as an adjunct to, or in lieu of, any injunctive relief which

might be given.⁴⁸ An exception to the rule is Penn v. City of Lakeland⁴⁹ where a court that granted injunctive relief in equity was not also required to hear the claims of the plaintiffs for common law damages in light of the distinct and separate nature of their individual claims. The plaintiffs, however, retained the right to claim damages in a subsequent action at law.

An action at law for damages, of course, can be sought without injunction, and the measure of such damages will depend on both the nature and extent of the injury sustained. The identification of an injury as permanent or temporary determines the manner in which damages may be collected.

Permanent Injury - Once an injury is classified as permanent, there can be only one action, and all damages, past, present, and future, are recoverable therein.⁵⁰ The normal recovery is the difference in market value of the land before and after the injury,⁵¹ or the cost of restoring the land to substantially the same condition as before.⁵² The position of the Restatement of Torts is that the plaintiff should have his election between the two.⁵³ This does not preclude recovery for diminution in the value of the use of the property where its market value is not materially affected by the damage.⁵⁴

Temporary Injury - If an injury is temporary, recovery is allowed only until the time of suit, and successive recoveries in subsequent actions are permitted if the injury

continues.⁵⁵ The general recovery for temporary injury is limited to those damages suffered in the use and enjoyment of the property while the nuisance occurred, and not the reduction in market value,⁵⁶ although the court may take judicial notice of this factor.⁵⁷ Special or incidental damages relating to annoyances, discomfort, inconvenience or sickness may also be awarded.⁵⁸

Distinguishing Permanent and Temporary Injuries - There are several approaches that the courts take in determining whether an injury is permanent or temporary. One approach is to look at the origin of the injury: if it can be presumed to continue indefinitely, it will be assumed to be permanent; if abatement is reasonably feasible, it will be considered temporary.⁵⁹ The more restrictive view is that no injury the defendant can change or alter will be viewed as permanent, and the plaintiff must bring successive suits for damages. The Restatement of Torts takes the position that an injurious situation is permanent when it is likely to continue indefinitely and not be subject to injunction because it is economically beneficial to the community. Plaintiff is given the option to choose between permanent and temporary damages in such instances.⁶⁰ If, however, the court determines that the activity is affected with a public interest, it may require the plaintiff to accept permanent damages.⁶¹ Some courts look to the nature of the injury caused by the defendant. They would allow permanent damages if, in addition to the interference being found

permanent, it was established that the injury and damages sustained by the plaintiff were also permanent.⁶² Under this view, a temporary condition which caused permanent damage to plaintiff's property would be considered permanent.

The Florida courts have never squarely distinguished permanent injuries from temporary injuries in the area of nuisance. In some early cases dealing with railroad easements, it appeared Florida would take what is now considered the liberal view and allow the plaintiff to choose whether the recovery should be permanent or not.⁶³ More recent cases seem to indicate, however, that Florida now takes the more restrictive view, denying the plaintiff the right to choose between permanent and temporary damages.⁶⁴ Whether an injury is permanent or temporary is a question that is usually decided by the court, although the jury may be empowered to make that decision when there is a conflict in the evidence.⁶⁵ In Nitram Chemicals, Inc. v. Parker,⁶⁶ the court affirmed a jury decision that noises, dust and fumes emanating from an ammonium nitrate plant were a temporary nuisance continuing up to the time of trial, despite defendant's contention that the nuisance should be considered permanent, because all possible actions had already been taken to alleviate the nuisance. It based its acceptance of the jury verdict upon testimony by the defendant that further development regarding noise and air pollution control "might be available in the future...."⁶⁷

(c) Parties Plaintiff.

Although actions arising from pollution injury are generally brought by a lower riparian, conditions may give rise to actions by others if they can show an injury to their interests. Classification of the nuisance as public or private will have a significant bearing upon whether a private individual or group will have standing to bring suit.⁶⁸ Class actions are permissible to abate a nuisance,⁶⁹ but raise special problems in meeting the criteria applicable to such actions while avoiding the application of the special injury rule.⁷⁰

(d) Parties Defendant.

When pollution damage results from a concert of actions, the defendants may be jointly and severally liable.⁷¹ Some jurisdictions hold polluters jointly liable merely if they know the cumulative effect of their separate acts of pollution will result in injury.⁷² In Florida, however, when parties commit separate and distinct acts without common purpose, which later intermingle to cause injury, the defendants are not jointly liable for damages. In Symmes v. Prairie Pebble Phosphate Co.,⁷³ for example, plaintiff sought to collect damages from eight phosphate companies that separately polluted a river and caused injury to his oyster beds. The court held there was no concert of action, and the fact that the results of the acts intermingled to bring about the consequences was not sufficient to hold the defendants as joint tort-feasors. A later case indicated that

unless concert of action could be demonstrated, a plaintiff would be required to show the extent to which specific acts of individual polluters caused his injury.⁷⁴ Such a requirement would make it extremely difficult for a plaintiff to collect damages when more than one polluter contributed to his injury.

The prohibitive nature of plaintiff's burden of proof where more than one independent tort-feaser is involved has resulted in a modern trend to shift the burden of proof to the defendants to apportion damages among themselves once the plaintiff has established their general responsibility for his injuries.⁷⁵ The rationale for this approach is to avoid the injustice that would result from an aggrieved party being unable to secure judicial relief merely because more than one tort-feaser was involved. This would appear to be the obviously more sensible approach in cases involving pollution, which frequently involve multiple defendants contributing to a single injury. Plaintiffs would still have the initial burden of establishing a causative relationship between the injury and each defendant's pollution.⁷⁶

3. Defenses.

The primary defenses that can be raised in resisting a suit for pollution damages are the statute of limitations, prescription, agreement, and laches. Additional defenses to common law actions to abate pollution have been raised on occasion with some success. These defenses include primary jurisdiction, failure to exhaust administrative remedies,

coming to the nuisance, and public authorization of the pollution through constitutional provisions or legislative enactments.

(a) Statute of Limitations.

The defense most commonly raised in resisting a suit for pollution damages is the statute of limitations. The statute may begin to run at different times, depending on whether the jurisdiction applies the natural flow or reasonable use theory of riparian rights. If the strict natural flow theory is used, a cause of action arises as soon as the upstream owner starts polluting, regardless of whether there are actual injuries to others. Under this view the period of the statute may run before actual injury exists, thus barring all recovery.⁷⁷ Under the reasonable use theory, a cause of action accrues only when a use becomes unreasonable, and it is at this point in time that the statute begins to run.⁷⁸

Under either theory each new injury will create a new cause of action. Thus, if the injury is permanent and the statute of limitations expires, a new cause of action should arise on any increase in the amount or kind of injury. Similarly a new cause of action arises for each additional temporary injury.⁷⁹

(b) Prescription.

Another common defense is that the defendant has acquired a prescriptive right to pollute. Prescription, as broadly defined, is the creation of an interest in property

by one party and the reciprocal extinguishing of another party's interest in property by lapse of time.⁸⁰ By the acquisition of a prescriptive right a person may continue to pollute a stream and the lower riparian will have no right to object. A prescriptive right is acquired by continually and openly maintaining under claim of right for the required period a pollutive condition which infringes on the rights of the lower riparian. Such condition must persist during the prescription period, which in Florida is twenty years,⁸¹ without change in the quantity or quality of pollutants.⁸² The period of prescription commences at the same time a cause of action would arise under either the natural flow or reasonable use theories, whichever is applicable.⁸³ Most jurisdictions allow the acquisition of prescriptive rights by acts which constitute a private nuisance; however, when the pollution constitutes a public nuisance it may be enjoined regardless of the period it has been in existence.⁸⁴

From a reading of the cases it would appear that, as a defense, the primary difference between the statute of limitations and prescription, other than the length of the period required, is the fact that prescription makes the act legal and the statute of limitations merely bars an action by the injured party. This difference may be significant if the injured party seeks to use self-help in abating the pollution and the polluter brings an action against him.

(c) Agreement.

An agreement may be made between riparian owners to allow a watercourse to be polluted to a greater degree than ordinarily permissible. Such an agreement is permissible if it creates a private nuisance; however, if such an agreement results in the creation of a public nuisance it will be considered a violation of public policy.⁸⁵ A valid agreement creates an easement to which subsequent owners of the land who have actual or constructive notice cannot object.⁸⁶

(d) Laches.

In a suit in equity, laches may bar relief if the plaintiff fails to act for an undue length of time and is negligent in failing to act more promptly while the other party changes his position to his detriment.⁸⁷ The essential difference between a statute of limitations and laches is that the statute bars the action solely because of the passage of a specified period of time, while laches precludes recovery when the respondent is unduly prejudiced by the complainant's unreasonable delay in bringing the suit, without regard to any particular interval of time.⁸⁸

(e) Primary Jurisdiction; Failure to Exhaust Administrative Remedies.

The recent proliferation of administrative agencies concerned with the abatement or control of pollution has caused defendants in common law pollution suits to argue that the matter would be more appropriately handled by an

administrative agency than the courts. The theories most frequently applied are that plaintiff has failed to exhaust his administrative remedies, or that the matter is one in which the administrative agency has primary jurisdiction. The subtle distinction between these theories was stated in United States v. Western Pacific R.R. Co.:⁸⁹

'Exhaustion' applies where a claim is cognizable in the first instance by an administrative agency alone; judicial interference is withheld until the administrative process has run its course. 'Primary jurisdiction,' on the other hand, applies where a claim is originally cognizable in the courts and comes into play whenever enforcement of the claim requires the resolution of issues which, under a regulatory scheme, have been placed within the special competence of an administrative body; in such a case the judicial process is suspended pending referral of such issues to the administrative body for its views. (citations omitted).

In either instance, plaintiff is required to have his case heard before the administrative agency before it is cognizable in the courts. In addition, defendants have contended that administrative agencies were statutorily vested with exclusive jurisdiction over the subject matter, or that their compliance with existing rules, administrative orders, or permits rendered a nuisance action unworkable.⁹⁰

Courts have, however, been reluctant to vest exclusive jurisdiction over pollution control in administrative agencies where the implementing legislation did not specifically abolish the court's common law nuisance jurisdiction.⁹¹

Moreover, where common law nuisance is still in effect,

mere compliance with administrative permits and orders has been held not to vitiate the common law remedy.⁹²

The emergence of the primary jurisdiction defense in common law nuisance actions has caused one commentator to conclude that, "The result is a nightmarish situation in which access to the courts may be delayed until it is too late to help citizens suffering from the effects of uncontrolled pollution."⁹³ Florida has, however, adopted a restrictive view towards the application of the doctrine in nuisance actions. In Northeast Airlines, Inc. v. Weiss,⁹⁴ the court refused to invoke the primary jurisdiction doctrine because the administrative agency was not empowered to grant the relief which plaintiff sought. Then in State ex rel. Shevin v. Tampa Electric Company,⁹⁵ a public nuisance action by the Attorney General to enjoin the operation of the Tampa Electric Company generating plants from excessive emission of sulfur oxides, the court reversed a lower court decision which had found that primary jurisdiction rested with the Department of Pollution Control. It observed that the primary jurisdiction doctrine was not merely a matter of judicial discretion, but rather, a "sound policy of judicial restraint to be indulged in only upon a predicate of firmly established expediences." These expediences were recognized to be "issues of fact not within the conventional experience of judges or cases requiring the exercise of administrative discretion" It noted that the determination of a public nuisance was a "historic-

ally a judicial function" that was "not necessarily dependent upon technically established criteria for its resolution."⁹⁶ The court found the question of whether a nuisance existed to be a matter of law and not fact and declared that any technical considerations regarding the proper pollution control measures to undertake would "inhere in the equities" of the mandate for the type of injunctive relief ordered by the court.⁹⁷ It even questioned whether the legislature had the power to usurp its common law jurisdiction, and placed special emphasis upon the fact that the common law remedies had been specifically retained in the Florida Air and Water Pollution Control Act.⁹⁸ In addition, the court stated that⁹⁹

[I]t is clear to us that a given activity can constitute a judicially abatable nuisance notwithstanding full compliance with either legislative mandate or administrative rule. In such cases there is nothing for an agency to decide, and the primary jurisdiction doctrine is inapplicable since the legal effect of the complained of activity, together with an appropriate remedy, is peculiarly a judicial remedy.

(f) Constitutional or Legislative Authorization of Pollution.

Because a public nuisance affects the public in general, it has been successfully argued in Florida that the public may waive its right to object to such a nuisance by constitutional provisions or legislative enactments. In National Container Corp. v. State,¹⁰⁰ the Florida Supreme Court held that a 1930 constitutional amendment, which exempted certain industries that located in Florida after July 1, 1929 from all taxation for a period of fifteen years, prevented

a public nuisance action against a wood pulp mill, provided the "most approved and efficient" methods of pollution control were employed.¹⁰¹ This theory was extended to legislative enactments in Watson v. Holland,¹⁰² which denied an injunction against oil drilling operations in tidal waters based upon a Florida statute which authorized the Trustees of the Internal Improvement Fund to execute oil leases on sovereign lands located in tidal waters. The court found that oil wells which were properly operated had been "lifted out of the class of public nuisances ... through legislative enactment."¹⁰³ Then, in Brooks v. Patterson,¹⁰⁴ the Florida Supreme Court relied upon its prior opinions in National Container & Watson v. Holland to hold that a municipal airport which operated within reasonable limits so as not to "run rough-shod over the individual citizen in disregard of his constitutional rights" could not be considered as a public nuisance when established pursuant to the city's legislative authority.¹⁰⁵

A recent trend, however, may be eroding the viability of this defense to public nuisance actions. In State ex rel. Gardiner v. Sailboat Key, Inc.,¹⁰⁶ it was found that municipal authorization of a construction project through its zoning power did not act to prevent the activity from being considered a public nuisance. The court relied upon the view expressed in State ex rel. Shevin,¹⁰⁷ supra, that a judicially abatable nuisance could exist notwithstanding full compliance with either legislative mandate or administrative

rule, and distinguished National Container on the ground that the authorization in that case was through organic rather than statutory law.¹⁰⁸

The opinion in Sailboat Key, Inc. is deficient in that no attempt was made to distinguish the cases of Watson v. Holland and Brooks v. Patterson in which the public nuisance was authorized by legislative enactment rather than organic law. Nevertheless, it represents the better view regarding legislative authorization of pollution and is more in keeping with the principle that the courts should be open to private litigants to abate a public nuisance or obtain money damages therefor. Although the Florida Supreme Court paid lip service in Brooks v. Patterson to the constitutional problems which might arise in attempting to legislatively authorize public infringements on private property rights, it is difficult to see how such infringements can be constitutionally permissible without compensating those who would be adversely affected by any such public nuisance. At the present time, however, explicit constitutional or legislative authorization of pollution is less likely in light of the increased public concern for the protection of the environment.¹⁰⁹

4. The Inadequacies of the Common Law Remedies.

Common law tort liability generally has been an ineffective technique for controlling pollution. Perhaps the primary weakness is that the damage remedy, which is much easier to obtain for stream pollution than the injunction,

is not designed to prevent pollution, but rather, to afford relief after the pollution damage has occurred. Pollution and its control involve complex technical problems which courts simply are not equipped to handle effectively. Even were a particular court to have the necessary expertise, it would be in no position to formulate a comprehensive pollution control program because it is compelled to act on a case-by-case basis. For this, among other reasons, Florida and most other states have placed pollution control primarily in the hands of administrative agencies.

Despite weaknesses, there are instances where the common law remedies do provide an effective means of abating water pollution. The reaffirmation of the viability of the common law remedies in State ex rel. Shevin indicates that the courts in Florida are still willing to provide judicial relief to plaintiffs who are not satisfied with the procedures or remedies available through the administrative agencies.

B. Federal Regulation of Water Quality.

1. Introduction.

The involvement of the federal government in the regulation of water quality has increased considerably in recent years as a result of the enactment of the Federal Water Pollution Control Act Amendments of 1972.¹¹⁰ Although attempting to continue a cooperative relationship between federal and state authorities, this legislation essentially preempts state authority to control water pollution from municipal and

industrial sources. Although states are free to impose stricter pollution standards than those required under the Act, minimum federal standards are now mandatory for all of the states. It is therefore essential to an understanding of pollution control in Florida that one first understand the federal statutory and regulatory framework upon which state authority to control pollution is superimposed. The Federal Water Pollution Control Act, as amended, will therefore be explored in some detail before considering Florida law.

2. Development of the Federal Law of Pollution Control.

Federal activity in the area of water pollution control began in 1948 with the enactment of the Federal Water Pollution Control Act¹¹¹ as a response to the rapid and uncontrolled growth of water pollution problems which accompanied industrial expansion during the Second World War and early post war years.¹¹² Responsibility for administration of the Act rested with the Public Health Service within the Department of Health, Education and Welfare, which sponsored research, provided technical assistance to the states and eventually provided limited funds for the construction of water pollution control facilities.¹¹³ Progress was slow, however, prompting significant amendments in 1965,¹¹⁴ which required the states to establish water quality standards for all interstate or navigable waters within their jurisdiction, and a plan for implementing those standards.¹¹⁵ In setting the standards the states were required to take

economic, health, aesthetic, and conservation values into account, and such factors as the use and value of the waterbody for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial and other legitimate uses.¹¹⁶ The Department of Interior, which was responsible for administration of the amended act,¹¹⁷ published guidelines providing, among other things, that an interstate stream could not be used "for the sole and principle purpose of transporting wastes" and that wastes amenable to treatment and control could not be discharged into any interstate waters without such treatment or control.¹¹⁸ If a state failed to set acceptable standards within one year of the act, the department was authorized to impose standards upon the state for interstate waters within that state.¹¹⁹

In response to this mandate, most states, including Florida, classified the waterbodies within their jurisdiction into general categories based upon the intended use of the waterbody.¹²⁰ Specific standards were then set for various parameters of water quality within each classification.¹²¹ In cases where it was determined that the discharge of pollutants reduced the quality of the waters below the water quality standards, enforcement action could be taken by either the state or federal authorities.¹²² Federal authorities were limited, however, by a provision which required the Governor's consent before suit could be initiated to abate pollution originating in one state which

did not affect the waters of a neighboring state.¹²³

Additionally, time consuming conference and hearing procedures were required, which substantially delayed the initiation of enforcement action.¹²⁴

Enforcement action was also greatly impeded by the reliance on general water quality standards as a means of water pollution control.¹²⁵ Because states were given the authority to classify waterbodies based upon their intended or most desirable use, these waters were classified in a manner which largely accommodated existing industrial, municipal and agricultural uses, thereby permitting a substantial amount of pollution to occur. State legislators and regulatory agencies were also subject to intense pressure from local interests that were dependent upon the regulated industries, and from the industrial concerns themselves, which threatened to re-locate in states having more lenient water quality standards.¹²⁶ When a violation of water quality standards did occur, it was difficult to locate the individual polluter responsible for the violation, or apportion the responsibility between violators if more than one polluter was involved. In theory, states were supposed to translate water quality standards into specific effluent limitations for individual dischargers based upon the nature of the discharge and the assimilative capacity of receiving waters. This required the application of sophisticated and expensive water quality modeling techniques which was an "inexact exercise at best, especially with regard to

discharged substances other than BOD or suspended solids."¹²⁷

3. The 1972 Amendments to the Federal Water Pollution Control Act.

As a result of these weaknesses, little progress was made in improving water quality. Mounting public and congressional concern finally led to the passage of the Federal Water Pollution Control Act Amendments of 1972¹²⁸ which largely preempted state authority to control water pollution. Under the previous water pollution control acts, federal jurisdiction had been limited to interstate waters which were navigable in fact or capable of being rendered suitable for navigation.¹²⁹ The 1972 amendments, however, greatly expanded federal jurisdiction to control water pollution by defining navigable to mean "the waters of the United States, including the territorial seas."¹³⁰ This expansion of federal jurisdiction over waters which had previously been exclusively regulated by the states was in essence a statement by the Congress that the state implemented system of water quality standards had not been successful in controlling water pollution.¹³¹

(a) Uniform, National Effluent Limitations.

Another significant modification resulting from the 1972 amendments was the adoption of a regulatory approach based upon uniform, national effluent limitations, which prohibit discharges into navigable waters, the waters of the contiguous zone, or the ocean by point sources¹³² in greater "quantities, rates, and concentrations of chemical,

physical, biological and other constituents" than those established by regulation.¹³³ The Environmental Protection Agency (EPA), which was given authority to administer the Act, was required to set numerical effluent limitations for various categories of new and existing sources of water pollutants within one year of the effective date of the Act.¹³⁴ Because new sources could in most cases be constructed with modified production processes so as to emit considerably less pollution than existing sources with pollution control equipment added on, new source performance standards were intended to be more stringent than the effluent limitations for existing sources.¹³⁵ To encourage the construction of such facilities, new sources which meet all applicable performance standards were exempted from the imposition of more stringent effluent limitations for a ten year period.¹³⁶ EPA was also required to promulgate effluent limitations for publicly owned sewage treatment facilities (municipal sources) based upon secondary treatment,¹³⁷ and pre-treatment standards for industrial sources which discharged into such publicly owned treatment works.¹³⁸ Toxic pollutants, which were to be specified by EPA within ninety days of the effective date of the Act,¹³⁹ were regulated as a separate class of pollutants, with EPA required to specify effluent limitations for these pollutants within one year after a list of such pollutants had been promulgated.¹⁴⁰ The stated goal of the Act was to insure that "wherever attainable, an interim goal of water quality which

provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983" and that "the discharge of pollutants into the navigable waters be eliminated by 1985."

In determining the level of pollution control technology to be applied, a two-phase approach was adopted. For the first phase, EPA was required to set effluent limitations for point sources (other than publicly owned treatment works) such that the "best practicable technology currently available" (BPT) would be implemented by July 1, 1977.¹⁴¹ In setting the BPT effluent limitations, EPA was required to consider "the total cost of application of technology in relation to the effluent reduction benefits to be achieved" and five other factors.¹⁴² For the second phase, effluent limitations were to require application of the "best available technology economically achievable" (BAT) by July 1, 1983.¹⁴³ The cost of achieving the effluent reduction, although included as a relevant factor, was not intended to be given the same consideration as under the Phase One guidelines.¹⁴⁴ Publicly owned treatment works were required to implement secondary treatment methods by July 1, 1977, with considerable additional funds appropriated for construction grants and other assistance.¹⁴⁵

The two phase approach to effluent standards was intended to give industry the time to adjust to the imposition of more stringent standards during the second phase. This

accounts for the congressional intent that cost factors be given less consideration under the Phase Two guidelines in that it was anticipated that the extended time period would permit the development of new technology which would enable industrial sources to control pollution at acceptable cost. In practice, however, the denigration of cost considerations vis a vis the Phase Two guidelines prompted EPA to promulgate effluent limitations which were only achievable at great expense, with marginal reductions in effluents that were highly questionable in terms of cost.¹⁴⁶

The shift in regulatory philosophy away from water quality based effluent limitations in favor of uniform effluent limitations based upon the characteristics of the particular point source and available pollution control technology had several key advantages. Nationwide uniformity insured that state and local regulatory authorities could not be pressured into adopting a lenient attitude towards industrial polluters in an effort to compete with other states. Although water quality related effluent limitations were retained in the Act,¹⁴⁷ their role in regulating pollution was reduced to that of acting as an additional regulatory stoppage in those instances where national effluent limitations were not sufficient to insure that the quality of receiving waters met applicable water quality standards. Thus, states could no longer classify a waterbody for an intended use which permitted degradation of water quality below that which would result from application

of the national effluent limitations to polluters along that waterbody. In those instances in which national effluent limitations were more stringent than necessary to prevent interference with the intended use of a waterbody, the national effluent limitations would prevail. If the uniform effluent limitations were not sufficient to meet water quality standards, as was frequently the case in heavily industrialized areas, the water quality standards would be the limiting factor.¹⁴⁸ In such instances, states were required to prescribe "total maximum daily loads" for those pollutants which were causing the degradation of water quality and develop a plan for insuring that this load was not exceeded.¹⁴⁹

In addition, uniform effluent limitations provided the measure of specificity needed to take action against individual polluters, and were not dependent on the use of complicated water quality monitoring schemes to establish that a violation had occurred.

(b) The National Pollutant Discharge Elimination System.

In order to enforce the system of effluent limitations, the National Pollutant Discharge Elimination System (NPDES) was established, which prohibits "the discharge of any pollutant by any person" unless a permit for such discharge has been obtained from the appropriate regulatory authority.¹⁵⁰ This regulatory authority may be either EPA or an appropriate state agency, depending upon whether or not control over NPDES permitting authority has been transferred from EPA to

the state in accordance with the requirements of the Act.¹⁵¹ Prior to the issuance of an NPDES permit, the polluter must demonstrate that effluent limitations and other applicable requirements of the Act have been met, or, in the absence of such a showing, that conditions have been prescribed which EPA determines are necessary to carry out the provisions of the Act.¹⁵² For those states in which EPA retains NPDES authority, no permit may be issued until EPA has received certification from the state that the proposed discharge is in compliance with the general provisions of the Act pertaining to water quality, and will not cause a deterioration of water quality below the water quality standards of that state.¹⁵³ The Act specifically permits any state, political subdivision or interstate agency to adopt and enforce effluent limitations for new and existing sources which are more stringent than those required by EPA.¹⁵⁴

(c) Areawide Waste Treatment Planning.

Section 303 of the FWPCA requires as a condition precedent to state takeover of the NPDES program that the state have established a continuous planning process on a state-wide basis which is at all times consistent with the Act.¹⁵⁵ The primary planning mechanism of the FWPCA, however, is section 208, which establishes the areawide waste treatment management process whereby states are strongly encouraged to develop plans for "those areas which, as a result of urban industrial concentrations or other factors, have substantial water quality problems."¹⁵⁶ The Governor is authorized

to act in designating such areas, provided however, that if the Governor fails to act, local elected officials are so authorized.¹⁵⁷ In regions encompassing two or more states, the Governors are authorized to act in concert to establish a single representative organization to develop the areawide plan, with local elected officials again authorized to take independent action if the Governors fail to act.¹⁵⁸ After EPA approval of the boundaries of the designated area, the areawide planning authorities are required to develop a planning process which is applicable to all wastes generated within the area, identifying those treatment works necessary to meet the anticipated municipal and industrial waste treatment needs over a twenty year period.¹⁵⁹ Additional items to be considered in the planning process include the identification of pollution problems associated with pollution from agricultural and silvicultural operations, mine-related sources, construction activities and salt water intrusion.¹⁶⁰

A regulatory program must be adopted regarding the location, modification and construction of any facilities in the area which are capable of causing pollutant discharges. This program must also ensure that industrial or commercial waste discharged into any treatment works in the area meets applicable pretreatment requirements.¹⁶¹ The Governor is authorized to designate the management agencies responsible for implementation of the plan, subject, however, to EPA approval, after a showing that statutory requirements regard-

ing the authority and ability of the management agency to carry out the plan have been met.¹⁶²

In order to encourage state and local governments to engage in this planning process, EPA was authorized to make grants of up to 100 percent of the "reasonable costs of developing and operating a continuing areawide waste treatment management process."¹⁶³ As an additional incentive, states are prohibited from obtaining NPDES authority until they have established an areawide waste treatment management process in accordance with the Act.¹⁶⁴

In addition to section 208 planning, section 209 of the FWPCA requires the President, acting through the Water Resources Council, to prepare basin plans for all of the river basins, or portions thereof, which were designated for areawide waste treatment planning pursuant to section 208.¹⁶⁵

By strongly encouraging the implementation of waste treatment management plans on an areawide basis, the 1972 amendments represent a significant improvement over prior law. Water pollution problems, which are seldom confined to discrete state or local boundaries, are much more likely to be satisfactorily addressed when considered on a jurisdictional basis limited only by the scope of the problem. Because water tends to flow in patterns based upon the topography of the area, the areawide approach assures that the management authority will have sufficient jurisdiction to adequately regulate water quality within a given area.

(d) Demonstration Grants and Other Assistance.

The 1972 amendments also resulted in a greatly expanded financial commitment by the federal government to control water pollution. Funds were provided for research efforts in such areas as controlling pollution in the Great Lakes and Lake Tahoe;¹⁶⁶ developing the latest scientific knowledge regarding the effects of pesticides on human health and methods of controlling their release in the aquatic environment;¹⁶⁷ studying the effects of sedimentation on estuaries;¹⁶⁸ preventing, reducing, and eliminating pollution from agriculture;¹⁶⁹ developing equipment to control the release of human body wastes from recreational and other vessels;¹⁷⁰ studying methods of encouraging and developing markets for the re-use of waste oil;¹⁷¹ developing devices, systems, and policies, capable of achieving a maximum reduction of unnecessary water consumption;¹⁷² and measuring the social and economic costs and benefits of activities subject to regulation under the Act.¹⁷³ Demonstration grants were authorized for projects which developed new or improved methods of: treating municipal and industrial wastes;¹⁷⁴ controlling non-point source pollutants,¹⁷⁵ including stormwater runoff and return flows from agriculture;¹⁷⁶ eliminating or controlling acid or other pollution from active or abandoned mining operations;¹⁷⁷ recycling potential sewage pollutants and reclaiming wastewater;¹⁷⁸ and identifying and measuring the effects of pollutants on the chemical, physical, and biological integrity of water, including those pollutants

created by new technological developments.¹⁷⁹ Provisions were also included regarding scholarships,¹⁸⁰ training grants,¹⁸¹ loan guarantees,¹⁸² and assistance to state and local agencies for administrative and other expenses.¹⁸³

4. Legal Challenges to the 1972 Amendments.

The 1972 amendments spawned a flood of litigation by various industry groups which objected to the sweeping authority granted EPA and the manner in which it was exercised. Numerous actions were also brought by environmental groups which sought to prod the agency into taking stronger measures, and keeping pace with the timetable that had been affixed by the Congress in the Act.

On the industry side, a major area of contention was whether or not Congress intended that EPA set precise, numerical effluent limitations for all plants within a certain industrial-category, or merely set a range for effluent limitations, with specific limitations then set for each plant by the permit issuing authority.¹⁸⁴ EPA took the position that it was not required to consider applications on a case-by-case basis, but rather, was authorized to set industry-wide effluent limitations. It contended that sufficient flexibility was provided by the variance procedure which permitted alteration of the BPT effluent limitations for individual polluters when it could be demonstrated that they were subject to special factors which were "fundamentally different" from those considered by EPA in formulating the uniform limitations.¹⁸⁵ The issue was finally resolved by

the United States Supreme Court, which ruled in favor of EPA, finding that the industry position "would place an impossible burden on EPA, by requiring it to give individual consideration to the circumstances of the more than 42,000 dischargers who had applied for permits."¹⁸⁶ The court found the variance clause regarding the BPT limitations to be a saving feature which permitted EPA to administer the Act with sufficient flexibility to insure that due process rights were not violated.¹⁸⁷

Industry also argued for greater flexibility regarding the method by which EPA determined the technology that would be applied to a particular industry. The EPA practice of taking the average of the best performers in the industry was upheld against industry contentions that a wider average of performance should be considered.¹⁸⁸ In another area of litigation, industry challenges relating to the applicability of transfer technology to a particular industry met with greater success, when the industry was able to prove that the transferability of the technology had not been adequately demonstrated by EPA.¹⁸⁹

Perhaps the most important area of litigation, however, involved challenges brought by various industry groups against particular Phase One and Phase Two effluent limitations on the basis of the allegedly unreasonable and excessive cost of achieving the required effluent reductions. In most instances, it was the Phase Two guidelines that were challenged on this basis, with the courts generally proving

unreceptive to cost arguments, due to a perceived Congressional intent that the cost of achieving effluent reductions be less of a factor under the Phase Two guidelines.¹⁹⁰ Additionally, the courts were in many instances influenced by the stated goal of the Act that zero discharge of pollutants be achieved, whenever possible, by 1985. For example, in FMC Corporation et al. v. Train,¹⁹¹ the court in refusing to overturn certain effluent guidelines on the basis of excessive cost, noted that:¹⁹²

The Act's overriding objective of eliminating by 1985 the discharge of pollutants into the waters of the Nation indicates that Congress, in its legislative wisdom, has determined that the many intangible benefits of clean water justify vesting the Administrator with broad discretion, just short of being arbitrary or capricious, in his consideration of the cost of pollution abatement.... While EPA must take seriously its statutory duty to consider cost, courts of review should be mindful of the many problems inherent in an undertaking of this nature and uphold a reasonable effort made by the Agency. This requirement should not serve as a dilatory device, obstructing the Agency from proceeding with its primary mission of cleaning up the lakes, rivers, and streams of this Nation.

The cost of achieving a proposed effluent reduction had to be quite extreme relative to the benefits derived before the courts would invalidate a guideline on economic grounds. For example, in Hooker Chemical and Plastics Corp. et al. v. Train,¹⁹³ the court remanded Phase Two, zero discharge requirements for the manufacturing of phosphorus pentasulfide due to salt precipitation problems attendant to the total recycling technology suggested by EPA and the excessive cost of implementing an alternative manufacturing process recommended

by the agency.

5. The 1977 Amendments.

The Clean Water Act of 1977¹⁹⁴ "reflects a broad congressional consensus that the 1972 legislation was essentially sound...",¹⁹⁵ while making many significant modifications and additions in response to changing concerns and problems experienced with the implementation of the Act, as amended in 1972.

(a) Conventional, Unconventional, and Toxic Pollutants.

One of the major problems with the 1972 amendments, as implemented, was that the reliance on uniform effluent limitations and the denigration of cost considerations vis a vis the Phase Two guidelines led to a situation in which various industries were required to implement costly and energy intensive secondary and tertiary treatment processes which were not necessary to maintain water quality, especially regarding pollutants such as biological oxygen demand (BOD), pH, suspended solids, and fecal coliform, since these could often be assimilated by receiving waters without the environmental consequences attributable to chlorinated hydrocarbons, heavy metals and other toxic pollutants. To remedy this situation, the 1977 amendments established three classes of pollutants with differing regulatory requirements, exemptions and variance procedures applicable to each. BOD, suspended solids, fecal coliform, pH and such other pollutants as EPA might so identify, were re-named "conventional pollutants,"¹⁹⁶ with point sources pollutants other than

publicly owned treatment works (POTW) required to implement the new best conventional pollution control technology (BCT) standard as determined by EPA regulations, not later than July 1, 1984.¹⁹⁷ In determining what constitutes such technology, the administrator is required to consider factors similar to those applicable to the BPT and BAT standards. In addition, he must also consider:

The reasonableness of the relationship between the costs of attaining a reduction in effluents and the effluent reduction benefits derived and the comparison of the cost and level of reduction of such pollutants from the discharge of publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources....¹⁹⁸

Thus, EPA is required to give more consideration to the marginal utility of its pollution control measures in formulating effluent limitations for conventional pollutants,¹⁹⁹ and consider more carefully the feasibility of using publicly owned treatment works to handle this type pollutant load. Overall, BCT requirements are intended to be less stringent than the previously applicable BAT levels, but no less stringent than the BPT standards.²⁰⁰

Toxic pollutants are continued as a separate class of pollutants in a significant alteration of section 307 of the Act, which largely incorporates the terms of a Settlement Agreement that ended litigation brought by various environmental groups to compel EPA to proceed more comprehensively and rapidly in regulating toxic substances.²⁰¹ Under the 1972 amendments, EPA was required to specify which substances

were to be considered as toxic and adopt uniform effluent limitations for point sources emitting those substances. EPA delays in specifying these substances caused apprehension among industrial concerns, which could not adequately plan the construction of pollution control facilities due to uncertainty as to whether their effluent contained substances which might in the future be prescribed as toxic, thereby necessitating further modifications of production processes and pollution control technology.²⁰² The 1977 amendments eliminated much of this uncertainty by defining as toxic a list of 65 substances emitted by 21 major industries, with EPA authorized to add to or remove any pollutant from this list.²⁰³ EPA is required to prescribe BAT effluent limitations for the 65 listed pollutants by July 1, 1980, with point sources other than publicly owned treatment works required to implement satisfactory control measures by July 1, 1984.²⁰⁴ For any additional toxic substances which might be subject to BAT effluent limitations, control technology must be implemented by "not later than three years after the date such limitations are established."²⁰⁵

The third class of pollutants, commonly labeled "unconventional pollutants," is defined by the 1977 amendments to include those pollutants which do not fall within the other two categories.²⁰⁶ Emitters of these pollutants must meet the BAT effluent limitations by "not later than 3 years after the date such limitations are established, or not

later than July 1, 1984, whichever is later, but in no case later than July 1, 1987."²⁰⁷

(b) Variances and Extended Compliance Schedules.

To ameliorate the impact of the 1972 amendments, and provide greater flexibility to EPA in enforcement, the 1977 amendments include several additional provisions regarding variances, exemptions, and the extension of required times for compliance. Under the 1972 amendments, no variances were permitted from the 1977 BPT standards. For the 1983 BAT standards, variances were permitted for point sources which filed an NPDES permit application after July 1, 1977, and demonstrated that the modified requirements represented "the maximum use of technology within the economic capability of the owner or operator," and would "result in reasonable further progress towards the elimination of the discharge of pollutants."²⁰⁸ The 1977 amendments provide additional standards whereby variances from the BAT requirements may be granted to emitters of unconventional pollutants.²⁰⁹ They also provide a basis whereby publicly owned treatment works can obtain a variance from the secondary treatment requirements for the discharge of "any pollutant" into marine waters, which include saline estuarine bays where there is strong tidal movement.²¹⁰ In addition, emitters of toxic pollutants are eligible for variances from pretreatment requirements for emission's into a publicly owned treatment works (POTW) when it can be demonstrated that the discharge from the POTW will meet effluent limitations applicable to

the source, and not prevent the disposal or other use of the sludge from those treatment works in accordance with the requirements of the Act.²¹¹

Although the grounds for variances have been somewhat expanded by the 1977 amendments, they are still quite limited in scope, reflecting the continuing Congressional desire for strict enforcement of effluent limitations by EPA. Permitting variances for discharges of secondary effluent by POTW's into saline, estuarine bays has perhaps the most potential for abuse, due to the ecological sensitivity of this environment.²¹² The most significant expansion of administrative flexibility, however, is in those instances in which EPA is authorized to grant extensions of the time of compliance with applicable effluent limitations. Regarding the 1977 BPT standards, polluters who had applied for an NPDES permit after December 31, 1974, and made a good faith effort towards compliance, including the commencement of construction of facilities to assure compliance, were made eligible for extensions to a date which would achieve compliance "at the earliest possible time but not later than April 1, 1979."²¹³ In addition, such polluters are eligible for an extension of the BPT requirements until July 1, 1983, if the discharge is capable of being adequately handled by a POTW which consents to treating the discharge.²¹⁴ It must be demonstrated that discharging into a POTW is the "most expeditious and appropriate" means of complying with the Act.²¹⁵

The 1977 amendments also provide extensions for POTW's which are unable to comply with the 1977 secondary treatment requirements due to federal delays in the awarding of construction grants and other assistance. Any such POTW is eligible for an extension of time of compliance up to July 1, 1983.²¹⁶ In addition, point sources which had received or applied for a permit prior to July 1, 1977 based upon an anticipated discharge into such a publicly owned treatment works, are also eligible for a similar extension.²¹⁷

Most interesting, however, is the extension of time for compliance with the BAT standards to July 1, 1987 for those facilities which replace existing capacity with an innovative production process or control technique "which will result in an effluent reduction significantly greater than that required by the limitation otherwise applicable to such facility and moves towards the national goal of eliminating the discharge of all pollutants," or achieves the required reduction at a significantly lower cost than those systems which EPA had determined to be economically achievable.²¹⁸

(c) Alternative Waste Treatment Processes.

The 1977 amendments made numerous additional modifications of the Act, which reflect both changing concerns and new areas of interest regarding the regulation of water quality. A primary area of increased interest is the use of alternative wastewater treatment processes which are not as capital intensive or energy consumptive as conventional secondary and tertiary treatment processes. New provisions

require that prior to awarding grants for the erection, building, acquisition, alteration, remodeling, improvement, or extension of a POTW,²¹⁹

innovative and alternative wastewater treatment processes, and techniques which provide for the reclaiming and reuse of water, otherwise eliminate the discharge of pollutants, and utilize recycling techniques, land treatment, new or improved methods of waste treatment for municipal and industrial waste (discharged into municipal systems) and the confined disposal of pollutants, so that pollutants will not migrate or cause other environmental pollution, have been fully studied and evaluated by the applicant ... taking into account to the extent practicable the more efficient use of energy and resources.

EPA is required to establish guidelines for identifying and evaluating innovative and alternative wastewater treatment processes and techniques, which must be considered in evaluating all grant proposals.²²⁰ The federal share of grants for alternative processes is increased from 75 to 85 percent,²²¹ and the life cycle cost of such projects may exceed that of the most effective alternative by up to fifteen percent.²²²

Another provision requires EPA to set aside four percent of those sums allocated to a state with a rural population of 25 percent or more for the construction of alternatives to conventional treatment works in municipalities with a population of 3,500 or less, or in highly dispersed sections of larger municipalities.²²³ The federal government is required to take a leading role in the development of alternative and innovative wastewater treatment processes, with all such facilities constructed after September 30, 1979

required to implement those processes, provided the life cycle costs do not exceed that of the most effective alternative by more than fifteen percent.²²⁴

In addition to funding alternative methods for treating municipal wastewater, the 1977 amendments demonstrate an increased interest in the utilization of municipal wastewater and sludge for agricultural and other purposes. A new provision requires EPA to develop guidelines for the disposal of sludge and the utilization of sludge for various purposes, including the identification of concentrations of pollutants which interfere with each such use or disposal.²²⁵ EPA is also required to report to Congress regarding the use of municipal secondary effluent and sludge for agricultural and other purposes that utilize the nutrient value of treated wastewater effluent, including recommendations for legislation "to encourage or require the expanded utilization of sludge for agricultural and other purposes."²²⁶

The measures taken by the 1977 amendments to promote the use of alternative waste treatment techniques are encouraging. Wider application of these techniques will significantly reduce the long-term cost of wastewater treatment, improve soil quality, and facilitate reduction in the use of chemical fertilizers and pesticides, which have an adverse effect upon water quality.

(d) Control of Non-Point Source Pollutants.

Another area of expanded concern reflected by the 1977 amendments is that of providing more effective regulation and

control of non-point source pollutants, which, although not regulated by the 1972 amendments, contribute substantially to the overall water pollution problem.²²⁷ Although the 1977 amendments make clear for the first time that "return flows from irrigated agriculture" are a non-point source,²²⁸ which is exempted from the NPDES permitting requirements,²²⁹ extensive provisions have been added to section 208 of the Act to encourage greater control of non-point pollutants from agricultural operations in general. The Secretary of Agriculture is authorized to establish and administer a program in cooperation with EPA, which is designed to encourage the owners and operators of rural land to install and maintain "best management practices" (BMP) to control non-point source pollution.²³⁰ This is done through contractual agreements with individual operators, whereby the Secretary agrees to pay up to fifty percent of the cost of the BMP measures set forth in the contract.²³¹ Regarding non-point source pollutants which may result from industrial operations subject to NPDES permitting procedures, EPA has been given authority to publish supplemental regulations to control these pollutants.²³²

(e) Additional Provisions.

Additional areas of new concern reflected by the 1977 amendments include the reduction of water consumption;²³³ expansion of recreational and open space opportunities in the planning of publicly owned treatment works;²³⁴ assistance to privately owned treatment works in areas where

public ownership of such works is not feasible;²³⁵ studying methods to control those problems associated with combined sewer overflows,²³⁶ and the creation of a contingency fund not to exceed \$10 million to handle pollution emergencies.²³⁷ To assist the public in the implementation of some of these new concepts, EPA is required to develop a continuing program of public information and education on recycling and reuse of wastewater (including sludge), the use of land treatment, and methods for the reduction of wastewater volume.²³⁸

C. State and Local Regulation of Water Quality.

1. The Florida Air and Water Pollution Control Act.

The Florida Air and Water Pollution Control Act was enacted on July 12, 1967²³⁹ in an attempt to provide a more effective apparatus for the control of pollution in Florida. Prior to its enactment, pollution control in Florida was primarily the responsibility of the State Board of Health, which had general control and supervision over all underground water, lakes, rivers, streams, canals, ditches, and coastal waters of the state "insofar as their pollution may affect the public health or impair the interest of the public or persons lawfully using them."²⁴⁰ Within the Board of Health, the Bureau of Sanitary Engineering handled pollution problems, relying primarily on the threat of injunction to persuade polluters to solve their pollution problems satisfactorily.²⁴¹ Due to a lack of personnel, however, the Bureau's ability to cope with mounting water quality problems

was limited.²⁴² In addition, its permitting power was limited to pollution of certain underground waters.²⁴³

The 1967 Act repealed "all rule making jurisdiction over air and water pollution matters" held by other agencies, including the State Board of Health,²⁴⁴ and created the Florida Air and Water Pollution Control Commission as a separate agency to handle pollution control.²⁴⁵ The functions of the Commission were subsequently transferred to the Department of Pollution Control,²⁴⁶ and then, in 1975, to the Department of Environmental Regulation (DER),²⁴⁷ which is now generally responsible for the administration of pollution control matters in Florida.²⁴⁸ The Air and Water Pollution Control Act, as amended, is now a part of Chapter 403, Florida Statutes, and along with several other sections of that Chapter, provides the statutory basis for the regulation of most aspects of water quality in Florida.²⁴⁹

DER is headed by a Secretary appointed by the Governor subject to confirmation by the Florida Senate, who serves at the pleasure of the Governor.²⁵⁰ In addition, the Environmental Regulation Commission (ERC), which was established pursuant to the Florida Environmental Reorganization Act of 1975, is empowered to act as an adjudicatory body for final actions taken by the Department and is the exclusive standard setting authority of the Department.²⁵¹ The Commission conducts a review of all standards proposed by DER, which must include an economic and environmental

impact study for those standards that are more stringent than the federal standards. Final action on the more stringent standards is taken by the Governor and the Cabinet, must "accept, reject, modify or remand for further proceedings the standard within 60 days from its submission."²⁵²

(a) Powers and Duties of the Department; Jurisdiction.

Although the Florida Air and Water Pollution Control Act has been deemed insufficient to permit a transfer of NPDES permitting authority to the state,²⁵³ it nevertheless provides the Department with broad powers and duties to accomplish the statutory goal of protecting and improving water quality throughout the state. These include the power to: 1) develop and adopt a comprehensive current and long range program for the "prevention, abatement and control of pollution in the waters of the state," including the classification of waters based upon their present and future most beneficial uses;²⁵⁴ 2) establish ambient water quality criteria within each classification for various parameters of water quality;²⁵⁵ 3) develop a permit system for the "operation, construction, or expansion of any installation²⁵⁶ that may be a source of ... water pollution" and provide for the posting of an appropriate bond to operate any such installation;²⁵⁷ 4) require persons engaged in operations which may result in pollution to file reports regarding the location and nature of those emissions;²⁵⁸ 5) conduct water quality monitoring throughout

the state;²⁵⁹ 6) adopt, modify and repeal rules and regulations to carry out the intent and purposes of the Act;²⁶⁰ and 7) issue such orders as may be necessary to effectuate the control of water pollution.²⁶¹

In exercising these duties and responsibilities, the jurisdiction of the Department is considerable due to the broad statutory definition of "waters" of the state, which is not limited by the navigability concept.²⁶² Regulatory authority to control water pollution extends to the source of the pollution, wherever it may be located, so long as it affects waters of the state other than those waters which are owned entirely by one person other than the state. In those areas where the boundary between the waters of the state and adjacent uplands is uncertain due to tidal influence and other factors, the Department is authorized to establish a method for making such determinations by defining "species of plants or soils which are characteristic of those areas subject to regular and periodic inundation by the waters of the state."²⁶³

(b) Implementation of DER Permitting Authority.

In accordance with section 403.087, Florida Statutes, DER now requires that any installation "which will reasonably be expected to be a source of pollution" obtain a permit from the Department prior to the construction, expansion, modification or operation of any such installation, unless specifically exempted by Department rule.²⁶⁴ Prior to issuing a permit, DER must determine that the installation

is provided or equipped with pollution control facilities that will abate or prevent pollution to the degree that will comply with the standards and rules promulgated by the Department and certain federal prohibitions.²⁶⁵ The applicant is required to provide reasonable assurance based on plans, test results and other information that these criteria will be satisfied.²⁶⁶ Once all the required information has been received, the Department has sixty days to issue or deny the permit,²⁶⁷ except for dredging and filling activities, which are subject to a ninety-day time limitation.²⁶⁸

DER requires that domestic and industrial pollution sources obtain separate permits for the construction and operation of those facilities.²⁶⁹ Applicants for construction permits must provide an engineering report covering plant description and operations, types and quantities of all waste material generated whether liquid, gaseous or solid, proposed waste control facilities, and other information deemed relevant.²⁷⁰ The owners must also provide a written guarantee that design criteria will be met and may be required to post a performance bond where the owner's financial resources are inadequate or proposed control facilities are experimental in nature.²⁷¹ Applicants for operating permits, which are required of any person intending to discharge wastes into the waters of the state,²⁷² must demonstrate that the proposed discharge will not reduce the quality of the receiving waters below the classification

that has been established for those waters, or violate any effluent standard that has been established for that category of pollution source.²⁷³ Moreover, even if water quality standards are not violated by a proposed discharge, the Department must still make a finding that whatever degradation does occur is clearly in the public interest.²⁷⁴ Permits that are issued must specify the manner, nature, volume and frequency of the discharge permitted and require the proper operation and maintenance of the pollution control facility by duly qualified personnel in accordance with standards established by the Department.²⁷⁵ DER may also impose any additional conditions, requirements, and restrictions which it deems necessary to preserve and protect the quality of the receiving waters.²⁷⁶

In the event an applicant is unable to obtain an operating permit, a temporary operating permit may be granted, provided certain statutory conditions are fulfilled.²⁷⁷ The Department must provide notice of the proposed discharge to residents of the drainage area of the receiving waters regarding the period during which objections may be presented.²⁷⁸ Permits which are issued must specify the "manner, nature, volume and frequency" of the discharge, including interim control measures required by DER, and are only valid for the period of time necessary for the permit holder to place into operation those permanent control measures contemplated in the permit application. The permittee must also maintain monitoring equipment and file

reports as required by the Department.²⁷⁹

(c) Domestic and Industrial Waste Treatment Requirements.

DER has adopted by rule effluent standards and guidelines for dischargers of domestic and industrial wastes, which largely incorporate those adopted by EPA pursuant to the Federal Water Pollution Control Act (FWPCA), as amended in 1972.²⁸⁰ Municipal and privately owned domestic waste treatment plants are required to treat their effluent so as to comply with state water quality standards. At a minimum, such plants must have implemented ninety percent treatment or better (i.e., secondary waste treatment) by January 1, 1973, except plants discharging through ocean outfalls or disposal wells, which must have provided for such treatment by January 3, 1974.²⁸¹ In addition, section 403.086, Florida Statutes, designates certain waterbodies which require the application of advanced waste treatment technology for sanitary wastes.²⁸² DER rules, however, also permit the use of alternative effluent disposal methods for new and existing facilities which discharge into these waterbodies.²⁸³

Industrial dischargers must meet the BPT and BAT effluent limitations for new and existing sources, toxic pollutants and discharges into publicly owned treatment works in accordance with the time schedules that have been specified in the FWPCA, provided however, that dischargers will in no case be relieved from compliance schedules or abatement plans contained in a currently valid state permit,

order, or judicial judgment.²⁸⁴ A variance from the EPA effluent limitation may be obtained, however, if DER determines after a public hearing that some or all of the factors considered by EPA in formulating the uniform effluent limitation are "fundamentally different" from those applicable to the particular point source.²⁸⁵ In no case, however, may a DER permit contain an effluent limitation that is less stringent than that which is contained in an NPDES permit issued by EPA.²⁸⁶ If specific effluent limitations have not been adopted by EPA, the discharge must apply the latest modern technology advances as approved by the regulatory agency,²⁸⁷ which must at a minimum provide secondary waste treatment for those wastes amenable to biological treatment.²⁸⁸ Secondary treatment must also be provided for industrial wastes injected or discharged into ground waters, notwithstanding any less stringent technology based effluent limitations applicable to such discharges.²⁸⁹

In accordance with section 301(b)(1)(c) and section 302 of the FWPCA, DER considers the above-described technology-based effluent limitations to be minimum treatment requirements, which may be superceded by more stringent limitations when necessary to meet applicable water quality standards.²⁹⁰ While recognizing that mathematical models and other methods of determining pollutant concentrations result in estimated values which may not be entirely accurate, DER nevertheless relies upon these estimates in fixing effluent limitations, provided that the most reliable and complete data reasonably

available has been applied.²⁹¹ The burden is on DER to fix the more stringent effluent limitation. Enforcement action will not be taken against polluters where the Department has declined to provide such an effluent limitation, except in those instances where irreparable injury might occur.²⁹²

(d) VariANCES.

The Air and Water Pollution Control Act provides for variances from the Act or the rules and regulations adopted pursuant thereto, which may be granted at the discretion of the Department for any one of the following reasons:²⁹³

(i) There is no practicable means known or available for the adequate control of the pollution involved.

(ii) Compliance with the particular requirement or requirements from which a variance is sought will necessitate the taking of measures which, because of their extent or cost, must be spread over a considerable period of time. A variance granted for this reason shall prescribe a timetable for the taking of the measures required.

(iii) To relieve or prevent hardship of a kind other than those provided for in items (i) and (ii) above.

VariANCES granted pursuant to this section must be limited to two years duration, except for those pertaining to electrical power plants, which may extend for the life of

the permit or certification.²⁹⁴ DER must hold a hearing on each application for a variance, and may prescribe time limits and other conditions as it deems appropriate.²⁹⁵ In addition to the statutory criteria, DER has adopted rules which require it to consider additional factors which include: the steps taken by the applicant to comply with the requirements from which the variance is sought and when such compliance will be achieved; any beneficial or adverse impact of the Department's decision on the residents and environment of the affected area, including economic or social impacts, and the damage or harm which may result to the applicant from compliance with its rules or regulations.²⁹⁶

The granting of variances from pollution control requirements on the basis of the anticipated cost of compliance to the applicant is a potential weakness in the law that might lead to substantial degradation of water quality, especially regarding emissions from small scale industrial facilities.²⁹⁷ In industries where large scale operations are necessary to render the installation of adequate pollution monitoring and control facilities economically feasible, the mandated closing of small-scale, technologically obsolete facilities may be the only effective means of protecting water quality from the long-term threat presented by the infusion of heavy metals and other hazardous substances into the aquatic environment.

(e) DER Enforcement Remedies.

The Air and Water Pollution Control Act authorizes DER to pursue both judicial and administrative remedies in exercising its responsibility to abate, control and prevent water pollution, which include injunctive relief, civil and criminal penalties, and compensatory damages. Proceedings for compensatory damages may be commenced at either the administrative or judicial level to "establish liability ... for any injury to the air, waters, or property, including animal, plant, or aquatic life, of the state caused by any violation" of the Act, or the rules and regulations promulgated thereunder.²⁹⁸ If proceedings are brought at the judicial level, it is not necessary for DER to serve notice of violation, hold an administrative hearing, or otherwise demonstrate the exhaustion of administrative remedies.²⁹⁹ Notice of the alleged violation must be provided, however, for proceedings brought at the administrative level, the violator having twenty days to request a hearing.³⁰⁰ Violators may also be held liable for "reasonable costs and expenses of the state in tracing the source of the discharge, in controlling and abating the source and the pollutants, and in restoring the air, waters, and property, including animal, plant and aquatic life, of the state to their former condition."³⁰¹ When two or more polluters are involved, such persons can be held jointly and severally liable for the damages, provided however, that when the damages are divisible, they will be apportioned between violators.³⁰²

In assessing damages for fish killed, DER is authorized to establish a table of values for individual categories of fish, and use standard practices for estimating fish populations to determine the total number of fish killed.³⁰³

These damages may not, however, be assessed if they result from chemicals which are applied under a federally or state approved program to control insects, aquatic weeds, or algae, provided such application is not done negligently.³⁰⁴

This method of assessing damages was upheld against constitutional challenge in State Department of Pollution Control v. International Paper Co.,³⁰⁵ which was based upon the allegation that the use of definite prescribed values for the fish killed deprived defendant of the due process right to present evidence on a material issue of fact. The court interpreted the statute in a manner which upheld its constitutionality, holding that the fish tables created a presumed value, which could then be rebutted through the introduction of additional evidence.³⁰⁶

In addition to seeking damages, DER may initiate judicial proceedings to recover both criminal and civil penalties. Violation of any of the prohibitions contained in the Act is punishable by civil penalties of up to \$10,000 per violation per day.³⁰⁷ Furthermore, criminal penalties of from \$2,500 to \$25,000 per violation per day can be assessed against persons who willfully and negligently cause pollution, or fail to obtain a permit or comply with any rule, regulation, order, permit or certifi-

cation adopted or issued by the Department.³⁰⁸ Persons making false representations to the Department or tampering with monitoring devices are subject to criminal fines of up to \$10,000 per violation.³⁰⁹

The Department may also institute civil action to obtain injunctive relief when necessary to prevent irreparable injury or enforce compliance with any provision of Chapter 403, Florida Statutes, or any rule, regulation, permit certification or order of the Department.³¹⁰ Prior to bringing such action, the Department may attempt to obtain compliance through administrative proceedings, but such proceedings are independent and cumulative to judicial action, and not a condition precedent thereto.³¹¹

(f) Hearings and Appeals.

Section 120.57 of the Florida Administrative Procedure Act³¹² (APA) requires that whenever "the substantial interests of a party are determined by an agency," the party shall be entitled to request an administrative hearing to be conducted in accordance with the procedures specified therein. Formal proceedings are held whenever a disputed issue of material fact is involved. Informal proceedings, which are subject to less stringent procedural requirements, are held in all other instances, unless otherwise agreed upon by the parties.³¹³

DER has adopted rules permitting the challenging of actual or intended decisions (except rulemaking proceedings under statutes the Department is required to implement), which incorporate the procedural requirements of section 120.57

of the APA.³¹⁴ In the case of administrative enforcement action for the violation of any of the provisions of Chapters 403, 373, or 253, Florida Statutes, the alleged violator is given twenty days from receipt of notice thereof to request an administrative hearing to contest the action.³¹⁵ Regarding the issuance of denial of licenses, a substantially affected person must request a hearing within fourteen days of receipt of notice of the actual or intended issuance or denial of the license.³¹⁶ Failure to request a hearing within the prescribed period is deemed a waiver of the right thereto, substantially limiting the record to be considered on subsequent appeals.³¹⁷

Once a hearing has been requested, DER generally refers the matter to a hearing officer who is appointed by the Division of Administrative Hearings of the Department of Administration.³¹⁸ The hearing officer must be assigned with "due regard to the expertise required for the particular matter,"³¹⁹ and has the authority to swear witnesses and take testimony under oath, issue subpoenas, and affect discovery in accordance with the Florida Rules of Civil Procedure.³²⁰ After consideration of the evidence, the hearing officer submits to all of the parties a recommended order, which consists of "findings of fact, conclusions of law, interpretation of administrative rules, recommended penalty, if applicable, and any other information required by law or agency rule...."³²¹ DER may reject or modify conclusions of law or interpretations of administrative

rules contained in the order, but may not reject or modify findings of fact unless it reviews the complete record and states with particularity the basis of its conclusion that such findings were "not based upon competent substantial evidence."³²²

After a final order has been rendered by the Secretary of the Department or his designate, a party may initiate an appeal to the Environmental Regulation Commission (ERC), which is authorized to hear appeals of most DER decisions.³²³ Such appeals are conducted by the Florida district courts,³²⁴ and the scope of review limited primarily to the interpretation of questions of law. The Commission will not substitute its judgment for that of the agency regarding a disputed finding of fact, unless it finds that such finding is "not supported by competent, substantial evidence in the record."³²⁵

Decisions of the Commission constitute final agency action,³²⁶ which is then ripe for judicial review in accordance with the provisions of Chapter 120, Florida Statutes.³²⁷ Jurisdiction is vested with the district court of appeal where DER maintains its headquarters or where a party resides.³²⁸ As with ERC decisions, the court must not substitute its judgment for that of the agency regarding a disputed finding of fact, but may set aside agency action or remand for further consideration when it determines that such action is dependent upon "any finding of fact that is not supported by competent substantial evidence on the record."³²⁹ The court may also remand for further action if

it finds that the fairness of the proceedings has been impaired by failure to follow a prescribed procedure,³³⁰ or if the action is outside the range or discretion delegated to DER by law.³³¹ Additional remedies available to the court include: ordering action or exercise of discretion when required by law; setting aside the action; deciding the "rights, privileges, obligations, requirements or procedures at issue between the parties," and ordering such ancillary relief as the court finds necessary to redress the effects of the official action wrongfully taken or withheld.³³²

(g) Local Pollution Control.

Local governments have the potential to make a significant contribution to the improvement of water quality throughout the state, especially regarding the control of non-point source pollutants from stormwater runoff and agricultural operations.³³³ The zoning power belonging to local governments may be employed to accomplish water quality goals through such mechanisms as flood plain zoning,³³⁴ restricting population density in environmentally sensitive areas, and confining commercial, industrial and agricultural development to areas which are less likely to cause water quality problems. Additionally, municipal home rule powers permit a municipality to enact legislation concerning any subject upon which the state legislature could act, except where prohibited by the Constitution or preempted to the state or a charter county.³³⁵ Other beneficial areas of

local legislation include: subdivision control ordinances; surface water runoff control ordinances; septic tank restrictions; drainage plan ordinances, and specific pollution control ordinances.³³⁶ Municipal or county control over the construction of sewers and drains and city streets can also have a significant impact upon the control of pollution associated with storm and surface water runoff. In addition, local authorities may elect to play an active role in the development and implementation of section 208 plans,³³⁷ and develop a cooperative arrangement with the water management district,³³⁸ coastal zone planning agency, and other regional, state and federal authorities concerned with the preservation of water quality.³³⁹

The Florida Air and Water Pollution Control Act expressly authorizes counties and municipalities to establish and administer a local pollution control program, provided it is approved by DER as adequate to meet the requirements of the Act, and any rules and regulations promulgated thereunder.³⁴⁰ The program must contain requirements which are compatible with those imposed by DER, including adequate means of administration and enforcement.³⁴¹ In addition to local enforcement remedies, enforcement authorities may employ all the remedies available to DER, with violations punishable as provided in section 403.161, Florida Statutes. Local governments may not, however, exercise permit issuing authority, unless such authority has been specifically delegated to the local pollution control organization by

DER.³⁴² Additionally, local authorities cannot adopt any rule, regulation, or order which affects or alters the operations of installations operating pursuant to currently valid DER permit.³⁴³

DER may supercede local authority to control pollution when it determines that the location, character or extent of particular concentrations of population, contaminant sources, geographic, topographic or meteorological considerations make impracticable the maintenance of appropriate levels of water quality without an areawide pollution control program.³⁴⁴

The Department may also assume administrative control over a local pollution control program when it determines that the program is inadequate to prevent and control pollution in the jurisdiction or is being administered in a manner inconsistent with statutory requirements.³⁴⁵ Jurisdiction may also be assumed for a particular class of contaminant source when DER determines that its complexity and magnitude is beyond the reasonable capability of the local pollution control authorities, or may be more efficiently and economically performed at the state level.³⁴⁶ The Department is also given jurisdiction to enforce the provisions of Chapter 403, Florida Statutes, and those rules, regulations and orders promulgated thereunder, notwithstanding the existence of a local pollution control program.³⁴⁷ When asserting jurisdiction, it must, however, also enforce those rules, regulations, or orders adopted by local authorities despite the fact that they may be more stringent than those of the Depart-

ment.³⁴⁸

(h) Assistance to Local Governments.

The Florida Air and Water Pollution Control Act, as amended, contains several provisions designed to provide assistance to local governments for the control of water pollution and restoration of polluted waterbodies. Section 403.165 establishes the Pollution Recovery Fund for the purpose of restoring polluted areas of the state to the condition they were in before the pollution occurred.³⁴⁹ The fund is created from those monies collected by DER in enforcement actions against polluters, and is initially designated for the improvement of those areas which were the subject of the enforcement action.³⁵⁰

In addition to the Pollution Recovery Fund, the Water Resources and Preservation Trust Fund was established in 1977 for the purpose of assisting local governments in the restoration and preservation of waterbodies in their jurisdictions.³⁵¹ It is financed from general revenues, federal assistance and surplus monies in the Pollution Recovery Fund. DER has prescribed rules regarding the purposes for which the fund may be used, and the criteria applicable to the awarding of grants.³⁵² These criteria include such considerations as the feasibility of the project; the interest and involvement of local and regional governments and the public in the project, and the extent to which local and regional authorities have begun to implement a water quality program for the waters within their juris-

diction.³⁵³

In order to assist local governments in the construction or reconstruction of sewage treatment facilities, the legislature has established the State Water Pollution Control Trust Fund, which is financed with those funds received by the state under the Federal Water Pollution Control Act.³⁵⁴

Grants of up to twenty-five percent of the cost of those projects eligible for federal grants may be awarded to local governmental agencies which have adopted and submitted to DER a comprehensive long range plan for the control of water pollution within their jurisdiction.³⁵⁵ DER may also provide grants to local governmental agencies for the purpose of developing these plans, which may not exceed fifty percent of that amount contributed by the local body.³⁵⁶

(i) The Florida Industrial Siting Act.

In many instances, persons engaging in the construction or operation of installations which contribute to water pollution must also obtain various additional licenses and permits from DER and other state agencies regarding environmental aspects of the project not related to water quality. When all of the various permitting requirements are considered together, the net result is often a confusing and time consuming administrative process which frequently discourages desirable industrial development.³⁵⁷

To ameliorate these negative aspects of the environ-

mental permitting process, the Florida Industrial Siting Act³⁵⁸ was enacted in 1979, in an attempt to implement a process whereby all state permit applications would be centrally coordinated without compromising standards and policies regarding the protection of the state's natural resources and environment.³⁵⁹ Persons engaging in an industrial, commercial, wholesale or retail business activity which has the potential for hiring fifty or more full-time employees and needs to be licensed by two or more state agencies³⁶⁰ may elect to be permitted pursuant to the Act.³⁶¹ An application or notice of intent to file an application³⁶² if filed with DER, which must then transmit copies of the application or notice of intent within seven days to all of the state agencies that might have jurisdiction over some aspect of the project. Public notice must also be provided within fifteen days of filing the application or notice of intent.³⁶³

Within sixty days of filing a completed application,³⁶⁴ the Division of State Planning and the Water Management District must submit a report containing recommendations regarding matters within their jurisdiction.³⁶⁵ The Department must also conduct studies regarding matters within its jurisdiction, which include: the environmental, economic and energy impact of the project, the impact of the project on necessary public facilities, and the degree of compliance with agency standards.³⁶⁶ The studies must be initiated within fifteen days of the filing of a completed application,

and completed within a sixty day period.³⁶⁷ Within three months of filing a completed application, the application and corresponding studies, reports and comments from state, local, federal and private interests must be filed with an independent hearing officer assigned by the Division of Administrative Hearings.³⁶⁸ The Department must include in its report a statement indicating whether the proposed project will be in compliance with its rules and the rules of other agencies and its recommendation regarding the disposition of the application, including any conditions which it believes should be imposed.³⁶⁹ The hearing officer must also receive a statement of approval from the local government before a certification hearing will be held.³⁷⁰ The statement of approval must indicate that the provisions of Chapter 380, Florida Statutes, have been met, if applicable, and that all local development, zoning, land use and pollution control ordinances have been met, including the local government comprehensive plan. Additional conditions or modifications may also be imposed by the local government.³⁷¹ Once local approval has been granted, however, the government may not change its ordinances, plans or development orders to affect the project until all of the procedures of the Act, including judicial review, have been completed.³⁷² The approval is effective for a two year period, during which time the zoning or land use regarding the project may not be altered without the consent of the applicant.³⁷³

The certification hearing must be held no later than

four months after a completed application has been filed with the Department in the county of the proposed project as close as possible to the project site.³⁷⁴ Parties to the proceeding must include the applicant, DER, Division of State Planning, water management district, and Department of Natural Resources, where the use or purchase of state owned lands is involved.³⁷⁸ Other state agencies, local governments having jurisdiction over the project, and domestic nonprofit corporations or associations may also become parties to the proceeding by filing notice of same at least thirty days before the certification hearing.³⁷⁶ Failure by a state agency to file timely notice constitutes a waiver of that agency's right to participate in the proceeding or subsequently assert jurisdiction to regulate the project in any manner.³⁷⁷ The hearing officer is granted all of the powers ordinarily accorded hearing officers,³⁷⁸ and must submit a recommended order to the Governor and Cabinet within five and one-half months after receipt of the completed application by the Department.³⁷⁹ The Governor and Cabinet then have forty-five days to issue a written order approving or denying the project,³⁸⁰ which constitutes final agency action and is then subject to judicial review pursuant to Chapter 120, Florida Statutes.³⁸¹

Once a project has been certified, such certification constitutes the sole license of the state or any state agency as to the construction of operation of the project.³⁸² It is the specific intent of the Act that local governments

retain their full decision-making power, unless expressly provided otherwise in the Act.³⁸³ The certification is effective for a seven year period, with applicants given the option of seeking recertification pursuant to the Act or through individual applications with the various state agencies.³⁸⁴ Except when express variances, exceptions or exemptions have been granted, subsequently adopted DER rules prescribing stricter or more lenient criteria act to automatically modify the conditions of the certification.³⁸⁵ In addition, the certification may be modified by mutual agreement or after an adversary proceeding before the Governor and Cabinet, held under the provisions of section 120.57, Florida Statutes.³⁸⁶

The Florida Industrial Siting Act is a major step forward in the attempt to expedite the regulatory process at the state level of government. Regional and local regulation are not significantly affected by the Act, however, and may present additional regulatory hurdles, especially where a development of regional impact is involved. Still, the statutorily imposed timetable, which contemplates competition of the state administrative review process within a seven month period, provides applicants with a guarantee that costly administrative delays will be minimized, and that in the event of a negative response, the action will then be ripe for judicial review.

It remains to be seen whether the Act can be successfully implemented while maintaining environmental standards.

This will largely depend upon the legislative commitment towards proper funding of DER and other affected agencies. Without adequate funding for sufficient administrative staff, the statutorily imposed timetables may cause agencies to conduct cursory review which do not adequately consider a proposed project's environmental implications. On the other hand, with proper funding the Act may substantially enhance the application of an integrated approach towards environmental management, provided an experienced, interdisciplinary staff can be developed by the Department and other affected agencies.³⁸⁷

2. Water Quality Planning in Florida.

(RESERVED)

3. NPDES Authority in Florida.

(RESERVED)

4. Classification of Florida Waters.

The classification of Florida waters was initiated in response to the 1965 amendments to the Federal Water Quality Act, which directed the states to establish water quality standards or face imposition of federal standards. The Governor's Advisory Committee on Water Quality Control, which was composed of representatives from various interest groups, held public hearings throughout the state³⁸⁸ and recommended a classification system based upon the intended use of the waters.³⁸⁹ On May 13, 1967, the State Board of Health promulgated specific criteria for the classification of Florida waterbodies.

The classification of Florida waters has continued from 1967 to the present. Recently revised DER rules specify five major classes of waters for Florida, with groundwaters classified for the first time.³⁹⁰ Surface waters are classified by river basins, and generally classified as Class III waters (Recreation - Propagation and Management of Fish and Wildlife),³⁹¹ with individual exceptions listed by rule for each basin and generally classified as Class II waters (Shellfish Propagation and Harvesting).³⁹² All secondary and tertiary canals wholly within agricultural areas are classified as Class IV waters (Agricultural Water Supplies).³⁹³ The groundwaters of the state are classified on the basis of total dissolved solids (TDS) content. Groundwaters with TDS levels less than 10,000 mg/l are classified I-B (Potable and Agricultural Water Supplies and Storage), while groundwaters with naturally occurring TDS levels equal to or greater than 10,000 mg/l are classified V-B (Freshwater Storage, Utility and Industrial Use).³⁹⁴

The effect of classifying a waterbody for a particular designated use is to determine the applicable water quality criteria. Generally, water quality classifications are arranged in order of the degree of protection required with Class I waters being the more stringently regulated.³⁹⁵ Classification of a waterbody for a particular designated use does not, however, preclude utilization of the water for other purposes, with designated uses for less stringently regulated classifications generally deemed to be included

within the designated uses of more stringently regulated classifications.³⁹⁶ Moreover, any person may seek reclassification of waters, but must affirmatively prove that such reclassification is clearly in the public interest, and will represent the present and future most beneficial use of the waters.³⁹⁷ The Environmental Regulation Commission may reclassify waters for a more stringent use only upon an affirmative showing that the proposed use is attainable after consideration of environmental, technological, social, economic and institutional factors. Public notice and hearing is required for the reclassification of any of the waters of the state.³⁹⁸

In addition to the five major water classifications, certain waters of the state are now classified as "outstanding Florida waters."³⁹⁹ These waters are afforded the "highest protection" and are specifically designated by rule.⁴⁰⁰ DER is also authorized to designate additional waterbodies of exceptional recreational or ecological significance as outstanding Florida waters, provided the rule-making procedures of Chapter 120, Florida Statutes are adhered to, including the preparation of an economic impact analysis.⁴⁰¹

5. Water Quality Criteria.

All waters of the state are subject to minimum criteria which require that such waters be kept free of domestic, industrial, agricultural or other type discharges which, alone or in combination, tend to: 1) settle to form putrescent

deposits; 2) float as debris, scum, oil, etc. so as to cause a nuisance; 3) produce color, odor, taste or turbidity so as to cause a nuisance; 4) are acutely toxic;⁴⁰² 5) are present in concentrations which are carcinogenic, mutagenic, or teratogenic to human beings or to significant, locally occurring, wildlife or aquatic species; or 6) otherwise pose a serious danger to the public health, safety and welfare.⁴⁰³ Thermal discharges which alone or in combination with other discharges tend to produce nuisance conditions are also prohibited.⁴⁰⁴

Surface waters must also meet additional general criteria.⁴⁰⁵ These general criteria are applicable in all instances unless specially superceded by individual criteria for the various water classifications.⁴⁰⁶ Standards are specified regarding such things as pH,⁴⁰⁷ chloride content, detergents, oils and greases, phenolic compounds, radioactive substances, arsenic, and certain heavy metals.⁴⁰⁸

Thermal discharges are also subjected to general water quality criteria, which vary depending upon whether the source was in existence on or before July 1, 1972. Existing sources must not increase water temperature so as to cause "substantial damage or harm" to aquatic life or vegetation or interfere with the beneficial use assigned to the particular receiving waters.⁴⁰⁹ For new sources, which includes the expansion of existing sources resulting in a ten percent increase in output, more stringent standards apply. The state is divided into two general climatological zones, which lie

north and south of latitude 30°N. Specific numerical limits are placed upon the temperature of the heated water at the point of discharge, which vary depending upon the climatological zone and the type of receiving waters.⁴¹⁰ When a zone of mixing is established upon application to DER or pursuant to section 316(a) of the FWPCA, maximum numerical temperature limits must be met at the boundaries of the zone.⁴¹¹

In addition to the various general criteria, both surface and groundwaters are subject to specific criteria for each classification. These standards have become increasingly more stringent as the understanding of and ability to detect deleterious substances in the aquatic environment has increased. Recently revised DER rules specify for the first time detailed concentration limits for various pesticides, herbicides and heavy metals which may enter the aquatic environment.⁴¹² Due to the tendency of shellfish to concentrate these deleterious substances in their protoplasm, standards for Class II waters are the most stringent regarding these substances.⁴¹³ For example, the permissible concentration of chlordane, a commonly used pesticide, is 2.5 times greater for Class II waters than for Class I-A waters (Potable Water Supplies - Surface Waters).⁴¹⁴

Class I-B groundwaters, which are intended for municipal or agricultural purposes, are subject to more comprehensive and stringent criteria than Class V-B groundwaters, which are intended for public utilities and industrial concerns.

Specific standards are specified for Class I-B groundwaters regarding nitrates, flourides, radioactive substances, and certain pesticides, herbicides and heavy metals.⁴¹⁵ Additionally, no substance may be present in concentrations "which injure, are chronically toxic to, or produce significant adverse physiological or behavioral responses in humans, animals, or plants."⁴¹⁶ Class V-B waters are subject to those minimum standards applicable to all waters of the state, except when they are used for, or reasonably expected to be used for municipal purposes, in which case they are subjected to the Class I-B standards.⁴¹⁷

The water quality standards provide a means by which the Department can allocate the waters of Florida for the dispersion of municipal and industrial wastes in accordance with what is considered to be an acceptable level of pollution for a particular waterbody based upon its intended use. Their primary value under the present regulatory scheme is to act as an additional check against pollution when federally imposed effluent limitations are not sufficient to maintain an acceptable level of water quality.⁴¹⁸

The Department has established an equitable abatement procedure to control the emission of effluents in surface waters which have deteriorated below the water quality criteria due to non-natural pollution.⁴¹⁹ An allocation procedure is established whereby the Department determines the amount of pollutants emitted by various sources along the waterbody, and the amount of effluent reduction to be required

of each of the dischargers.⁴²⁰ In allocating responsibility for effluent reduction, DER considers for each pollution source: 1) the percentage and quantification of effluent reduction achieved by abatement techniques previously undertaken and the cost thereof along with economic or production benefits gained from their application; 2) the estimated cost of alternative abatement techniques; 3) the economic and production impacts of additional abatement on each party; and 4) other environmental impacts of available abatement techniques.⁴²¹ After the allocations have been made, each party is required to undertake an approved program to reduce its emissions in accordance with a compliance schedule.⁴²² An offset policy has been established, however, which permits two or more polluters to enter into agreements whereby one party agrees to undertake additional abatement on behalf of the other.⁴²³ In addition, no new emission sources are permitted in areas where water quality criteria have been violated unless the applicant can demonstrate that the proposed activity is clearly in the public interest and that water quality standards once achieved will not be violated as a result of the proposed activity.⁴²⁴

The abatement policy is beneficial in that it establishes with certainty the means by which water quality criteria are to be met in those waters where federal effluent limitations on individual dischargers are insufficient to maintain acceptable water quality. The offset policy establishes by rule a means whereby new sources may be permitted along such water-

bodies, provided the additional emissions can be compensated for by a corresponding reduction in emissions from another pollution source.

(a) Exceptions and Exemptions From the Water Quality Criteria.

In order to moderate the effect of the considerably more stringent revised water quality criteria in those instances where the social, economic and environmental costs would outweigh the benefits, DER has adopted comprehensive new provisions concerning exceptions and exemptions from these criteria. Exceptions have the effect of lowering the water quality criteria for a particular portion of a waterbody, which in turn leads to less stringent controls for all persons discharging into such waters.⁴²⁵ Exemptions on the other hand are applicable to particular dischargers, and have the effect of allowing an installation to discharge more effluent than would otherwise be permissible under the applicable water quality criteria.⁴²⁶ In addition, the statutory variance procedure is available to persons seeking to discharge in greater amounts than permissible under the water quality criteria.⁴²⁷

In order for a portion of a waterbody to be excepted from the water quality criteria, an affected person or permit applicant must prove to the Department that the affected waters do not meet the water quality standards due to natural or man-induced causes which cannot be controlled with the latest in technology and management practices, including zero

discharge.⁴²⁸ In determining whether or not to grant an exception, the Department considers: the designated use of the waters; the extent to which the biota have adapted to existing environmental conditions; the ability of the biota to tolerate the ecological stress caused by the pollution, and the possible adverse impact on adjoining waters.⁴²⁹

Like the statutory variance procedure, the exception procedure poses danger that significant amounts of man-induced pollution will be permitted simply because adequate technology does not exist to control the pollution.⁴³⁰ Careful consideration must be given to the effect of the increased pollution on water quality and the aquatic community regardless of the circumstances under which such pollution was caused.

In order for an individual applicant to obtain an exemption from the water quality criteria, it must be affirmatively demonstrated that granting the exemption will be in the public interest and not interfere with existing uses of the designated use of the waters or contiguous waters.⁴³¹ The instances in which exemptions are possible have been specifically defined by rule,⁴³² with additional specific criteria to be satisfied before an exemption will be granted in a particular instance. For example, in order for an exemption to be granted for the experimental use of wetlands for water and waste recycling, the discharger must also show, among other things, that the wetlands ecosystem may reasonably be

expected to assimilate the discharge without significant adverse impact on the biological community within the receiving waters.⁴³³ Public notice must be provided in the Florida Administrative Weekly and a newspaper of general circulation in the area of the affected waters, and a public hearing held pursuant to Chapter 120, Florida Statutes.⁴³⁴

6. Zones of Mixing for Surface Waters.

To further ameliorate the possibly harsh economic effect in some instances of the more stringent water quality criteria, DER has greatly expanded the use of the "mixing zone" concept, whereby pollutant discharges are given an opportunity to mix with surrounding waters before being subject to the water quality criteria.⁴³⁵ Applicants may now petition to establish a mixing zone, but must in all instances demonstrate that no mixing zone or combination of mixing zones will significantly impair any of the designated uses of the receiving body of water.⁴³⁶ Within a mixing zone, water quality can be degraded below the applicable standards, but must in all instances have average concentrations which do not exceed minimum criteria applicable to all waters of the state.⁴³⁷ Additionally, no point in the mixing zone may reach a pollutant concentration which has a 96 hour LC₅₀ for a species significant to the indigenous aquatic community, or a dissolved oxygen value of less than 1.5 milligrams per liter.⁴³⁸

Additional requirements are placed upon mixing zones in

Class I-A, II and III waters, violation of which is "presumed to constitute a significant impairment" of the designated use of these waters. Applicants may overcome this presumption by demonstrating at a public hearing that such violation "will not produce a significant adverse effect upon the established community of organisms ... or otherwise significantly impair any of the designated uses of the receiving body of water."⁴³⁹ Dissolved oxygen within such a mixing zone must not average less than 4.0 mg/l.⁴⁴⁰ Additionally, the mixing zones in such waters may not exceed 10% of the total surface area of the waterbody.⁴⁴¹

Mixing zones for dredge and fill projects are not subject to the above-described limitations, provided applicable water quality standards are met at the boundaries of the zone. DER fixes the boundaries of the zone after considering biological and hydrographic factors, but in no case are the boundaries permitted to be more than 150 meters downstream in flowing streams or 150 meters in radius in other bodies of water.⁴⁴²

In addition to the variance procedure applicable to mixing zones in Class I-A, II, and III waters, a general procedure exists whereby applicants may obtain a waiver of mixing zone water quality criteria for a period up to 24 months.⁴⁴³ In order to receive a renewal thereof, the applicant must demonstrate that it has undertaken a continuing program, approved by DER, which is designed to pursue any reasonable means of meeting the applicable water quality

criteria.⁴⁴⁴

By establishing a mixing zone around the point of discharge, a polluter may be relieved from having to adopt state imposed pollution control measure which are more stringent than the uniform federal effluent limitations. Such additional control measures are imposed when federal effluent limitations are not sufficient to maintain water quality criteria in the receiving waterbody. By determining water quality at a point removed from the actual point of discharge, pollutant concentrations are decreased and the likelihood that additional water quality based effluent limitations will be imposed is therefore diminished.⁴⁴⁵

7. Zones of Discharge for Groundwaters.

The 1979 rule revisions, which classify and prescribe water quality criteria for groundwaters for the first time,⁴⁴⁶ also provide for zones of discharge for these waters.⁴⁴⁷ These zones of discharge are analogous to the zones of mixing for surface waters in that both general and specific groundwater quality criteria are not applied within the zones.⁴⁴⁸ Additionally, minimum water quality criteria are not applied within these zones, except that such waters must be kept free of pollutants in concentrations which are "harmful to plants, animals and organisms native to the soil and responsible for treatment or stabilization of waste material" or "pose a serious danger to the public health, safety and welfare."⁴⁴⁹ Applicants must demonstrate that the

proposed zone will not cause significant adverse affects to the designated uses of the adjacent groundwaters or surface waters.⁴⁵⁰ Various criteria are established for determining whether such adverse effect will occur, which include such considerations as the physical, chemical, and hydrological characteristics of the receiving strata and the proximity of the discharge to present and known future water supply facilities.⁴⁵¹ Zones of discharge may not extend beyond the property limits of the discharger, unless it is affirmatively demonstrated at a public hearing that the proposed discharge will not significantly impair any of the designated uses of the surrounding groundwaters or surface waters.⁴⁵²

D. Oil Spill Prevention and Control.

1. Introduction.

Oil pollution is a phenomenon that has come of age as a result of the greatly expanded production and use of oil in recent decades. As the United States continues to rely heavily on imported oil, states whose shorelines are adjacent to oil shipping lanes are especially jeopardized by routine discharges or catastrophic spills.⁴⁵³ Additional dangers from oil discharges are created by proximity to oil production and terminal facilities. Florida is vulnerable in all of these respects as a result of oil drilling operations in the Gulf of Mexico, and the increased use of the Florida straits by oil tankers destined for ports in Louisiana and Texas.⁴⁵⁴

The long-term effects of offshore oil spills are still uncertain, but it is undisputed that the short-term effects can be quite severe, especially for estuarine areas that serve as marine breeding grounds. The impact on the shrimp and shellfish industries can be devastating due to such adverse effects as tainting the flesh, poisoning, or disturbing the food chain upon which these animals are dependent. In addition, oil slicks tend to accumulate chlorinated hydrocarbons deposited by surface water runoff from agricultural operations in concentrations up to 10,000 times that of the surrounding medium. Algae which tend to feed near the surface then assimilate these high concentrations, posing a significant health hazard to persons ingesting seafood from these waters. Wholesale destruction of benthic (dwelling on the sea floor) fauna has also been demonstrated to result from catastrophic oil spills. Finally, the physical destruction of the pristine quality of sand beaches by catastrophic oil spills can virtually destroy local tourist business dependent upon the quality of those beaches.⁴⁵⁵

Due to the international nature of oil traffic, reliance upon common law actions or international maritime law is grossly insufficient as a remedy for damages suffered from catastrophic oil spills.⁴⁵⁶ Moreover, nothing is accomplished to prevent oil spills from occurring or mitigate damages once they have occurred. For these reasons, federal and state regulation of vessels, offshore and onshore facilities which produce, process and transport oil and oil pro-

ducts has increased greatly in the 1970's. Other toxic substances which can be hazardous to the marine environment have also been included within the scope of this regulation.

2. The Federal Background.

Federal jurisdiction to prevent and control oil pollution is based upon a number of acts.⁴⁵⁷ The primary regulatory mechanism, however, is contained in section 311 of the 1972 amendments to the FWPCA, which set forth the policy that "there should be no discharges of oil or hazardous substances into or upon the navigable waters of the United States, adjoining shorelines, or ... waters of the contiguous zone."⁴⁵⁸ EPA is given authority to develop regulations designating those substances other than oil which are hazardous in nature,⁴⁵⁹ and determine the quantities of such substances which may be harmful when introduced into the aquatic environment.⁴⁶⁰ When a discharge occurs in amounts determined to be potentially harmful, the person in charge of the vessel, on-shore or offshore facility responsible for said discharge must immediately notify the appropriate federal agency. Failure to provide such notice can lead to criminal penalties of up to \$10,000 and one year of imprisonment.⁴⁶¹ In addition, civil penalties may in any case be assessed against the violator in amounts up to \$5,000 per offense by the Coast Guard,⁴⁶² and a civil action may be brought by EPA to obtain penalties of up to \$50,000 per offense, or in the case of willful negligence or misconduct, in amounts up to \$250,000 per

offense.⁴⁶³ Civil penalties may not be assessed, however, under section 311 of the FWPCA for discharges of hazardous substances which are punishable pursuant to section 309 of the Act.⁴⁶⁴

Perhaps the most significant provisions of section 311 of the FWPCA, however, pertain to the control and cleanup of oil spills once they have occurred, and liability to the federal government for cleanup costs. The Act requires the President to prepare a National Contingency Plan for the removal of oil and hazardous substances, and establish a "strike force" of trained personnel to deal with pollution emergencies as they arise.⁴⁶⁵ During such emergencies, the federal authorities are authorized to coordinate and direct all public and private efforts, and if necessary, summarily remove and destroy the vessel by whatever means available.⁴⁶⁶ Owners and operators of vessels, onshore, and offshore facilities responsible for the discharge are held strictly liable with certain exceptions⁴⁶⁷ to the federal government for costs involved in the control and removal of the spill, including the cost of restoring or replacing those natural resources that have been damaged or destroyed by the discharge.⁴⁶⁸ For owners and operators of onshore and offshore facilities, this liability is limited to \$50,000,000. For owners and operators of vessels which carry oil or other hazardous substances as cargo, this liability is limited to \$250,000 or \$250 per gross ton of vessel, whichever is greater. In all instances, liability is unlimited where the

federal authorities can prove that the discharge resulted from an act of willful negligence or misconduct within the privity and knowledge of the owner.⁴⁶⁹ To be sure that adequate funds are available to cover cleanup costs, a revolving fund of \$35,000,000 is established.⁴⁷⁰ In addition, owners and operators of vessels over three hundred gross tons must provide evidence of financial responsibility, or be subject to denial of access to American ports and civil penalties up to \$10,000.⁴⁷¹

Section 311 of the FWPCA also contains provisions designed to prevent spills of oil and hazardous substances from occurring, and to minimize the damage should they occur.⁴⁷² The President is authorized to issue regulations establishing procedures, methods and equipment requirements for vessels, onshore, and offshore facilities necessary to prevent discharges and contain them when they occur.⁴⁷³ Violators of these regulations are subject to civil penalties of up to \$5,000 per violation.⁴⁷⁴ Federal authorities are also authorized to board any vessel except public vessels to inspect for compliance with the provisions of section 311 of the FWPCA and arrest without warrant any person who violates its provisions or any regulation issued thereunder.⁴⁷⁵

3. The Florida Pollutant Spill Prevention and Control Act.

Despite the many significant provisions of section 311 of the FWPCA, it is nevertheless deficient regarding the compensation of private individuals who may be damaged as a result of a spill of oil or other hazardous substances.⁴⁷⁶

In Florida, where a significant amount of economic activity is dependent upon clean beaches and productive fisheries, damages from such a pollutant spill could reach disastrous proportions for public and private interests. Cleanup costs may be only a small portion of the total damage suffered as a result of such a spill. This concern, along with a desire not to be dependent on the resources of the federal government regarding the prevention and control of oil spills, has led Florida and other states to enact statutes which impose strict liability for damages suffered by public and private interests from such spills, and provide a mechanism to ensure that such damages are expeditiously collected.⁴⁷⁷

In Florida, the Pollutant Spill Prevention and Control Act⁴⁷⁸ was enacted in 1970 in recognition of the "potentially catastrophic proportions" of spills of oil and other hazardous substances, and the threat of "great danger and damage to the environment of the state" which might result therefrom.⁴⁷⁹ The Department of Natural Resources (DNR) is given primary responsibility for the administration of the Act, with DER directed to cooperate and offer consultative services, enforcement, prosecution, and technical advice to the DNR.⁴⁸⁰ The Act is intended to support and complement section 311 of the Federal Water Pollution Control Act, including those provisions pertaining to the national contingency plan for the removal of pollutants.⁴⁸¹ The transfer of pollutants between vessels, onshore facilities and vessels, offshore facilities and vessels, and terminal facilities within the state is con-

sidered to be a hazardous undertaking,⁴⁸² owners or operators thereof being strictly liable for damages resulting from a pollutant spill, with exceptions similar to those in the federal Act.⁴⁸³

(a) Coastal Protection Trust Fund.

The Florida Coastal Protection Trust Fund has been established to provide rapid compensation to aggrieved parties, and ensure that sufficient funds are available to pay the costs of emergency cleanup efforts.⁴⁸⁴ Owners or operators of terminal facilities⁴⁸⁵ are required to register with DNR and pay an excise tax of two cents per barrel into the fund until the balance in the fund amounts to \$35 million.⁴⁸⁶ In the event of a pollutant discharge by a vessel⁴⁸⁷ into Florida territorial waters, the owners are liable to the fund in amounts up to \$14 million or \$100 per gross registered ton of vessel, whichever is lesser.⁴⁸⁸ Terminal facilities can be held liable for discharges in amounts up to \$8 million.⁴⁸⁹ These limits do not apply, however, when DNR can demonstrate that the discharge was the result of "willful or gross negligence or willful misconduct within the privity of knowledge of the owner or operator."⁴⁹⁰ Liability includes state abatement and cleanup costs, and damages suffered by "any person ... as a result of a discharge of pollutants."⁴⁹¹

Persons suffering damages as a result of a discharge must apply to the fund within twelve months of the discharge for compensation.⁴⁹² If the claimant, the person responsible

for the discharge and the officer of the fund cannot agree on the amount of compensation, compulsory arbitration procedures are established to determine liability.⁴⁹³ The aggrieved party is not prohibited from also filing civil suit against the person responsible for the discharge, and must only prove that the prohibited discharge occurred.⁴⁹⁴ In the event of any recovery, the fund is entitled to be subrogated to such claim for any payments made to the aggrieved party by the fund.⁴⁹⁵

(b) Prevention of Discharges.

In order to prevent spills from occurring, applicants for registration with DNR must demonstrate that they have implemented or are in the process of implementing state and federal plans for the prevention, control and abatement of discharges, including a showing that the registrant can provide the necessary equipment.⁴⁹⁶ Registrants with a storage capacity of 250 barrels or less are required to show proof of membership in a discharge cleanup organization, whose operational plans must be approved by DNR.⁴⁹⁷ All registrants are inspected at least annually by the Department and required to be in compliance with all federal requirements.⁴⁹⁸

Additionally, all terminal facilities registered with DNR and vessels using any port in Florida (including barges) must establish and maintain evidence of financial responsibility and designate a legal agent for service of process within the state.⁴⁹⁹ The Department may issue a provisional registration certificate to a facility showing just cause for temporary

non-compliance with the registration requirements.⁵⁰⁰

(c) Handling Discharges.

In the event that a discharge occurs, the person responsible must take immediate action to contain, remove and abate the discharge⁵⁰¹ and provide notice to DNR or the nearest Coast Guard Station.⁵⁰² If necessary, DNR may take action to contain and remove the pollutant, provided that, for discharges occurring in navigable waters of the United States it must act in accordance with the National Contingency Plan.⁵⁰³ In this regard, DNR must establish and maintain a "state response team" capable of responding to pollution emergencies in accordance with the contingency plan.⁵⁰⁴ The on-scene coordinator for the cleanup operations will be the federal coordinator until the federal cleanup requirements have been satisfied. Thereafter, the director of the state response team is in charge.⁵⁰⁵ Should the discharge be of catastrophic proportions, the Governor must declare this fact by emergency proclamation, and may then make, amend, and rescind the necessary orders, rules, and regulations to handle the emergency which are not inconsistent with the federal rules, regulations and directives.⁵⁰⁶

(d) Local Government Control.

Local governments are permitted to adopt ordinances which do not conflict with Chapter 376, Florida Statutes, or the rules, regulations and orders of the Department, except for licensing and fee programs, which are preempted by the Act in order to avoid unnecessary duplication.⁵⁰⁷

Additionally, agreements entered into after July 1, 1974, whereby a local body agrees to "hold harmless" vessels and terminal facilities from liability for pollutant discharges, have been prohibited.⁵⁰⁸

(e) Penalties.

Penalties for violation of the Pollutant Spill Prevention and Control Act and the rules promulgated thereunder can be quite severe. Civil penalties can range up to \$50,000 per violation per day, but are not applicable to persons who promptly report and remove the discharge.⁵⁰⁹ In addition, persons who make false statements with fraudulent intent, fail to report a discharge or remain in the jurisdiction for a reasonable time after a discharge has been reported are subject to stringent criminal penalties.⁵¹⁰

(f) Constitutionality.

The constitutionality of the Pollutant Spill Prevention and Control Act was challenged in American Waterway Operators, Inc. v. Askew⁵¹¹ on the ground that it unconstitutionally intruded into federal maritime jurisdiction by invading a regulatory area that was preempted by both the Federal Water Quality Improvement Act of 1970 and the Admiralty Extension Act.⁵¹² It was also argued that the Federal Limited Liability Act,⁵¹³ which limits the liability of the owners of vessels to the "value of such vessels and freight pending,"⁵¹⁴ conflicted with provisions of both the Florida and federal Acts, which provide for liability that might exceed the limits of the Limited Liability Act.⁵¹⁵

First considering those allegations pertaining to possible conflict with the Federal Water Quality Act, the Supreme Court, in reversing a lower court ruling which had invalidated the Act on these grounds, found that the provisions of the Florida Act, which established the Coastal Protection Trust Fund, imposed strict liability upon terminal facilities and vessels traveling to and from these facilities, and provided for the payment of damages to the state and aggrieved individuals, were complementary to the Federal Water Quality Act, which presupposed a coordinated federal-state effort in dealing with coastal oil pollution and was concerned solely with the recovery of federal clean-up costs. The court took cognizance of the fact that no remedy existed under the federal Act for state or private property owners damaged by a massive oil slick, stating that "to rule as the District Court has done is to allow federal admiralty jurisdiction to swallow most of the police powers of the states over oil spillage."⁵¹⁶

Regarding the effect of the Limited Liability Act, the court declined to consider the question of whether the liability provisions of the Federal Water Quality Act were intended to supersede those of the Limited Liability Act. It found no conflict between the provisions of the Florida Act and the Federal Water Quality Act provided the federal liability limits were not exceeded under Florida law so far as vessels were concerned.⁵¹⁷ The court also found that the Limited Liability Act had no bearing upon the liability provision of

the Florida Act pertaining to onshore and offshore facilities.⁵¹⁸

Finally, as regards the Admiralty Extension Act, the court narrowly construed the extension of federal jurisdiction contemplated by the Act, finding that state regulation was permissible, absent a clear conflict with the federal law, and that "sea-to-shore pollution - historically within the reach of the police power of the states - is not silently taken away from the states by the Admiralty Extension Act, which does not purport to supply the exclusive remedy."⁵¹⁹

E. Regulation of Solid Waste Disposal Facilities.

1. Introduction.

Improperly managed solid waste disposal facilities can be the cause of significant water quality problems. Surface water runoff from such facilities can become contaminated by contact with materials which are not properly protected from exposure to rainfall. More important, however, are the problems which can be caused by leachate⁵²⁰ from landfill operations which are located in areas with a high water table or highly permeable soil strata. Over a period of years this leachate can form a plume which eventually reaches groundwater supplies. When toxic or hazardous substances are a part of this plume, the detrimental effects on the quality and safety of water resources can be both long term and very severe.⁵²¹ The Environmental Protection Agency (EPA) has noted that "leachate formation and runoff are the pathways most often responsible for the contamination of the environ-

ment from hazardous waste,"⁵²² and that of the approximately 35 million metric tons of hazardous waste generated annually, as much as ninety percent is not being disposed of in an environmentally sound manner.⁵²³

In addition to the long-term health hazards associated with toxic or hazardous substances reaching groundwater supplies, improperly located and managed solid waste disposal facilities can cause groundwater supplies to become contaminated with microorganisms responsible for various waterborne diseases. In the southern Florida area, where pollution of the Biscayne Aquifer has become a serious problem, the failure of a chlorination system for drinking water at a labor camp in early 1973 caused the largest typhoid outbreak in recent history, with over 200 persons contracting the disease. A few months after that outbreak, a reported 1200 persons became ill with an intestinal disorder (shigellosis), due to an unchlorinated water supply well having been contaminated by a septic tank discharge.⁵²⁴ It is for these and other reasons that significant legislation has recently been enacted at the state and federal levels to regulate more closely the use and disposal of hazardous substances and the general operation of solid waste disposal facilities.

2. Federal Regulation of Solid Wastes.

The first significant federal activity regarding the disposal of solid waste began with the Solid Waste Disposal Act of 1965,⁵²⁵ which provided for research and demonstration

grants to develop new and improved methods of solid waste disposal. The Resource Recovery Act of 1970⁵²⁶ amended the Solid Waste Disposal Act to change the emphasis of the research and demonstration grant programs from solid waste disposal to resource recovery. The Act also called for a "comprehensive report and plan for the creation of a system of national disposal sites for the storage and control of hazardous wastes," and annual reports to the President and Congress on a number of topics involving resource recovery.⁵²⁷

These reports and studies served as a basis for the Resource Conservation and Recovery Act of 1976⁵²⁸ (RCRA), in which EPA and the Congress attempted to "close the loop" on environmental protection, by establishing a comprehensive system to dispose of, treat, store and reuse hazardous wastes safely.⁵²⁹ The Congress was cognizant of the fact that as a result of the increased control of air and water pollutants under state and federal law, greater amounts of solid wastes were being created, and that existing practices regarding the use and disposal of these substances were creating a significant health hazard.⁵³⁰ It adopted a regulatory approach similar to the air and water acts, preempting state authority to regulate the "treatment, storage, transportation and disposal" of hazardous wastes,⁵³¹ but permitting the states to adopt satisfactory programs to regain their authority to regulate in this area.⁵³² The Environmental Protection Agency (EPA) is given responsibility for administration of the Act, and is required to: 1) prescribe

criteria to identify hazardous wastes and list particular substances to be subject to regulation;⁵³³ 2) establish standards of conduct applicable to the generators⁵³⁴ and transporters⁵³⁵ of hazardous wastes, and the owners and operators of facilities for the treatment, storage and disposal of such wastes;⁵³⁶ 3) establish a permitting system for the owners and operators of such facilities;⁵³⁷ 4) license state authorities to assume responsibility for enforcement of a hazardous waste program;⁵³⁸ and, 5) take independent enforcement action, which includes the imposition of civil and criminal penalties.⁵³⁹

Due to the enormous complexity of the problem, the agency was unable to meet the eighteen month deadline set by Congress for promulgating the various required regulations. Regulations have, however, now been established for the hazardous waste control program,⁵⁴⁰ with EPA estimating that it will take up to five years to issue permits to all hazardous waste, treatment, storage and disposal sites.⁵⁴¹

The RCRA also increases the scope of federal activity concerning the regulation of solid waste disposal facilities in general, although the approach is more permissive than mandatory. The planning grant provisions are rewritten along the lines of the section 208 planning provisions of the FWPCA⁵⁴² to encourage regional solid waste planning in those areas where such planning is appropriate.⁵⁴³ When satisfactory regional and statewide solid waste treatment plans have been developed in accordance with EPA guidelines, federal

financial and technical assistance is made available for the implementation and enforcement of those plans.⁵⁴⁴

State plan guidelines, among other things, must consider those solid waste management practices necessary to insure the reasonable protection of the quality of the ground and surface waters from leachate contamination and surface runoff contamination.⁵⁴⁵ The disposal of solid wastes in open dumps is prohibited, with EPA required to develop minimum criteria concerning what constitutes an open dump, and develop an inventory of all such sites in the United States.⁵⁴⁶ In order to gain acceptance by EPA, a state waste management plan must prohibit the establishment of any new open dumps within the state and provide for the closing or upgrading of all existing open dumps.⁵⁴⁷

3. Regulation of Solid Wastes in Florida.

The comprehensive regulation of solid waste disposal facilities in Florida was initiated prior to the RCRA with the enactment in 1974 of the Florida Resource Recovery and Management Act.⁵⁴⁸ The Act, which was also designed to encourage recycling and resource recovery throughout the state, requires that no solid waste disposal facility be "operated, constructed, expanded or modified" after January 1, 1975 without first obtaining a permit from the Department of Environmental Regulation (DER).⁵⁴⁹ DER rules now require that all counties, municipalities and other governmental agencies be responsible for providing adequate, safe and sanitary resource recovery and management facilities within

their jurisdiction,⁵⁵⁰ and encourages the formation of multi-city and multi-county solid waste systems to take advantage of the substantial advantages which may be achieved through economics of scale.⁵⁵¹ Detailed rules have been promulgated regarding the location and operation of such facilities, some of which have a bearing upon the protection of surface and ground water quality. Unless otherwise approved by DER, no solid waste can be disposed of within two hundred feet of any natural or artificial body of water, except canals which are used to lower the water table to protect water supplies; on the banks of a stream known to be hydraulically connected to an aquifer; in a sink hole or in the immediate area thereof; in a limestone or gravel pit; in an area subject to frequent and periodic flooding without approved drainage provisions installed; in an area adjacent to or within the cone of influence of a public water supply well; or within 200 feet of any habitation or place of business supplied by a public water system, or 1000 feet of any such place served by a potable shallow water supply well.⁵⁵²

Whenever feasible, hydrological and soil surveys are conducted prior to the approval of the site location,⁵⁵³ with a minimum separation of five feet required between putrescible wastes and the anticipated groundwater table.⁵⁵⁴ All disposal sites must safeguard against water pollution originating from the disposal of solid waste⁵⁵⁵ and provide for the collection, control and treatment of surface runoff

to meet established water quality standards for the receiving waters.⁵⁵⁶ Whenever contamination is suspected, DER reserves the right to require that monitoring wells be installed.⁵⁵⁷ The further use of open dumps is prohibited,⁵⁵⁸ with existing open dumps required to convert to sanitary landfill "as expeditiously as possible but no later than July 1, 1977."⁵⁵⁹

Hazardous and infectious wastes⁵⁶⁰ are also regulated by the Department, which requires that hazardous wastes be rendered safe and sanitary at the owner's expense prior to delivery to the disposal facility,⁵⁶¹ and holds the producer thereof liable for any damage or injury caused by their introduction into the solid waste collection system.⁵⁶² Infectious wastes must be properly incinerated or processed in an alternative manner approved by DER, and may not be deposited in a sanitary landfill without such treatment.⁵⁶³ The Department has promulgated rules regarding the storage, transportation and disposal of these wastes.⁵⁶⁴

F. Protection of Public Drinking Water Supplies.

1. Introduction

In the United States, approximately one-half of all drinking water is supplied from groundwater, with the remaining one-half coming from rivers, streams, lakes, and man-made surface impoundments.⁵⁶⁵ These supplies have become increasingly subject to contamination by pollution from both point and nonpoint sources, presenting the potential for severe and long-term adverse effects on public health from a variety of toxic and hazardous substances.⁵⁶⁶ In

addition, the odor, color and taste of drinking water from rivers and lakes is adversely affected by eutrophication of these waters, which causes noxious blue-green algae to predominate.⁵⁶⁷ The rapid eutrophication of lakes in southern Florida including Lake Okeechobee⁵⁶⁸ and Lake Apopka⁵⁶⁹ due to the excessive nutrient input from nearby agricultural operations has caused these sorts of problems for communities which rely on these waterbodies for drinking water supplies.⁵⁷⁰

Protection of public drinking water supplies from undue contamination involves two major elements. First, production of pollutants must be minimized, with adequate measures taken to prevent those pollutants that are produced from contaminating water supplies. This is the primary thrust of the FWPCA and other acts concerned with the protection of water quality. Secondly, adequate filtration and purification systems must be installed to remove pollutants which may enter the water supply. It is this aspect of protecting water supplies which is the focus of this section.

2. The Federal Safe Drinking Water Act.

Despite the fact that the Federal Water Pollution Control Act, as amended, provides substantial federal authority to control water pollution, it is nevertheless substantially limited in assuring that waters in general are safe to drink. The Act does not regulate pollution from non-point sources, which is a major cause of the overall pollution problem.⁵⁷¹ Pollution of groundwaters is largely unregulated under the FWPCA, due to the fact that much of this pollution is from

diffuse non-point sources or scattered point sources too small to be regulated. Moreover, the Environmental Protection Agency (EPA) has adopted the view that it is without authority under the FWPCA to regulate underground well injections.⁵⁷²

As a result of these and other limitations, and in response to increased concern about the safety of drinking water throughout the United States, the Safe Drinking Water Act⁵⁷³ was enacted on December 16, 1974 for the purpose of implementing a nationwide system of monitoring and controlling the quality of water supplied by public water systems.⁵⁷⁴ EPA is given authority to administer the Act, and required to establish primary and secondary drinking water quality standards.⁵⁷⁵ Primary standards must specify those contaminants which, "in the judgment of the Administrator, may have an adverse effect on the health of persons,"⁵⁷⁶ and for each contaminant must specify either a maximum contaminant level⁵⁷⁷ (MCL) or, if it is not economically or technologically feasible to ascertain such a level, those treatment techniques which lead to a reduction in the contaminant level sufficient to meet the primary drinking water criteria.⁵⁷⁸ EPA is also required to list with the primary standards those contaminants which cannot be measured in drinking water accurately enough to establish a recommended MCL, but which may have an adverse effect on the health of persons.⁵⁷⁹ Secondary standards are intended to specify maximum levels for those contaminants which may adversely effect the odor

or appearance of water or otherwise adversely affect the public welfare.⁵⁸⁰

The Act also requires EPA to promulgate rules and enforce standards designed to protect underground sources of drinking water by regulating the use of underground injection techniques for the disposal of waste water.⁵⁸¹ EPA is required to promulgate regulations which contain minimum requirements for underground injection activities so as not to endanger drinking water sources.⁵⁸² Applicants seeking to operate an underground injection well must demonstrate that a proposed underground injection will not cause a contaminant to be present in underground water which supplies or can reasonably be expected to supply any public water system if the contaminant may result in the system not being able to comply with any national primary drinking water regulation.⁵⁸³ EPA is also authorized to designate areas in which no new underground injection well may be operated upon a finding that "the area has one aquifer which is the sole or principle drinking water source for the area and which, if contaminated, would create a significant hazard to public health."⁵⁸⁴ The Biscayne Aquifer, which underlies most of Broward and Dade Counties in the southernmost portion of Florida, and is the primary water source for this heavily populated area, has recently received the "sole source" designation from EPA.⁵⁸⁵ It is reported that over 2.5 million persons drink each day from the aquifer with over 500 million gallons drawn daily from municipal wells.

Nitrates, which leach downward from heavily fertilized agricultural areas have appeared in the drinking water used by 50,000 South Dade County residents. Radiation, pesticides, mercury and a variety of synthetic chemicals have turned up in trace amounts in a North Miami Beach wellfield, while at least 75 man-made chemicals have been identified at the Miami Springs wellfield, which supplies over 100 million gallons of water per day to Miami residents. Vinyl chloride, which is used to manufacture plastics and which causes numerous health problems including liver cancer, has been found in more than fifty public wells throughout Dade County.⁵⁸⁶

The problems with the Biscayne Aquifer result from its rapid recharge rate and relatively close proximity to the surface (about 80 feet). Pollutants which are thoughtlessly used and discarded on the surface eventually contaminate the underground water supply. Heavy metals and other toxic substances discarded at the Dade County garbage dump have leached into a huge underground bubble which stretches more than fifty feet deep and one-half mile to the east. The Director of the Dade County Department of Environmental Resources Management, has estimated that if surface pollutants could be eliminated, groundwater in some of the densely populated areas of the county would not improve for over twenty years.⁵⁸⁷

Although primary enforcement responsibility is delegated to EPA in all instances, states are strongly encouraged to take

over such responsibility by provisions in the Act which make the receipt of various types of grants contingent upon the implementation of an approved regulatory program.⁵⁸⁸ In order to gain such approval, the state must demonstrate that it has: 1) adopted primary drinking water regulations no less stringent than those which have been promulgated by the agency; 2) adopted and is implementing adequate procedures for the enforcement of its regulations, including monitoring and inspection procedures; 3) established record keeping and reporting procedures in accordance with EPA regulations; 4) adopted criteria for permit variances and exceptions which are no less stringent than the federal criteria; and, 5) adopted and is able to implement an adequate plan for the provision of safe drinking water under emergency conditions.⁵⁸⁹ Regarding the regulation of underground injections, a state must demonstrate that such a program: 1) regulates the underground injection of wastewater after December 14, 1977 by permit or rule, and assures that underground drinking water sources are capable of meeting primary standards; 2) includes inspection, monitoring, record keeping, and reporting requirements which comply with EPA regulations; 3) applies to federal agencies and "any other person whether or not occurring on property owned or leased by the United States."⁵⁹⁰

Once a state has received primary enforcement authority, it is required to work closely with EPA in many respects. All variances and exemptions which are issued by the state authority must be promptly reported to EPA, along with the

reason therefor, including supportive documentation which indicates that the statutory criteria for such variance or exemption have been met.⁵⁹¹ EPA is authorized to rescind its grant of primary enforcement authority if it determines after notice and hearing that a state, in a substantial number of instances, abused its discretion in granting variances or exemptions, or failed to prescribe adequate compliance schedules in those instances where variances or exemptions were granted.⁵⁹²

3. The Florida Safe Drinking Water Act.

(a) State and Local Administration.

As a result of the passage of the Florida Safe Drinking Water Act,⁵⁹³ which became effective on July 1, 1977, the State of Florida now has primary enforcement authority for the regulation of public drinking water supplies. The Department of Environmental Regulation (DER) is given primary responsibility for the administration and implementation of the Act;⁵⁹⁴ the Department of Health and Rehabilitative Services (DHRS) and county health departments playing a supportive role and having definite duties and responsibilities.⁵⁹⁵ Jurisdiction under the Act is similar to the federal act, applying to all public water systems,⁵⁹⁶ except those which: 1) consist of distribution and storage facilities and do not have any collection or treatment facilities; 2) obtain all water from, but are not owned or operated by, a public water supply system to which the regulations apply; 3) do not sell water to any person; and 4) do not convey passengers in inter-

state commerce.⁵⁹⁷

DER is required to adopt primary drinking water regulations no less stringent than the national primary drinking water regulations, and secondary drinking water regulations which are patterned after the national secondary drinking water regulations.⁵⁹⁸ Additionally, it must comply with EPA regulations regarding enforcement (which must include monitoring and inspection), record keeping and reporting procedures, and may not require that any substance be added to drinking water solely for preventative health care purposes.⁵⁹⁹

Primary drinking water regulations now specify maximum contaminant levels for various inorganic contaminants,⁶⁰⁰ chlorinated hydrocarbons, turbidity, bacteria, and radio-nuclides.⁶⁰¹ Secondary drinking water regulations will not be promulgated until national regulations have been adopted by EPA.⁶⁰² Regarding those substances for which no MCL has been specified, it is prohibited by rule to introduce any substance into a public water supply system "which creates or has the potential to create an imminent and substantial danger to the public."⁶⁰³

In administering the Act, DHRS and the county health departments work closely with the DER in many respects. DHRS is given specific responsibilities, which include: 1) maintaining laboratories for the radiological, microbiological and chemical analysis of water samples;⁶⁰⁴ 2) certifying other laboratories which perform analytical

functions pursuant to the Act;⁶⁰⁵ 3) supervising county health departments in their functions under the Act;⁶⁰⁶ 4) exercising general supervision and control over private and public water systems not covered by the Act;⁶⁰⁷ and 5) assisting in the investigation of water borne disease outbreaks and providing consultative services to local governments.⁶⁰⁸ Primary field responsibility rests with the county health departments, which are required to collect water samples for analysis, conduct complaint investigations, and assist in enforcement operations to the maximum extent practicable.⁶⁰⁹ Additionally, those county health departments which are deemed capable by DHRS may be required to conduct bacteriological analysis,⁶¹⁰ or, in the event their sanitary engineering staff has been approved by DER, the initial review of permit applications to construct, modify or expand water supply systems.⁶¹¹ County authorities with a satisfactory sanitary engineering staff may also be given authority to approve or deny applications for the expansion of distribution systems.⁶¹²

(b) Permitting and Operating Requirements.

In carrying out its enforcement responsibilities, DER now requires any person desiring to construct a new water supply plant or alter an existing plant to first obtain a permit from the Department or designated county health unit.⁶¹³ The applicant must provide a comprehensive engineering report which included detailed drawings of the proposed work.⁶¹⁴ The design must comply with acceptable engineering principles and insure compliance with water quality standards.⁶¹⁵

All chemicals to be used for water treatment or as a coating for equipment surfaces which come into contact with the water must be demonstrated through extensive toxicological studies or some other procedure acceptable to the Department to produce no immediate or cumulative adverse physiological effects.⁶¹⁶ The apparatus must be designed to maintain throughout the distribution system a minimum continuous and effective free chlorine residual of 0.2 mg/l or its equivalent if other than chlorination is used as a disinfection measure.⁶¹⁷ The use of fluoridation techniques will be approved by the Department, provided maximum contaminant levels are complied with and a written request to use such techniques has been received from the owner of the system or designated public health official.⁶¹⁸ Once in operation, the plant is given primary responsibility for the collection of samples for analysis,⁶¹⁹ and is required to report the exceeding of a MCL to DER within seven days of knowledge thereof.⁶²⁰ Monthly operation reports must also be provided to DER and the designated county health department within 15 days of the end of the month.⁶²¹ In order to insure that water treatment plants are operated properly, persons in charge of the operation, supervision, or maintenance of a water plant must be licensed by DER.⁶²² Water plants have been classified according to the level of complexity of the treatment process, with minimum staffing requirements prescribed for each level.⁶²³ DER inspectors are authorized to take water samples from and inspect such facilities "at any reasonable time"

for the purpose of ascertaining the state of compliance with the rules or orders of the Department.⁶²⁴

DER approval is also required prior to the construction of a public water supply well.⁶²⁵ The licensed water well contractor⁶²⁶ is required to demonstrate compliance with construction standards applicable to water wells in general⁶²⁷ as well as special standards which are applicable to drinking water supply wells or test wells that may later be used for drinking water supply.⁶²⁸

(c) Variations and Exemptions.

DER is authorized to permit variances and exemptions from a MCL or required treatment technique provided that such variances or exemptions are authorized under conditions that are no less stringent than the federal Act.⁶²⁹ A variance from a MCL or treatment technique is possible when non-compliance is due to the poor quality of the raw water, which cannot be corrected by the use of treatment methods generally available to larger water supply systems at reasonable cost.⁶³⁰ An exemption from a MCL or treatment technique is available for reasons other than the failure of a treatment method generally available to adequately treat the raw water source.⁶³¹ A variance or exemption may not, however, be obtained from operation, maintenance, monitoring and reporting requirements.⁶³²

An applicant for a variance from a MCL must demonstrate that it will not cause an unreasonable risk to health.⁶³³ He must also propose a compliance schedule which indicates the

date by which final compliance will be achieved through either improved treatment techniques or connection with an alternative raw water source. A plan must be provided regarding interim control measures during the period of the variance, including the provision of safe drinking water in case of an excessive rise in the contaminant level.⁶³⁴ The Department will take into consideration such factors as the availability and effectiveness of treatment methods for the contaminant and the cost of implementing treatment, improving the quality of the source water or using an alternative source.⁶³⁵

For a variance from a treatment technique, the applicant must show that the treatment technique is not necessary to protect the health of persons due to the nature of the raw water source.⁶³⁶ DER considers such factors as the quality of the water source, including pertinent sources of pollution, and the source protection measures employed by the public water system.⁶³⁷

DER is required to grant an exemption from a MCL or treatment technique to public systems which are in operation on the effective date of the regulation, when the granting of the exemption will not result in an unreasonable risk to health and the system is unable to comply due to "compelling factors" which may be economic in nature.⁶³⁸ The applicant must propose a compliance schedule,⁶³⁹ which must be approved by DER and furnished to EPA.⁶⁴⁰ Pursuant to requirements of the federal Act, a maximum time limit is imposed upon all

such exemptions granted by the Department.⁶⁴¹

Under Chapter 120, Florida Statutes, decisions must be rendered within 90 days of receipt of a completed application for a variance or exemption.⁶⁴² Prior to the rendering of a decision, the applicant receives a letter of intent to grant or deny the variance or exemption, which states with particularity the grounds for the decision. Constructive notice is also provided to all "affected persons" through publication in the Florida Administrative Weekly and a newspaper of general circulation in the area. Persons whose substantial interests are affected are entitled to request a public hearing within 30 days of publication. The aggrieved applicant is also entitled to request a administrative hearing.⁶⁴³

(d) Public Notice Requirements.

Pursuant to federal and state requirements, DER now requires that when a community water system fails to comply without an applicable MCL, public notice must be provided to all users of the system.⁶⁴⁴ In addition, when a community water system is granted a variance or exemption from a maximum contaminant level; fails to comply with a compliance schedule issued pursuant thereto, or fails to comply with an applicable testing procedure or monitoring requirement, written notice must be provided to all users of the system.⁶⁴⁵ Non-community water systems which fail to comply with the above conditions must provide notice of such failure by posting a fixed sign at all potable water outlets or connection

in the system.⁶⁴⁶

(e) Emergency Powers.

In accordance with the requirements of the federal Act, DER is authorized to take such actions as it may deem necessary when a contaminant which may present an "imminent and substantial danger" to the public health is present in, or is likely to enter, a public water system.⁶⁴⁷ Before such actions may be taken, however, certain minimum information must be received by the Department.⁶⁴⁸ DER is also required to adopt a plan for the provision of safe drinking water under emergency circumstances and is authorized to issue such rule or order as it may deem necessary to provide such water where it would not otherwise be available.⁶⁴⁹

G. Regulation of Dredging and Filling Activities.

1. Introduction.

Dredging and filling activities are economically advantageous in many instances because they create desirable residential and commercial property adjacent to coastal and inland waterbodies. There are, however, definite long-term environmental consequences that must be considered. Destruction or alteration of a particular ecosystem may have negative ecological consequences far beyond the boundaries where the activities occurred. This is especially true in regard to dredging and filling activities in highly sensitive wetland environments, which have only recently become fully appreciated for the numerous ecological benefits that they provide.⁶⁵⁰

In Florida, dredging and filling activities most frequently occur in marsh, swamp or mangrove ecosystems. These wetland areas naturally and efficiently provide many services which are vital to human habitation and development. Although generally not amenable to traditional agriculture, wetland areas generally produce more organic matter and high quality protein than intensively farmed land areas. In the coastal estuarine areas, the combination of energy inputs from the sun, wind, tides and freshwater inflows from inland areas combine to create a unique, interdependent complex of plant and animal life. Mangrove trees, marsh grasses and other plant species which are specially adapted to these highly sensitive estuarine ecosystems are capable of producing large amounts of organic matter, which upon decomposition form a rich nutrient broth that nourishes the algae that form the base of the marine food chain. These areas also provide shelter to the numerous ocean going fish species which seek out the food-rich estuary during their early stages of development.⁶⁵¹

Coastal and inland wetland ecosystems provide many additional benefits besides food production. Perhaps most important, these areas act as a buffer against severe climatic changes. Mangrove fringes along the coast act to protect inland areas from hurricane damage caused by high winds and storm tides.⁶⁵² During periods of high rainfall, coastal and inland wetland areas act to absorb the sudden influx, preventing flooding in adjacent areas. Moreover, this water is held

in a stable position so that it is able to percolate down to replenish groundwater supplies. The dense foliage cover provided by cypress, mangrove, buttonwood and other trees acts to substantially reduce the amount of water lost through evaporation.⁶⁵³ In addition to acting as prime aquifer recharge areas, wetland systems act to purify water resources by removing and recycling nitrogen and phosphorus present in surface water runoff from agricultural operations and discharges from municipal waste water treatment plants. Toxic substances from these and other sources are also removed in large measure by assimilation and adsorption in wetland areas, thereby preventing such materials from contaminating groundwater supplies or accumulating in the marine food chain.⁶⁵⁴ Wetland ecosystems are often quite beneficial in preventing sediment damage to rivers, lakes and streams. Silt which would otherwise be deposited along these waterbodies settles out as surface water runoff from adjacent lands courses through the wetland areas.⁶⁵⁵

In addition to directly destroying valuable natural habitats, dredging and filling activities frequently create canals and lagoons that are not properly flushed by the tides. Such canals can become anoxic (having very low dissolved oxygen content), destroying fish populations and causing blooms of noxious blue-green algal species.⁶⁵⁶ Increased salt water intrusion into the aquifer, with corresponding reduction in fresh water supplies, is another negative environmental consequence of both coastal and

inland canal development. When the turbid, nutrient rich water from these canals reaches lakes, rivers and estuarine areas, the effect on water quality is generally quite detrimental.⁶⁵⁷ Eutrophication of Florida's larger lakes has been greatly accelerated in recent years, largely as a result of dredging and filling activities which have destroyed wetland areas and created canals which rapidly deposit their highly polluted waters in receiving waterbodies.⁶⁵⁸

The interest in preserving wetland areas has increased markedly in recent years as a result of the growing awareness of their ecological significance. At the federal level, committee hearings have been held and legislation introduced. The Federal Coastal Zone Management Act⁶⁵⁹ was passed in 1976 in an effort to encourage the states to develop coastal zone management plans which permit growth and development in those areas most amenable to such activities from the ecological standpoint. The Act does not, however, preempt state and local authority to regulate the use of the coastal zone. The primary regulatory agency at the federal level with responsibility for protecting the remaining wetland areas of the United States from dredging and filling activities is the Army Corps of Engineers, acting under the authority of the Secretary of the Army. Although the Corps has not traditionally been concerned with environmental protection, its mandate has changed in recent years. Almost by default the Congress and the courts have increased the

Corps' jurisdiction and regulatory authority until it can now be said that the Corps is becoming an effective force in preserving wetland areas.⁶⁶⁰

In addition to federal regulation, persons seeking to conduct dredging or filling activities in Florida must comply with the requirements of state regulatory agencies, primarily the Department of Environmental Regulation. The Department's authority to regulate these activities is considerable, but is significantly impeded by the unwise, large scale transfers of submerged and swamp and overflowed lands to private ownership that occurred before the ecological significance of these lands was widely appreciated.⁶⁶¹

2. Federal Regulation of Dredging and Filling Activities.

(a) Jurisdiction.

Federal jurisdiction to control dredging and filling activities is based upon a number of acts, with section 404 of the Federal Water Pollution Control Act (FWPCA) now playing the predominant role.⁶⁶² The Army Corps of Engineers, which has historically regulated dredging and filling activities pursuant to section 10 of the Rivers and Harbors Act of 1899,⁶⁶³ is given continued authority to require a permit for the discharge of dredge and fill material into the navigable waters at specified disposal sites.⁶⁶⁴ Because of the fact that "navigable waters" are defined in the FWPCA as "the waters of the United States including the territorial seas,"⁶⁶⁵ the jurisdictional reach of the Corps is quite extensive. Revised regulations published on July 19,

1977⁶⁶⁶ describe in detail the extent of the Corps' regulatory jurisdiction, based upon the "broadest constitutional interpretation" that can be given the term, "waters of the United States."⁶⁶⁷ These waters are defined to include (i) the territorial seas; (ii) coastal and inland waters, lakes, rivers and streams which are navigable and their tributaries, including adjacent wetlands; (iii) interstate waters and their tributaries, including adjacent wetlands, and (iv) all other waters of the United States not defined above, "such as isolated wetlands and lakes, intermittent streams, prairie potholes, and other waters that are not part of a tributary system to interstate waters or to waters of the United States, the degradation or destruction of which could affect interstate commerce."⁶⁶⁸

The 1972 amendments to the FWPCA resulted in a significant extension of the reach of federal authority under the commerce clause. Prior to that time, maintaining the free flow of navigation was generally believed to be the basic federal interest supporting federal legislation which affected activities occurring in the waters of the United States. The navigability restriction was placed upon federal jurisdiction because of the belief that non-navigable waters, being by definition unsuitable for interstate commerce, were not affected with a valid federal interest under the commerce clause.⁶⁶⁹ Despite this limitation, the reach of federal jurisdiction over the years increased considerably by expanding the definition of navigability to include waters which

were once navigable or could be made navigable through reasonable improvements.⁶⁷⁰ Still, the Corps limited its subject matter jurisdiction by declining to consider injuries which were not directly related to the navigable capacity of the waters or their use in interstate commerce.⁶⁷¹ This view persisted until 1968, when increasing environmental concerns prompted the Corps to publish revised regulations which indicated that in addition to the effect on navigation, proposed dredging and filling activities would be evaluated for their impact on such factors as fish and wildlife, conservation, pollution, aesthetics, ecology, and the general public interest.⁶⁷² In Zabel v. Tabb⁶⁷³ the Corps' policy of taking ecological considerations into account was challenged as being outside the scope of the Corps' regulatory authority under the commerce clause. Reversing a lower court decision which found that the Rivers and Harbors Act did not vest the Secretary of the Army with authority to consider factors other than interference with navigation, the court held that Congress had broad authority under the commerce clause to consider matters relating to environmental stability.⁶⁷⁴ This interpretation of federal authority under the commerce clause was reinforced in United States v. Holland,⁶⁷⁵ in which the 1972 amendments to the FWPCA, which entirely discarded the navigability restriction and extended federal jurisdiction to control pollution to virtually all of the waters of the United States, were challenged as being outside the scope of federal authority

under the commerce clause. The court denied this contention, noting that:⁶⁷⁶

Congress and the courts have become aware of the lethal effect pollution has on all organisms. Weakening any of the life support systems bods disaster for the inter-related life forms. To recognize this and yet hold that pollution does not affect interstate commerce unless committed in navigable waters below the mean high water line would be contrary to reason. Congress is not limited by the "navigable waters" test in its authority to control pollution under the commerce clause.

Federal jurisdiction under the FWPCA to control pollution in general and dredging and filling activities in particular was thereby interpreted as including intertidal wetlands which were located landward of the intersection of the plane of mean high water with the shore.

Despite the Holland opinion, regulations published by the Corps on April 1, 1974 still interpreted its jurisdiction as being limited by the traditional navigability concept to activities occurring below the mean high water line.⁶⁷⁷

These regulations were subsequently invalidated in N.R.D.C. v. Callaway⁶⁷⁸ as being in derogation of the Corps' responsibility under section 404 of the FWPCA. The revised regulations published on July 19, 1977 extended the Corps' regulatory jurisdiction in three phases over a two year period until it now encompasses those waters and adjacent wetland areas previously described.⁶⁷⁹

Section 404 of the FWPCA also provides the administrator of the Environmental Protection Agency (EPA) with certain authority and responsibilities regarding dredging and filling

activities. EPA is required to develop guidelines regarding the selection and use of disposal sites for dredged material⁶⁸⁰ and may prohibit or restrict the use of a particular disposal site when it determines that the discharge of materials into the area will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas, wildlife or recreational areas.⁶⁸¹

The 1972 amendments to the FWPCA represented a significant improvement over prior law insofar as providing an effective regulatory mechanism for controlling dredging and filling activities was concerned. The Corps' jurisdiction under section 10 of the Rivers and Harbors Act of 1899, which makes it illegal to fill, excavate, alter or modify the course, condition, or capacity of navigable waters of the United States without prior approval,⁶⁸² was limited by the traditional concept of navigability, thus preventing the Corps from regulating dredging and filling activities that occurred in wetland areas around non-navigable waterbodies or above the intersection on the plane of mean high water with the shore.⁶⁸³ A substantial portion of the nation's vital wetland areas were therefore not subject to regulation prior to the 1972 amendments. The Rivers and Harbors Act of 1899 is still in effect, and remains of jurisdictional significance when dredging and filling activities involve the construction of dams or dikes in navigable waters⁶⁸⁴ or structures or work in or affecting the navigable waters.⁶⁸⁵ In those instances, persons

conducting such activities must comply with specific Corps regulations pertaining thereto, as well as the FWPCA regulations applicable to dredging and filling activities in general.⁶⁸⁶

Another major act affecting federal jurisdiction over dredging and filling activities is the Marine Protection, Research and Sanctuaries Act of 1972.⁶⁸⁷ Section 103 of this Act authorizes the Secretary of the Army, acting through the Corps of Engineers to issue permits for the transportation of dredged material for the purpose of disposal in ocean waters. Regulations have been promulgated by the Corps and EPA regarding the criteria applicable to selection and use of ocean disposal sites,⁶⁸⁸ with EPA given final authority to veto any proposed dumping which it determines will result in an unacceptable adverse effect on municipal water supplies, shellfish beds, wildlife, fisheries or recreational areas.⁶⁸⁹ EPA jurisdiction under the Marine Protection, Research and Sanctuaries Act of 1972 substantially overlaps with that of section 404 of the FWPCA, and regulations promulgated pursuant to the two acts are substantially similar in nature.⁶⁹⁰

As a result of the 1977 amendments to the FWPCA, a portion of section 404 jurisdiction over the discharge of dredged and fill material may be transferred to state authorities in a manner analogous to that by which section 402 NPDES permitting authority is transferred to the states.⁶⁹¹ A request must be made by the Governor, and a statement submitted by competent state authority that the required program

elements have been implemented, including adequate enforcement remedies.⁶⁹² Unless specifically waived by EPA, the agency must be notified of each permit application and actions taken pursuant thereto, and may veto the issuance of permits deemed to be not in accordance with section 404 requirements.⁶⁹³

(b) Permitting Requirements and Applicable Criteria.

Federal permitting requirements are complicated by the overlapping authority of section 404 of the FWPCA and section 10 of the Rivers and Harbors Act of 1899. Structures or work which affect the navigable waters are regulated under section 10, while the discharge of dredged and fill material in general is subject to separate permitting procedures established pursuant to section 404 of the FWPCA. For structures or work regulated under section 10, individual permits are required unless exempted on a nationwide basis by the Secretary of the Army,⁶⁹⁴ or on a regional basis by the District Engineer for a particular district.⁶⁹⁵ General authorizations issued by the District Engineer are called general permits, and may only be issued where the authorized activities are substantially similar in nature and will cause minimal adverse environmental impact when considered separately or by their cumulative effect. The District Engineer may, however, require on a case-by-case basis that activities subject to general permits comply with the individual permitting requirements when necessary to protect the public interest and may revoke a general permit when the

public interest so requires.⁶⁹⁶ Permitting procedures may also be simplified through the issuance by the District Engineer of "letters of permission" for minor work which does not involve the discharge of dredged or fill material and will not have a significant adverse impact on the environment. Public notice need not be provided when letters of permission are issued.⁶⁹⁷

The comprehensive jurisdictional reach under the FWPCA is mitigated considerably by statutory exemptions⁶⁹⁸ and rules which also authorize the issuance of nationwide⁶⁹⁹ or general permits.⁷⁰⁰ When an individual permit is necessary, the applicant must meet general criteria applicable to all types of discharges⁷⁰¹ as well as specific criteria which may be applicable to a particular type discharge.⁷⁰² In evaluating all applications the Corps conducts a public interest review, in which it attempts to balance the benefit which may reasonably be expected to accrue from the proposal against the reasonably foreseeable detriments. Factors which the Corps considers relevant include "conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use, navigation, recreation, water supply, water quality, energy needs, safety, food production, and, in general, the needs and welfare of the people." Permits will not be issued unless the Corps determines that such issuance will be in the public interest.⁷⁰³ The Corps has acknowledged that "wetlands are vital areas that constitute a productive and valuable public

resource, the unnecessary alteration or destruction of which should be discouraged as contrary to the public interest,"⁷⁰⁴ and has authorized the District Engineer to consider the cumulative effect of proposed projects in wetland areas, although a particular project may by itself only cause a minor change in the wetland environment.⁷⁰⁵ In order to gain approval for a project in a wetland area, the applicant must demonstrate that the proposed activity is primarily dependent upon being located in or near the aquatic environment and that alternative sites are not feasible.⁷⁰⁶

For projects in which it is determined that the quality of any of the waters of the United States may be adversely affected, compliance with applicable effluent limitations, water quality standards and management practices will be required. State certification that water quality standards will be met is considered conclusive in this regard by the Corps, unless EPA advises that other water quality aspects need to be taken into consideration.⁷⁰⁷ In addition, when the proposed activities affect the coastal zone of a state having an approved coastal zone management program, state certification of compliance with the program is required prior to the approval of non-federal projects. Federal projects must assure that their activities are consistent "to the maximum extent practicable" with the approved coastal zone management program.⁷⁰⁸ The Corps will not approve any proposed activity for which the required federal, state and local authorizations have not been received. Moreover, when

official certification is not required by state or federal law but a state, regional or local agency comments on the application, "due consideration" is given to those views as a reflection of local factors of the public interest.⁷⁰⁹

(c) Hearings and Appeals.

Once a completed application has been received, notice of the proposed activity is provided by mail to the various federal, state and local authorities which may have an interest therein, adjacent landowners, and any other interested party who requests such notice.⁷¹⁰ This notice will also be posted in post offices or other appropriate places in the vicinity of the proposed work, and may be published in the local newspaper when the District Engineer determines that the proposal may result in substantial public interest.⁷¹¹ Written comments are solicited regarding the proposed activity, with the comment period generally extending no more than thirty days from the date of the notice.⁷¹² Prior to issuing such notice, the District Engineer makes an evaluation as to whether a public hearing will be of assistance in making a decision on the permit application. If so, notice of such hearing is provided in the public notice.⁷¹³ In addition, any person may request in writing during the comment period that a public hearing be held regarding the proposed activity. Such a hearing will usually be granted, unless the District Engineer determines that the issues raised are insubstantial or that no valid interest will be served by such a hearing.⁷¹⁴ If a public hearing is held, the Presiding Officer,

who is usually the District Engineer or his deputy,⁷¹⁵ keeps the record open for an additional ten days to receive any further written comments.⁷¹⁶ Findings of fact and a recommended order are then prepared by the District Engineer, who may take final action or forward the application to higher authorities for final decision when so required.⁷¹⁷ The applicant is generally notified within thirty days of the close of the public hearing as to the final disposition of his application.⁷¹⁸

3. Regulation of Dredging and Filling Activities in Florida.

(a) Development of Dredge and Fill Regulation.

Before the many undesirable consequences of dredging and filling activities were known, the historical attitude in Florida was to encourage such activities as a means of facilitating economic growth and development. Initially, most of Florida south of Lake Okeechobee was either permanently or periodically inundated with water, thus largely unsuitable for human habitation. Legislative activity to encourage development of these lands did not begin until 1855, five years after the state was assured of receiving title to the beds of these swamp and non-navigable waters from the federal government through the Swamp and Overflowed Lands Act of 1850.⁷¹⁹ The Internal Improvement Board was created soon thereafter and given the power to administer these new state lands as well as state lands under navigable waters which passed to the state upon grant of statehood in 1845.⁷²⁰ In order to encourage private individuals to develop lands

adjacent to navigable waters, the Riparian Act of 1856 was enacted,⁷²¹ which granted to riparian landowners the right to build wharves and docks out into the water and fill from the shore to the channel. When wharving and filling was completed, title to the previously submerged land became vested in the riparian owner.⁷²² This Act was seldom utilized, however, due to the lack of technical capability to fill submerged lands in an economically feasible manner.

After the Civil War, in the desire to promote industrial development, the Trustees of the Internal Improvement Fund began to convey large tracts of land to agricultural, timber and other interests at a fraction of their actual value on condition that the lands be drained. Similarly, railroad companies received large tracts of land on their promise to open up lines throughout the state.⁷²³ Most of the development as a result of this policy occurred in central Florida, including the rich agricultural lands that bordered the Kissimmee River Basin.⁷²⁴ Significant development of the coastal regions did not occur until the passage of the General Drainage Act of 1913.⁷²⁵ This Act, which is still in effect, permits a majority of landowners or the owners of a majority of acreage within a proposed district to petition the circuit court to establish a drainage district and levy taxes for the proposed drainage works.⁷²⁶ As a result of the General Drainage Act and various special laws that were enacted about that time which granted the Trustees the

authority to dispose of islands, sandbars, flats and other areas which were not riparian to any privately owned land,⁷²⁷ development of submerged tidal flats into valuable residential property rapidly accelerated. Concern was raised by riparian owners over the effect of these acts on their right to develop adjacent lands, which led to the passage of the Riparian Act of 1921,⁷²⁸ commonly known as the Bulter Act. The Bulter Act reconfirmed the right of the riparian owner to develop and claim title to riparian submerged land and expanded its applicability beyond that of the 1856 Act.⁷²⁹

Dredging and filling activities slowed considerably during the Depression years, but were rekindled on a much larger scale during the Second World War when greatly expanded military investments in Florida provided the capital necessary for widespread economic development. New technology made possible dredge and fill projects on a much larger scale than was previously possible. This activity continued virtually unabated throughout Florida until the early 1950's, when the ill effects of dredging and filling became more apparent.

The first legislative activity to limit dredging and filling activities came in 1951 with the repeal of the 1917 Act that had made all tidal land between the upland and the nearest navigable channel subject to riparian control.⁷³⁰ Conveyances of sovereignty lands by the understaffed Trustees continued, however, with little regard for ecological considerations; the courts uniformly refusing to enjoin proposed dredging and filling activities once a conveyance of

sovereignty lands had been made.⁷³¹ It was not until the passage of the Bulkhead Act of 1957⁷³² that a major attempt was made to correct the deficiencies in the policy and administration of dredge and fill activities.

The Bulkhead Act expressly repealed the Riparian Act of 1921, and reaffirmed the title to all state-owned sovereign tidal lands in the Trustees of the Internal Improvement Fund.⁷³³ Title to lands already filled and developed was confirmed in the upland owners.⁷³⁴ The Act's most significant feature, however, was the provision which permitted the Trustees and local governmental units to establish bulkhead lines beyond which no filling activities could occur.⁷³⁵ Joint permitting jurisdiction for dredging and filling activities was established between the Trustees and local governments,⁷³⁶ with no permits issuable until a bulkhead line had been established.⁷³⁷ The Trustees were directed to make further submerged land sales only if it was determined that such sales were in the public interest, with ecological considerations taken into account.⁷³⁸

Numerous problems arose in the administration of the new law. Local governments were subjected to tremendous pressures from developers to fix bulkhead lines in a favorable manner. The Trustees were plagued with a small staff which lacked the technical expertise necessary to evaluate ecological factors. Little cooperation existed between local governments, the Trustees, and other state and federal agencies concerned with dredging and filling activities. As a result, bulkhead lines were fixed on a piecemeal basis, frequently in such a manner

as to permit further destruction of ecologically valuable areas.⁷³⁹ Finally, Section 253.122, pertaining to bulkhead lines was repealed and replaced by the current statutory provision which established all bulkhead lines at mean high water.⁷⁴⁰

As public awareness of environmental problems increased in the late 1960's and early 1970's, additional legislative funding enabled the Trustees to hire the technical staff necessary to properly conduct the required ecological evaluation prior to issuing a dredge or fill permit. Still, the Trustees were substantially hampered in the pursuit of their new found ecological awareness by the multitude of prior conveyances of state-owned submerged lands. Plaintiffs successfully argued that the Trustees were estopped to deny permits to developers for whom the purchase of state submerged lands had carried an implied promise that necessary permits would be forthcoming.⁷⁴¹

Another strong impediment to effective regulation by the Trustees resulted from the jurisdictional limitations of Chapter 253, which, in being tied to the traditional concept of navigability, prevented the Trustees from regulating activities upland of the mean high water line.⁷⁴² The passage in 1967 of the Air and Water Pollution Control Act,⁷⁴³ however, provided the newly formed Department of Pollution Control with a basis for regulating dredge and fill activities that occurred above the mean high water line.⁷⁴⁴ Jurisdiction was divided between the two agencies on that basis until the

passage of the Environmental Reorganization Act of 1975, which authorized a new agency, the Department of Environmental Regulation (DER) to regulate all dredge and fill activities. Under DER the scope of regulation of dredge and fill activities has expanded considerably, until it can finally be said that environmental concerns are receiving adequate consideration.⁷⁴⁵

(b) Jurisdiction to Control Dredging and Filling Activities.

The jurisdictional basis for regulating dredging and filling activities in Florida is presently divided between Chapter 253 and Chapter 403, Florida Statutes, with Chapter 403 being the most comprehensive, but Chapter 253 the most widely used. Under Chapter 253, DER is authorized to regulate dredging and filling activities occurring seaward of the mean high water line.⁷⁴⁶ Jurisdiction under Chapter 403, however, encompasses all of the "waters of the state,"⁷⁴⁷ and has been interpreted to extend upland from the mean high water line, not being based upon the traditional concept of navigability, but rather, the need to control water pollution at the source.⁷⁴⁸ DER is given general authority to establish permitting requirements for any "installation that may be a source of air or water pollution," which it has interpreted to include dredging and filling activities.⁷⁴⁹ Pursuant to such authority, permits are now required, with certain exceptions,⁷⁵⁰ for⁷⁵¹

"those dredging and/or filling activities which are to be conducted in or connected directly or via an excavated waterbody or

series of excavated waterbodies to the following categories of waters of the state (including the submerged lands of such waters and transitional zone of a submerged land)"

Submerged lands are defined as those lands covered by waters over which DER asserts jurisdiction, including those lands contiguous to such waters where certain defined vegetational species or combinations of species constitute the dominant plant community.⁷⁵² The "transitional zone of a submerged land" is a precisely defined area between a submerged land and an upland, which also must contain certain vegetational species as the dominant plant community.⁷⁵³ Uplands are defined in an exclusionary fashion, being those lands in which the dominant vegetational species or combination of species is one other than those listed under the definition for a submerged land or transitional zone of a submerged land.⁷⁵⁴

Regulatory jurisdiction pursuant to Chapter 403 is thus quite comprehensive. Nevertheless, DER can also assert jurisdiction over activities on or over navigable waters of the state pursuant to Chapter 253. Separate regulations have been adopted by the Department pursuant to Chapter 253, which are substantially similar to the Chapter 403 regulations, but do vary in some instances.⁷⁵⁵

Special problems have arisen regarding the extent of regulatory jurisdiction over dredge and fill activities which occur in artificially created navigable waterbodies. In Jefferson National Bank v. Metropolitan Dade County⁷⁵⁶ the plaintiff sought a declaratory judgment that the state and

county had no jurisdiction under Chapter 253 to regulate proposed filling activities in Bella Vista Bay, an artificially created waterbody, which would have extended plaintiff's land approximately forty-five feet beyond the bulkhead line and was strenuously objected to by the county. It was asserted that section 253.123(i), which exempts artificially created navigable waters from the prohibitions pertaining to the construction of islands or extension of existing lands bordering on the navigable waters, was applicable in their case. The court rejected this argument, basing the county's jurisdiction to regulate plaintiff's proposed activities on the provisions of section 253.124, which require county and state approval prior to conducting filling activities similar to those mentioned in section 253.123 and do not exempt artificially created navigable waters.⁷⁵⁷

The confusion regarding regulatory jurisdiction over filling activities in artificially created navigable waters stems largely from the duplicative language and overlapping nature of sections 253.123 and 253.124, Florida Statutes. The court in Jefferson chose to disregard the exception contained in section 253.123(1), relying instead upon its companion provision, section 253.124, which contains no such exception. This is understandable, in that unrestricted filling activities in artificially created waterbodies would ultimately result in their complete elimination.

For dredging activities in artificially created navigable

waters, the Jefferson court interpreted the imprecise language of sections 253.123 and 253.124, Florida Statutes, to reach the opposite conclusion. In Board of Trustees of the Internal Improvement Trust Fund v. Sea-Air Estates, Inc.,⁷⁵⁸ the court found that the Trustees lacked jurisdiction to contest a land excavation connecting two artificially created navigable waterways. Jefferson was distinguished based upon the fact that defendants were not extending their lands, but rather, removing land from artificially created navigable waterways.⁷⁵⁹ Section 253.124, Florida Statutes, was thus interpreted as being inapplicable in that case.

The holding in Sea-Air Estates, Inc. is seriously flawed in that if only dredging activities were involved, the exception for artificially created navigable waters contained in section 253.123(1), Florida Statutes, would also be inapplicable.⁷⁶⁰ Nevertheless, based upon the holdings in Jefferson and Sea-Air Estates, Inc., it appears as though Chapter 253 jurisdiction extends to filling projects in artificially created navigable waters, but not to dredging projects. However, both types of projects would seem to be subject to DER jurisdiction under Chapter 403, Florida Statutes, which contains no jurisdictional limitations regarding artificially created waterbodies except for those instances in which the waters are owned entirely by one person other than the state and no pollution of navigable waters will be caused.

(c) Local Control Over Dredging and Filling Activities.

Section 253.124(1) provides that before a state permit will be issued, applicants for filling projects which may

also involve dredging activities, must first obtain approval from the local Board of County Commissioners if the proposed project is to be located in the unincorporated area of a county, or from the municipal governing body if the proposed project is to be within the bounds of the municipality.⁷⁶¹

The local body is required to consider such factors as whether the proposed project violates zoning laws, obstructs the flow of navigable waters, causes increased erosion or shoaling of channels, creates areas of stagnant water, or "interferes with the conservation of fish, marine and wildlife or other natural resources to such an extent as to be contrary to the public interest."⁷⁶² In the event a local authority declines to consider environmental issues in approving a proposed project, it will be presumed that such issues were not of such consequence as to be contrary to the public interest.⁷⁶³ Local approval is also required for various types of construction projects which occur in the coastal zone.⁷⁶⁴

Pursuant to section 253.123, local approval is not required for projects which only involve the removal of sand, rock or earth from the navigable waters of the state. It is highly unlikely, however, that a dredging project will not involve some filling, in which case the provisions of section 253.124, requiring local approval would apply. Moreover, DER is without authority to grant a dredging permit when a fill permit had been granted by a local body which failed to consider the dredging aspects of the project.⁷⁶

(d) Permitting Requirements and Applicable Criteria.

Due to the generally concurrent jurisdiction of DER and the Army Corps of Engineers regarding dredging and filling activities, permits must in most instances be obtained from both agencies prior to the commencement of such activities. Additionally, for construction activities occurring in the coastal zone, prior approval must also be obtained from the DNR Bureau of Beaches and Shores.⁷⁶⁶

This multi-faceted permitting process was greatly expedited by a "Memorandum of Understanding" between DER and the Corps of Engineers entered into on August 19, 1976, wherein it was agreed that the agencies would "establish procedures for joint permit processing, including joint application forms, in-tandem processing times and unified positions, wherever possible."⁷⁶⁷ It was also agreed that procedures for joint public notices and hearings would be established in those instances where such procedures were required by both agencies.⁷⁶⁸

As a result of this understanding, a joint application form is now initially sent in duplicate to the nearest DER District Office, which then forwards one copy to the Corps District Office.⁷⁶⁹ After the application has been determined to be in order, a joint public notice is issued to all known individuals, groups, and governmental agencies having an interest in the proposed activity.⁷⁷⁰ Whenever possible, joint hearings are held between the Corps, DER and DNR.⁷⁷¹

Generally, approval or denial by DER will follow within

60 to 90 days of the submission of completed application. Applications not approved or denied within this 90 day period are deemed approved by the agency, except that if an evidentiary hearing has been held pursuant to section 120.57, Florida Statutes, approval or denial must follow within 45 days of the submission of a recommended order to the Department. In the event a public hearing is held on the application, approval or denial must follow within 15 days of its conclusion.⁷⁷² Applications which require both state and federal approval will generally be processed within the 90 day time period, except in those instances where the proposed work is controversial or the Corps is required to hold a public hearing or prepare an environmental impact statement. In such instances, processing of an application may take up to one year or more.

The Memorandum of Understanding between DER and the Corps of Engineers is a favorable development, which provides applicants with significant benefits in terms of eliminating costly delays and duplicative procedures. When considered in conjunction with the recently enacted Florida Industrial Siting Act,⁷⁷³ it can be said that substantial progress has been made in recent years to reduce the regulatory burden on permit applicants.

DER now considers certain types of dredging and filling activities as "short-form projects," which are processed at the district centers instead of the main office in Tallahassee. Projects containing several aspects, all of which individually

meet the short-form criteria, may be combined in one short-form application.⁷⁷⁴ Additionally, certain types of projects are entirely exempted from DER permitting requirements.⁷⁷⁵ For work not to be performed in or over navigable waters of the state, the Department will provide a statement as to the necessity of obtaining a permit within 30 days of receipt of the short-form application, with no permit being required if this statement is not mailed within 30 days.⁷⁷⁶

In making its evaluation of a proposed project, which involves dredging or filling activities in, on or over navigable waters of the state, DER conducts a biological and ecological survey concerning the proposed activity. When deemed necessary, a hydrographic study must also be prepared by or under the supervision of the Department. Less extensive biological and ecological surveys are prepared by the Department for short-form applicants at a much lower application fee. The Department, however, may require such applicants to conduct and submit a hydrographic survey.⁷⁷⁷ For dredging and/or filling activities in non-navigable waters, DER may also require an applicant to submit a hydrographic survey.⁷⁷⁸ When necessary to determine the boundary of navigable waters, the applicants may be required to submit a survey prepared in accordance with procedures established in Chapter 177, Florida Statutes.⁷⁷⁹

Although DER will not issue a permit without local approval when such approval is required,⁷⁸⁰ its authority

to deny a permit regarding a proposed activity is not affected by the fact that the activity may have been approved by the local governing body.⁷⁸¹ The agency is authorized to consider all factors for which the local governing body had primary review.⁷⁸² The power of the agency is not ministerial in any respect, even in those instances where statutory language regarding the issuance of permits may appear to be mandatory in nature.⁷⁸³ Furthermore, while the agency may be legally unable to refuse to issue a permit in certain instances,⁷⁸⁴ its authority to advise the Army Corps of Engineers against the issuance of such a permit on ecological grounds is not so limited.⁷⁸⁵ When a proposed activity involves the use of state-owned submerged lands, the project will not be approved until the required lease, license, easement or other form of consent has been received from the Board of Trustees of the Internal Improvement Trust Fund.⁷⁸⁶

The authority of the Department to advise the Corps of Engineers against the issuance of a permit on ecological grounds is significant in those instances in which the Department is prevented from denying a permit due to estoppel or the taking issue. Restrictions imposed on the use of navigable waters are not considered as a taking under federal law,⁷⁸⁷ thereby enabling the Corps of Engineers to regulate dredging and filling activities which occur in or have an effect upon such waters with a greater degree of latitude than state authorities. Nor may estoppel arguments be applied against the Corps of Engineers in that the transfer to private

ownership of swamp and overflowed and submerged lands was made by state and not federal authorities.⁷⁸⁸

In evaluating a proposed dredging or filling activity, different standards are applied, depending on whether it is to occur seaward or landward of the mean high water line. For activities occurring landward of this line, jurisdiction is based solely upon Chapter 403, Florida Statutes, with the applicable standard being whether the proposed activity is likely to cause a short or long-term violation of the water quality criteria set forth in Chapter 17-3, Florida Administration Code.⁷⁸⁹ Class II waters, which are required to be maintained in a condition suitable for shellfish harvesting,⁷⁹⁰ are given special significance, with the presumption being that applications for dredging or filling activities in these waters will be denied.⁷⁹¹

For those dredging or filling activities occurring seaward of the mean high water line, Chapter 403 standards would still apply. However, standards specified in Chapter 253, Florida Statutes, would apply as well.⁷⁹² The primary statutory standard has been incorporated verbatim in the rules, and is substantially similar in effect to that which is applicable to Class II waters, requiring the applicant to demonstrate that the proposed activity will not "interfere with the conservation of fish, marine and wildlife or other natural resources ... and ... not result in the destruction of oyster beds, clam beds, or marine productivity ... to such an extent as to be contrary to the public interest."⁷⁹³

The applicant must also demonstrate that the proposed project will not create a navigational hazard, or a serious impediment to navigation, or substantially alter or impede the natural flow of navigable waters, so as to be contrary to the public interest.⁷⁹⁴ In addition, applicants seeking to conduct certain types of dredging activities, which include the construction, improvement or maintenance of navigation channels, must show that the public interest will be served by such works.⁷⁹⁵ This has been held to be a more stringent standard than a mere showing that a proposed activity will not be contrary to the public interest.⁷⁹⁶

(e) Constitutionality.

The basic constitutionality of Chapter 253, Florida Statutes, as it pertains to the regulation of dredging and filling activities, was upheld soon after its enactment. In Gies v. Fischer,⁷⁹⁷ the Bulkhead Act of 1957 was challenged by private property owners who were aggrieved over the establishment of a bulkhead line which precluded the filling of a portion of their submerged lands on the grounds that it deprived them of their property without just compensation, impaired contractual obligations, and constituted an unlawful delegation of legislative authority. The Supreme Court rejected all of these arguments, finding that the statute constituted a valid regulation under both the police power and the public trust doctrine.⁷⁹⁸ Subsequent opinions have repeatedly reaffirmed the constitutionality of restricting dredging and filling activities pursuant to the police power.⁷⁹⁹

General challenges to the constitutionality of state dredge and fill regulation have been virtually non-existent since the Gies decision. One exception is the case of Albrecht v. DER,⁸⁰⁰ in which it was argued that the constitutional prohibition against unlawful delegation of legislative authority⁸⁰¹ had been violated by the legislature's failure to prescribe adequate standards to guide administrative decision making regarding dredge and fill permits. Petitioners' application to fill certain partially submerged land had been approved by the local Board of County Commissioners but denied by DER on ecological grounds. Plaintiffs argued that a 1967 addition to section 253.124(2), Florida Statutes, which required the county commissioners to take various ecological factors into account, was not applicable to DER, and that DER therefore lacked sufficient statutory guidelines to overrule the determination of the commissioners.⁸⁰² The court rejected this argument, finding that DER had authority to review "all considerations for which the county commissioners have primary review," and that the statutory standards were sufficient to satisfy the constitutional restriction on delegation of legislative power.⁸⁰³ It was also noted that to the extent DER does not refine the statutory standards through rule-making, it will be required to explain the policy behind each decision to grant or deny a permit.⁸⁰⁴ The court distinguished the case from the opinion of the Florida Supreme Court in Sarasota County v. Borg,⁸⁰⁵ in which a special act which created the Manasota

Key Conservation District and prohibited "undue or unreasonable dredging, filling or disturbance of submerged bottoms ... [and] unreasonable destruction of natural vegetation ..."⁸⁰⁶ was held unconstitutional on the ground that such standards were not adequate to guide administrative action. It based its distinction upon the detailed criteria contained in section 253.124(2); the requirement that biological, ecological and in some case hydrographic surveys be prepared, and the fact that the procedural safeguards provided by Chapter 120, Florida Statutes, were not in effect when Borg was decided.⁸⁰⁷

Despite the recognized constitutionality of the state's power to regulate dredging and filling activities, various plaintiffs have achieved success in arguing that the denial of a permit violated due process by constituting an unreasonable taking of private property in their particular case. In a leading case in this area, Zabel v. Pinellas County Water and Navigation Control Authority,⁸⁰⁸ the Florida Supreme Court found that plaintiff owner of submerged lands purchased from the state could not be denied the right to bulkhead and fill the lands because the sale of the land by the state to appellant's predecessors in title expressly carried with it the right to bulkhead and fill.⁸⁰⁹ The court took cognizance of the fact that the right to conduct dredging and filling activities was at all times a legitimate public concern subject to reasonable regulation under the police power, and appeared to base its decision in favor of

plaintiff primarily upon the fact that the state had not established that the granting of the permit would materially and adversely affect the public interest.⁸¹⁰

Subsequent to Zabel, plaintiffs have been awarded dredge and fill permits by the courts for lands purchased from the Trustees on the grounds that denial of such a permit constituted a breach of the explicit⁸¹¹ or implied⁸¹² terms of sale by the Trustees. The Trustees have been held to be estopped to deny the terms of such sale,⁸¹³ and presumed to have acted in the public interest in approving the original conveyance.⁸¹⁴ Assets which may have been "improvidently sold" by the Trustees could be reacquired through the exercise of the state's eminent domain power.⁸¹⁵ Furthermore, where a permit had been ordered to be granted by the court, but repeated court delays and a negative recommendation to the Corps of Engineers by the Trustees had caused a federal permit to expire and not be renewed, a mandatory injunction to institute condemnation proceedings would lie against the Trustees.⁸¹⁶ Such an action would not lie, however, until a dredge and fill permit had actually been refused by the Corps.⁸¹⁷

Plaintiffs have not been as successful in seeking judicial review of permit denials where such denials did not concern lands that had been previously conveyed to the plaintiffs or their predecessors in title by the Trustees. In Yonge v. Askew,⁸¹⁸ petitioners sought to obtain a permit to dredge three navigational canals on property abutting the

Crystal River to increase the number of lots having river access. The court declined to consider the Trustees' denial of such a permit an abuse of administrative discretion, noting that alternative development schemes, although not "nearly as desirable or profitable," were possible.⁸¹⁹ Similarly, in Ferrugia v. Frederick⁸²⁰ a DER denial of permission to dredge a dead end access canal to navigable waters of the state was upheld as not being an abuse of administrative discretion. Citing Yonge, reference was made to the fact that "refusal of the right to construct the canal is not depriving the Petitioner of the right to use his property, but merely restricting the profit he could make on it."⁸²¹ In both Yonge and Ferrugia the subject property was not swamp and overflowed or submerged lands from which no profitable use could be derived without dredging and filling activities. Furthermore, previous conveyances by the Trustees were not at issue.

(f) Presumption and Burden of Proof.

At the administrative level, the burden of proof is placed upon the applicant to affirmatively show through the various required surveys and other information that statutory standards have been met.⁸²² In reviewing DER determinations pursuant to Chapter 120, Florida Statutes, the Division of Administrative Hearings has uniformly applied the burden of proof in this manner,⁸²³ making it difficult for aggrieved applicants to overturn agency denials at the administrative level.

At the judicial level, the burden of proof appears to shift to DER, with the Department required under the Administrative Procedure Act to demonstrate through "substantial competent evidence" the basis for its decision.⁸²⁴ The administrative record relied upon by the agency in meeting this burden generally includes: (1) biological, ecological, and when required, hydrographic surveys prepared for the agency by the Department of Natural Resources; (2) comments from other agencies such as the Florida Game and Freshwater Fish Commission; (3) comments from individuals and public interest groups; and (4) the transcript of public or administrative hearings which may be held regarding the proposed activity.

Aggrieved applicants have in a few instances been successful in overturning DER permit denials in the courts based upon the facts of their particular case. In Berkley v. State Department of Environmental Regulation,⁸²⁵ an aggrieved applicant was granted a permit to construct a seawall and fill privately owned submerged lands after demonstrating to the court that the proposed project would actually enhance water quality in Biscayne Bay by putting in riprap and mangroves and filling deep anoxic areas. Although the court noted that "we may not substitute our judgment for that of the agency," the DER permit denial was considered to be unsupported by substantial competent evidence.⁸²⁶ More recently, in Shablowski v. State Department of Environmental Regulation,⁸²⁷ an applicant was successful in overturning the

Department's denial of a permit to construct six hundred linear feet of seawall and fill in approximately two acres of submerged land in an ecologically stressed area. Appearing to rely heavily upon the fact that the ecological value of the area had already been largely destroyed, the court held that the Department had failed to demonstrate the competent substantial evidence that the proposed fill would impact upon the ecology of the area to such an extent as to be contrary to the public interest.⁸²⁸

H. Standing of Private Citizens to Bring Suit to Abate Water Pollution.

1. Standing Under the Common Law.

Plaintiffs seeking judicial abatement of water pollution under the common law may bring an action for an injunction or damages on the basis of several theories of action, with nuisance law being the one most commonly applied.⁸²⁹ Two forms of nuisance action are recognized at common law - private and public. Standing to abate a private nuisance depends upon the allegation that an individual or limited number of individuals have suffered an interference with the free use, possession, or enjoyment of property as a result of the acts or omissions of another party.⁸³⁰ When the injury is of a kind which is suffered by the public in general, such a nuisance is considered a public nuisance for which an individual or group will not have standing to seek judicial relief unless it is alleged that such injury is "different in kind and not merely in degree from the injury

to the public at large."⁸³¹ The rationale behind the so-called "special injury" rule was to avoid a multiplicity of suits by various individuals or groups seeking to abate a common nuisance and to protect public authorities from being "intolerably hampered in the performance of their duties" by the need to respond to an "interminable" amount of litigation.⁸³² Standing to abate purely public nuisances is vested solely in the attorney general or other public authority given the power to enforce standards regarding the public health, safety and welfare.⁸³³

The special injury rule has proven to be a considerable deterrent to environmental or community groups seeking judicial abatement of water pollution, which is commonly characterized as a public nuisance. For example, in Sarasota County Anglers Club, Inc. v. Burns,⁸³⁴ members of a nonprofit corporation were denied standing to bring suit to prevent the dredging and filling of certain bottom lands in an area which had been used by plaintiffs for boating, swimming and other recreational purposes, due to a failure "to show in what manner they have been damaged as private citizens differing in kind from the general public...."⁸³⁵ The special injury rule has been repeatedly applied in this manner, with few exceptions,⁸³⁶ prompting many commentators to complain that individuals were being denied access to the courts merely because their injury was suffered jointly with other citizens.⁸³⁷

In response to these concerns, the Second District Court

of Appeal in Save Sand Key, Inc. v. United States Steel Corporation⁸³⁸ took the initiative against the special injury rule by pronouncing it "archaic" and holding that a plaintiff nonprofit Florida corporation was not required to allege special injury in a suit to prevent interference with access to a portion of soft sand beach on Sand Key, which was being blocked by a fence around the defendant's construction site.⁸³⁹ The court noted that "it is an anathema to any true system of justice to proclaim that a right may be enjoyed by all yet none may protect it."⁸⁴⁰ It disregarded the previous rationale as to a multiplicity of suits on the basis of "the great expense of litigation these days and the precedential value of a prior decided case on a given point."⁸⁴¹ Despite these arguments, however, the case was subsequently overruled by the Florida Supreme Court, which declined to recede from the special injury rule, noting that "it is not the province of the District Court of Appeal to recede from decisions of this Court."⁸⁴²

The requirement that the injury suffered from a public nuisance be different in kind and not merely in degree from that suffered by the general public presents special problems for litigants seeking to control water pollution in that these injuries are generally suffered in varying degrees by the community as a whole. In Florida, however, plaintiffs have been successful in meeting the special injury requirement when it is alleged that the use and enjoyment of a possessory interest in real property had been adversely

affected.⁸⁴³ This possessory interest must be more than an alleged prescriptive right to use the waters or land area in question.⁸⁴⁴ Riparian owners are endowed with special status to abate water pollution in adjacent waters, such status being sufficient in and of itself to meet the special injury requirement.⁸⁴⁵ Plaintiff's alleging a special type of pecuniary damage have also been found to meet the special injury rule.⁸⁴⁶ Moreover, the special injury rule will not be applied against plaintiffs who seek to abate a public nuisance by challenging the legality of the enactment of the zoning ordinance which authorized the alleged public nuisance.⁸⁴⁷

Despite these varied means of showing special injury, the special injury rule will continue to inhibit public interest groups seeking to abate water pollution on the basis of the common law. Fortunately, statutorily derived remedies at both the state and federal levels provide a basis whereby such groups have standing to seek judicial review of pollution related grievances which affect the public in general.

2. The Florida Environmental Protection Act.

The Environmental Protection Act (EPA) of 1971⁸⁴⁸ was enacted along with a spate of similar acts in other states in an attempt to provide a remedy for individuals and groups aggrieved about environmental matters who were being denied access to the courts as a result of the special injury rule.⁸⁴⁹ The Act permits any "citizen" of the state to sue

any governmental agency or other authority charged by law with the duty of enforcing laws, rules, and regulations for the protection of the air, water or other natural resources of the state to compel such authority to enforce such laws, rules and regulations. Action may also be brought against private persons and governmental authorities to enjoin the violation of any applicable laws, rules, or regulations.⁸⁵⁰ As a condition precedent to bringing any such action against a governmental agency or other authority, the complainant must first provide notice to the authority by verified complaint setting forth the facts upon which the complaint is based and the manner in which the complaining party is affected. The authority then has 30 days within which to "take appropriate action."⁸⁵¹ Actions may not, however, be maintained against any person or governmental agency which is acting or conducting operations pursuant to a currently valid permit or certificate and is complying with its requirements.⁸⁵² The court is required to award costs and attorney's fees to the prevailing party, and may require the plaintiff to post a bond if it has reasonable grounds to doubt the solvency of the plaintiff or the plaintiff's ability to pay any cost or judgment which might be rendered against him.⁸⁵³

The mandatory attorney's fee provision of the Florida EPA has proven to be a substantial deterrent to public interest groups which might otherwise rely upon the Act to avoid the application of the special injury rule at common

law. Because of the financial resources of most large scale industrial polluters and the complexity of environmental litigation, the possibility of being assessed for substantial legal costs inhibits such groups from initiating litigation to protect general community interests in which none of the members has a significant financial stake.

Despite the fact that the passage of the Florida EPA would not have been necessary were it not for the existence of the special injury rule at common law, the vagueness of the language of the Act and lack of a clear legislative history has caused some to doubt whether the legislature intended to abrogate the common law rule.⁸⁵⁴ The limited number of cases interpreting the Act have, however, supported plaintiff associations' claims of standing, although somewhat ambiguously. For example, in Orange County Audubon Society, Inc. v. Hold,⁸⁵⁵ the court found that the term "citizen" contained in the Act was intended to include artificial as well as natural persons, and granted the plaintiff nonprofit corporation standing to bring suit against the Board of County Commissioners to seek enforcement of environmental laws. It considered the "legislative purpose to provide a procedure whereby governmental bodies could be compelled to enforce applicable environmental laws . . .," concluding that the language of the Act evinced a legislative intent to make the enforcement of environmental laws a responsibility of both the government and the citizenry.⁸⁵⁶ Then, in Save Our Bay, Inc. v. Hillsborough County Pollution Control Commission⁸⁵⁷

the court found that plaintiff, nonprofit corporation, whose members had used the waters of Old Tampa Bay for swimming and other recreational purposes, had standing to sue under the Florida EPA to seek an injunction requiring the commission to take action against utility companies which were polluting the bay.

Despite these favorable holdings, the opinions in Hold and Save Our Bay do have some weaknesses. In Hold, the court resolved the ambiguity regarding the use of the word "citizen" instead of "person" in section 403.412(2)(a) of the Florida EPA in favor of the broader interpretation. The case is unclear, however, as to whether the court intended its holding to be interpreted as an abrogation of the special injury rule. It is likely that this was the intended effect of the holding, in that a nonprofit corporation such as the Audubon Society generally cannot allege injury different in kind from that suffered by the general public as a result of environmental pollution. Nevertheless, no specific mention of the special injury rule is made in Hold, and the statement of facts in the opinion is insufficient to determine the nature of the interest which the Audubon Society sought to protect. In Save Our Bay the court based its decision in part upon its prior holding in Save Sand Key, which was subsequently overruled, without discussing the legislative intent of the Act. Nevertheless, the decision was also based in part "on the authority of the statute...."⁸⁵⁸

Overall, though some doubts may still remain as to the

applicability of the special injury rule to litigants seeking relief under the Florida EPA, it appears as though such doubts will be resolved against the application of the rule. This would appear to be a reasonable interpretation of legislative intent, in that the Florida EPA would not be necessary were it not for the application of the special injury rule at common law. The question has not yet been conclusively resolved due to the dearth of litigation by environmental groups under the Act, which results from the provision in the Act requiring the court to award attorney fees to the prevailing party.

3. Chapter 823, Public Nuisances.

Another statutory means of avoiding the application of the special injury rule appears to be available to citizens of Florida who seek to enjoin a public nuisance. Pursuant to section 823.05, Florida Statutes, any person who owns or operates a "building, booth, tent or place which tends to annoy the community or injure the health of the community" may be subject to an action to abate or enjoin the nuisance as provided in sections 60.05 and 60.06, Florida Statutes.⁸⁵⁹ Section 60.05 authorizes "any citizen" of the county in which the nuisance occurs to sue in the name of the state to enjoin the nuisance.⁸⁶⁰ The court is authorized to grant temporary or permanent injunctive relief, and must tax costs against the person maintaining the nuisance if the existence of a nuisance is established.⁸⁶¹

Section 60.05, Florida Statutes is the descendant of a

long line of similar statutory provisions originating in 1917.⁸⁶² In Pompano Horse Club v. State,⁸⁶³ a public nuisance action against a gambling operation based upon a predecessor to section 60.05, it was established that an individual plaintiff need not first prove that application had been made to the attorney general or other public authority prior to bringing suit. The action was viewed as one in which "the public is the real complainant, to the same extent as though the suit was brought by the attorney general."⁸⁶⁴ The question of the need for an individual to allege special injury was considered by the Florida Supreme Court in National Container Corporation v. State,⁸⁶⁵ in which plaintiff sought to enjoin the operation of a wood pulp mill which discharged wastes into the St. Johns River as being a public nuisance. The court distinguished prior cases in which a showing of special injury had been required on the basis of the 1917 statutory provisions, which it felt abrogated the common law rule.⁸⁶⁶ Most recently, in State ex rel. Gardiner v. Sailboat Key, Inc.,⁸⁶⁷ the court sustained an action by a realtor and certain associations to enjoin the construction of a high rise residential development on an undeveloped island in Biscayne Bay without requiring a showing of special injury because the action had been brought pursuant to sections 823.05 and 60.05, Florida Statutes. It noted that a showing of special injury would have been required were it not for the application of the statutory provisions, and dis-

missed a similar count in private nuisance where the statutory provisions were of no effect.⁸⁶⁸

These statutory provisions thus appear to provide a means whereby individuals and associations may seek to abate a public nuisance without alleging special injury. The broad statutory language of section 823.05, and the several cases in which this section was applied vis a vis water quality related nuisances indicate that such situations are actionable under the statute. Some question still exists, however, as to the extent of this applicability as a result of the decision in Sarasota County Anglers Club v. Burns,⁸⁶⁹ in which the court applied the special injury rule against an individual and private club who brought suit under section 823.05, Florida Statutes, seeking to enjoin certain dredging and filling activities as a public nuisance. The court concluded that plaintiff's claim was not tenable under the facts of the case, and that section 823.05 was only applicable in those situations specifically mentioned therein. This view was adopted by the Florida Supreme Court on appeal⁸⁷⁰ and reaffirmed by the court in Save Sand Key, Inc. v. United States Steel Corporation.⁸⁷¹ The court's holding in National Container Corporation v. State⁸⁷² was not discussed in either opinion, however, thus leaving some question as to whether the court had intended to extend its more recent holding to all types of water quality related nuisances. A clear distinction can still be drawn between the situation in National Container, which clearly

involved water pollution, and the more recent cases, which were primarily concerned with the loss of an alleged prescriptive right to use the beaches and waterbodies where the dredging and filling activities occurred.

When applicable, section 823.05 provides the substantial advantage of avoiding the operation of the special injury rule without the necessity of relying upon the Florida Environmental Protection Act. Plaintiffs can therefore, avoid the mandatory attorney's fee provision of the Florida EPA by basing standing to sue upon this section.⁸⁷³

4. The Federal Water Pollution Control Act.

Section 505 of the Federal Water Pollution Control Act provides that "any citizen"⁸⁷⁴ may commence a civil action in the federal district court against "any person" who is alleged to be in violation of an effluent standard or limitation under the Act or an order which has been issued by EPA or the state administrative authority with respect to such standard or limitation to seek enforcement thereof in accordance with the enforcement powers provided in the Act.⁸⁷⁵

Action may also be brought against the EPA where it is alleged that the agency failed to perform a ministerial act or duty.⁸⁷⁶ Such action must be brought in the district in which the pollution source is located⁸⁷⁷ and may only be brought after plaintiff has provided at least 60 days notice of the alleged violation to the violator, EPA, and the state administrative authorities, with no satisfactory action forthcoming from the enforcement authorities.⁸⁷⁸ Compliance

with the 60 day waiting period is not necessary, however, when it is alleged that a violation of the new source performance standards or effluent limitations applicable to toxic substances has occurred.⁸⁷⁹ The court is authorized to award costs of litigation, including reasonable attorney and expert witness fees, to any party at its discretion, and may also require the filing of a bond or equivalent security in accordance with the Federal Rules of Civil Procedure.⁸⁸⁰

* This chapter was substantially written by Stan Niego.

1. See generally, Coulson & Forbes, Waters & Land Drainage 191 (6th ed. 1952); Note, Statutory Treatment of Industrial Stream Pollution, 24 Geo. Wash. L. Rev. 302, 306 (1956).
2. See Parsons v. Tennessee Coal, Iron & R.R., 186 Ala. 84, 64 So. 591 (1914) (denial of damages because no substantial injury shown from defendant's coal mining operation); Clark v. Lindsay Light & Chem. Co., 341 Ill. App. 316, 93 N.E. 2d 441 (1950) (court refused injunction against pollution because damage only nominal); Panther Coal Co. v. Looney, 185 Va. 758, 40 S.E.2d 298 (1946) (verdict for plaintiff reversed; no substantial change shown).
3. Tampa Waterworks Co. v. Cline, 37 Fla. 586, So. 780 (1896).
4. Id. at 595, 20 So. at 782 (emphasis added).
5. Powell, RFAL PROPERTY 376 (1962); Note, Purity & Utility: Diversity of Interest in River Pollution, 84 U. Pa. L. Rev. 630, 637 (1936).
6. Restatement, Second, Torts §826 (1979).
7. Id., §828.
8. For a discussion of common law remedies, see Maloney, Judicial Protection of the Environment: A New Role for Common Law Remedies 25 Vand. L. Rev. 145 (1972); Note, Private Remedies for Water Pollution, 70 Colum. L. Rev. 734 (1970).

9. W. Prosser, THE LAW OF TORTS §89 (4th ed. 1971).
10. Bechman v. Marshall, 85 So. 2d 552 (Fla. 1956).
11. Durrance v. Sanders, 329 So. 2d 26 (Fla. 2d D.C.A. 1976).
12. Id. at 29. See also Symmes v. Prairie Pebble Phosphate Co., 64 Fla. 480, 60 So. 223 (1912).
13. Philbrick v. Miami Beach, 147 Fla. 538, 3 So. 2d 144 (1941).
14. National Container Corp. v. State. 138 Fla. 32, 189 So. 4 (1939). See §H-1, infra for a detailed discussion of the special injury rule.
15. State ex rel. Brown v. Sussman, 235 So. 2d 46 (Fla. 3d D.C.A. 1970).
16. Page v. Niagra Chemical Div., 68 So. 2d 382 (Fla. 1953).
17. Restatement, Second, Torts §849(1)(a)(1979). Pollution injuries may also subject the actor to liability if the conduct constitutes a trespass or is negligent, reckless or abnormally dangerous with respect to its use. Id., §849(1)(b), (c).
18. Id., §849, comment e.
19. Id. "The pollution of water by a riparian proprietor that creates a nuisance by causing harm to another person's interest in land or water is not the exercise of a riparian right." Id., §849(2).
20. See, Id., §850-63.
21. Prosser, supra note 9, §13.
22. See, e.g., Amphitheaters, Inc. v. Portland Meadows, 184 Ore. 336, 198 P.2d 847 (1948); Burtlett v. Grasselli

- Chem. Co., 92 W. Va. 445, 115 S.E. 451 (1922). But
see *Martin v. Reynolds Metals Co.*, 221 Ore. 86, 342 P.2d
790, cert.denied, 362 U.S. 918 (1960), in which a tres-
pass was found to result from airborne invasion of
particles.
23. See, e.g., *American Cyanimid Co. v. Sparto*, 267 F.2d 425
(5th Cir. 1959); *United States v. Sutro*, 235 F.2d 499
(9th Cir. 1956); *Owens v. United States*, 294 F. Supp.
400 (S.D. Ala. 1968).
 24. Prosser, supra note 9, §78.
 25. *Luthringer v. Moore*, 31 Cal.2d 489, 190 P.2d 1 (1948).
 26. *Green v. General Petroleum Corp.*, 205 Cal. 328, 270 P.
951 (1928); *Berry v. Shell Petroleum Co.*, 140 Kan. 94,
33 P.2d 953 (1934), rehearing denied, 141 Kan. 6, 40 P.2d
359 (1935).
 27. *Waschak v. Moffat*, 379 Pa. 441, 109 A.2d 310 (1954);
Pennsylvania Coal Co. v. Sanderson, 113 Pa. 126, 6 A.
453 (1886).
 28. *Chapman Chem. Co. v. Taylor*, 215 Ark, 630, 222 S.W.2d
820 (1949); *Loe v. Lenhardt*, 227 Ore. 242, 362 P.2d 312
(1961).
 29. 317 So. 2d 799 (Fla. 2d D.C.A. 1975).
 30. Id., at 802.
 31. See Note, supra note 8, at 747.
 32. *Burnett v. Rushton*, 52 So. 2d 645 (Fla. 1951).
 33. *Gibson v. City of Tampa*, 114 Fla. 619, 154 So. 842 (1934).
 34. *Page v. Niagra Chem. Div.*, 68 So. 2d 382 (Fla. 1953).

35. 130 So. 2d 894 (Fla. 3d D.C.A. 1961), aff'g 114 So. 2d 347 (Fla. 3d D.C.A. 1959) (interlocutory appeal).
36. 130 So. 2d at 898.
37. 340 So. 2d 1287 (Fla. 3d D.C.A. 1977).
38. Id., at 1289. But see Hodges v. Buckeye Cellulose Corp., 174 So. 2d 565 (Fla. 1st D.C.A. 1965) (plaintiff denied standing to sue for injunction to restrain nuisance).
39. See, e.g., Gibson v. City of Tampa, 114 Fla. 619, 154 So. 842 (1934); Milling v. Berg, 104 So. 2d 658 (Fla. 2d D.C.A. 1958). See generally, Maloney, The Balance of Convenience Doctrine in the Southeastern States, Particularly as Applied to Water, 5 S.C.L.O. 159 (1952).
40. 141 Fla. 795, 193 So. 826 (1940); City of Lakeland v. State ex rel. Harris, 143 Fla. 761, 197 So. 470 (1940).
41. The court spoke in terms of "balance of comparative injury."
42. City of Lakeland v. State ex rel. Harris, 143 Fla. 761, 767, 197 So. 470, 473 (1940).
43. See Penn v. City of Lakeland, 109 So. 2d 771 (Fla. 2d D.C.A. 1959) (the final decree was entered by the Circuit Court on May 9, 1941).
44. E.g., Koseris v. J.R. Simplot Co., 83 Idaho 263, 352 P.2d 235 (1960); People v. Peterson, 31 Misc. 2d 738, 226 N.Y.S. 2d 1004 (Eric County Ct. 1961).
45. 298 So. 2d 217 (Fla. 1st D.C.A. 1974).
46. Id., at 218.
47. 240 So. 2d 499 (Fla. 3d D.C.A. 1970). Accord, City of

- Coral Gables v. Baljet, 263 So. 2d 273 (Fla. 3d D.C.A. 1972) (court enjoined operation of municipal incinerator).
48. Loreny v. Hollywood, 144 Fla. 324, 198 So. 17 (1940);
Mercer v. Keynton, 121 Fla. 87, 163 So. 411 (1935).
49. 109 So. 2d 771 (Fla. 2d D.C.A. 1959).
50. Maloney v. Heftler Realty Co., 316 So. 2d 594 (Fla. 2d D.C.A. 1975).
51. City of Oxford v. Spears, 228 Miss. 433, 439, 87 So. 2d 914, 916 (1956); Ludlow v. Colorado Animal By-Products Co., 104 Utah 221, 235, 137 P.2d 347, 354 (1943).
52. Blankenship v. Kansas Explorations, Inc., 325 Mo. 998, 1015, 30 S.W.2d 471, 479 (1930).
53. Restatement (Second) Torts §929 (1979).
54. Kentucky West Virginia Gas Co. v. Lafferty, 174 F.2d 848 (6th Cir. 1949).
55. City of Clanton v. Johnson, 245 Ala. 470, 17 So. 2d 669 (1944); Maloney v. Heftler Realty Co., 316 So. 2d 594 (Fla. 2d D.C.A. 1975).
56. Ford v. Dania Lumber & Supply Co., 150 Fla. 435, 7 So. 2d 594 (1942); Nitram Chemicals, Inc. v. Parker, 200 So. 2d 220 (Fla. 2d D.C.A. 1967).
57. Jones v. Trawick, 75 So. 2d 785 (Fla. 1954).
58. Nitram Chemicals, Inc. v. Parker, 200 So. 2d 220 (Fla. 2d D.C.A. 1967).
59. See Note, Stream Pollution-Recovery of Damages, 50 Iowa L. Rev. 141, 152 (1964).
60. Restatement, Second, Torts §930(1) (1979).

61. Id., §930(2).
62. E.g., Barlett v. Hume-Sinclair Coal Mining Co., 351 S.W.2d 214 (Mo. Ct. App. 1961).
63. Jarrett Lumber Corp. v. Christopher, 65 Fla. 379, 61 So. 831 (1913); Savannah, F. & W. Ry. Co. v. Davis, 25 Fla. 917, 7 So. 27 (1890) (plaintiff allowed to bring successive suits against railroad as temporary damages); Pensacola & Atlantic R.R. Co. v. Jackson, 21 Fla. 146 (1884) (plaintiff allowed to recover permanent damages against trespassing railroad).
64. Ford v. Dania Lumber & Supply Co., 150 Fla. 435, 7 So. 2d 594 (1942); City of Lakeland v. Druglass, 143 Fla. 771, 197 So. 467 (1940).
65. Nitram Chemicals v. Parker, 200 So. 2d 220 (Fla. 2d D.C.A. 1967).
66. 200 So. 2d 220 (Fla. 2d D.C.A. 1967).
67. Id., at 224.
68. See discussion in §A-2, infra.
69. Knowles v. Central Allapattae Properties, Inc., 145 Fla. 123, 194 So. 819 (1940).
70. See, Annot., Maintainability in State Court of Class Action for Relief Against Air or Water Pollution, 47 A.L.R. 3d 769 (1973).
71. See Prosser, Joint Torts & Several Liability, 25 Calif. L. Rev. 413 (1937).
72. See, e.g., Phillips Petroleum Co. v. Hardee, 189 F.2d 205 (5th Cir. 1951); Bowman v. Humphrey, 124 Iowa 744, 747, 100 N.W. 854, 855 (1904); McKinney v. Deneen, 231 N.C. 540, 58 S.E.2d 107 (1950).
73. 66 Fla. 27, 63 So. 1 (1913).

74. Standard Phosphate Co. v. Lunn, 66 Fla. 220, 63 So. 429 (1913).
75. See, e.g., Phillips Petroleum Co. v. Hardee, 189 F.2d 205 (5th Cir. 1951); Prairie Oil & Gas Co. v. Laskey, 173 Okla. 48, 46 P.2d 484 (1935); Landers v. East Texas Salt Water Disposal Co., 151 Tex. 251, 248 S.W.2d 731 (1952).
76. See Note, supra note 8, at 745-46.
77. Fulmer v. Skelly Oil Co., 143 Kan. 55, 53 P.2d 825 (1936) (pollution began in 1917, but no actual damage occurred until 1932. Held, single action for permanent damages arose in 1917 - barred by two-year statute of limitations).
78. Vickers v. City of Fitzgerald, 216 Ga. 476, 117 S.E.2d 316 (1960); City of Bethany v. Municipal Sec. Co., 274 P.2d 363 (Okla. 1953).
79. City of Clanton v. Johnson, 245 Ala. 470, 17 So. 669 (1944); Maloney v. Heftler Realty Co., 316 So. 2d 5941 (Fla. 2d D.C.A. 1975).
80. RESTATEMENT OF PROPERTY §457 (1944).
81. Hunt Land Holding Co. v. Schramm, 121 So. 2d 697 (Fla. 2d D.C.A. 1960).
82. West Ky. Coal Co. v. Rudd, 328 S.W.2d 156 (Ky. 1959).
This requirement will generally eliminate the use of this

defense in modern pollution cases against municipal and industrial polluters whose effluent is generally quite variable in nature.

83. RESTATEMENT OF TORTS at 343, 345 (Ch. 41, topic 3, Scope Note) (1939).
84. W.G. Duncan Coal Co. v. Jones, 254 S.W.2d 720 (Ky. 1953); Jones v. Breyer Ice Cream Co., 1 App. Div. 2d 253, 149 N.Y.S.2d 426 (1956); 2 Farnham, Waters and Water Rights §521 (1904).
85. Daniels v. Bethlehem Mines Corp., 391 Pa. 195, 137 A.2d 304 (1958) (written agreement to permit discharge of mine water upheld where only private nuisance); 2 Farnham, note 84 supra, §526.
86. Luama v. Bunker Hill & Sullivan Mining & Construction Co., 41 F.2d 358 (9th Cir. 1930).
87. E.g., Brooks v. Patterson, 159 Fla. 263, 31 So. 2d 472 (1947) (failure to object to improvements to municipal airport until after completion constituted laches).
88. See generally, Note, Equity: Effect of Statutes of Limitations in Equity Suits, 3 U. Fla. L. Rev. 351 (1950).
89. 352 U.S. 59, 63-64 (1956).
90. See, Annot., Right to Maintain Action to Enjoin Public Nuisance as Affected by Existence of Pollution Control Agency, 60 A.L.R. 3d 665 (1974).
91. E.g., People v. Los Angeles, 160 Cal. App. 2d 494, 325 P.2d 639 (1958); J.D. Jewell, Inc. v. Hancock, 226 Ga. 480, 175 S.F.2d 847 (1970). But see, State v. Arizona

- Public Service Co., 85 N.M. 165, 510 P.2d 98 (Sup. Ct. 1973).
92. E.g., Venuto v. Owens Corning Fiberglass Corp., 22 Col. App. 3d 116, 99 Cal. Rptr. 350 (1971); Urie v. Franconia Paper Corp., 107 N.H. 131, 218 A.2d 360 (1966). See, Maloney, supra note 8, at 156-57.
93. Hoffman, The Doctrine of Primary Jurisdiction Misconceived = End of Common Law Environmental Protection?, 2 Fla. St. L. Rev. 491, 509 (1974). See generally, Jaffe, Primary Jurisdiction, 77 Harv. L. Rev. 1037 (1964); Schwartz, Primary Administrative Jurisdiction and the Exhaustion of Litigants, 41 Geo. L. J. 495 (1953).
94. 113 So. 2d 884 (Fla. 3d D.C.A. 1959).
95. 291 So. 2d 45 (Fla. 2d D.C.A. 1974).
96. Id., at 47.
97. Id., at 48.
98. See, Fla. Stat. §403.191(1) (1979).
99. 291 So. 2d at 48. Accord State ex rel. Gardiner v. Sailboat Key, Inc., 295 So. 2d 658, 662 (Fla. 3d D.C.A. 1974); See also, Orlando Sports Stadium, Inc. v. State ex rel. Powell, 262 So. 2d 881 (Fla. 1972) (statutory remedies for the abatement of nuisances do not supercede existing common law remedies); Wetzel v. A. Duda & Sons, 306 So. 2d 533 (Fla. 4th D.C.A. 1975) (riparian plaintiffs need not exhaust administrative remedies; no primary jurisdiction with Department of Pollution Control); Town of Surfside v. County Line Land Co., 340 So. 2d 1287

(Fla. 3d D.C.A. 1977) (plaintiff need not exhaust administrative remedies; compliance with administrative rules no bar to nuisance action). But see, State ex rel. Jackson v. Seaboard Coast Line R.R. Co., 257 So. 2d 89 (Fla. 1st D.C.A. 1972) (primary jurisdiction with Public Service Commission to abate alleged public nuisance by railroad).

100. 138 Fla. 32, 189 So. 4 (1939).
101. Id., at 10-11.
102. 155 Fla. 342, 20 So. 2d 388 (1944). See generally, Comment, Nuisance, Defense of Statutory Authorization of Location, 25 Texas L. Rev. 968 (1946).
103. 20 So. 2d at 394.
104. 159 Fla. 263, 31 So. 2d 472 (1947).
105. 31 So. 2d at 474.
106. 295 So. 2d 658 (Fla. 3d D.C.A. 1974).
107. 291 So. 2d 45 (Fla. 2d D.C.A. 1974).
108. 295 So. 2d at 662.
109. See, Fla. Stat. ch. 380 (1979); Little, New Attitudes About Legal Protection For Remains of Florida's Natural Environment, 23 U. Fla. L. Rev. 459 (1971).
110. Pub. L. No. 92-500, 86 Stat. 816 (1972), codified as 33 U.S.C. §§1251-1378 (Supp. 1973).
111. Ch. 758, 62 Stat. 115, as amended, Water Pollution Control Act Amendments of 1956, ch. 518, 70 Stat. 498; Federal Water Pollution Control Act Amendments of 1961, Pub. L. No. 87-88, 79 Stat. 903; Clean Water Restoration

- Act of 1966, Pub. L. No. 89-753, 80 Stat. 1246; Water Quality Improvement Act of 1970, Pub. L. No. 91-224, 84 Stat. 91; Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, 86 Stat. 816; Clean Water Act of 1977, Pub. L. No. 95-217, 91 Stat. 1566.
112. See Stein, Problems and Programs in Water Pollution, 2 Nat. Res. J. 388, 408-9 (1962).
113. 33 U.S.C. §§466e, 466c (Supp. II 1966). During the years 1956-62, grants assisted 3,500 communities in beginning construction of treatment plants to serve 35 million people. Stein, supra note 112, at 414. By 1964, Florida had received \$2.26 Million through the act. U.S. DEP'T. OF HEALTH, EDUCATION AND WELFARE, BUILDING FOR CLEAN WATER 6 (1964).
114. Water Quality Act of 1965, Pub. L. No. 89-234, 79 Stat. 907.
115. Interstate waters were defined as "all rivers, lakes and other waters that flow across or form a part of the state boundaries, including coastal waters." 33 U.S.C. §446j(e) (1964). The Department of the Interior defined "[c]oastal waters" as waters "subject to the ebb and flow of the tides, and the waters of the Great Lakes." U.S. DEP'T. OF INTERIOR, GUIDELINES FOR ESTABLISHING WATER QUALITY STANDARDS FOR INTERSTATE WATERS 10 (News Release May 10, 1966).
116. 33 U.S.C. §466g(c) (3) (Supp. II, 1966).
117. President's Reorganization Plan No. 2 of 1966.

118. U.S. Dep't. of Interior Guidelines, supra note 115, at 5, 7.
119. 33 U.S.C. §§466g(c)(1), (2), (4) (Supp. II, 1966).
120. See discussion in §C-4, infra regarding the classification of waterbodies in Florida.
121. For example, a stream expected to support an indigenous trout population would have a dissolved oxygen standard of seven parts per million (ppm), while a stream classified for agricultural and industrial use might have a standard of 3 ppm. Goldfarb, Better Than Best: A Cross Current in the Federal Water Pollution Control Act Amendments of 1972, 11 U. Wyoming L. J. 1, 3 (1976). See, §C-5, infra regarding water quality standards in Florida.
122. 33 U.S.C. §466g(c)(5) (Supp. II, 1966).
123. 33 U.S.C. §§466g(1), (2) (Supp. II, 1966).
124. 33 U.S.C. §§466g(f)(1) (Supp. II, 1966).
125. See generally, Barry, The Evolution of the Enforcement Provisions of the Federal Water Pollution Control Act: A Study of the Difficulty in Developing Effective Legislation, 68 Mich. L. Rev. 1103 (1970). See also ZWICK and BENSTOCK, WATER WASTELAND (1971), which documents and recounts the deficiencies of pre-1972 federal law.
126. Goldfarb, supra note 121, at 4.
127. Id., at 4-5.
128. Pub. L. No. 92-500, 86 Stat. 816 (1972), codified as 33 U.S.C. §1251-1378 (Supp. 1973). See generally, Comment, The Federal Water Pollution Control Act Amendments of 1972,

- 14 Boston College Ind. and Comm. L. Rev. 672 (1973);
Comment, The Federal Water Pollution Control Act Amend-
ments of 1972, 893 Wisconsin L. Rev. 1973.
129. See, Chapter 6, infra for a detailed discussion of the
navigability concept.
130. 33 U.S.C. §1362(7) (Supp. 1973).
131. See, §G-2(a), infra, for a detailed discussion of federal
jurisdiction under the FWPCA.
132. Point sources are presently defined as "any discernable,
confined and discrete conveyance, including but not limited
to any pipe, ditch, channel, tunnel, conduit, well, dis-
crete fissure, container, rolling stock, concentrated
animal feeding operation, or vessel or other floating
craft, from which pollutants are or may be discharged.
This term does not include return flows from irrigated
agriculture." 32 U.S.C.A. §1362(14) (1979). The excep-
tion for irrigation return flows was added by the 1977
amendments.
133. 33 U.S.C. §1362(11) (Supp. 1973).
134. See, 33 U.S.C. §1316(b)(1)(B) regarding new sources,
and 33 U.S.C. §1314(b) regarding existing sources. The
Act specifies 27 industrial categories for which EPA must
specify effluent limitations for new and existing sources,
33 U.S.C. §1316(b)(1)(A), with EPA authorized to make
additions to the list as technology and alternatives
change. 33 U.S.C. §1316(b)(1)(B). EPA is also authorized
to distinguish among classes, types and sizes within

categories of new sources, 33 U.S.C. §1316(b)(2) and has promulgated many sub-categories for which different effluent limitations apply. See 40 C.F.R. §124, Appendix D, for a current listing of point source categories. When promulgated, effluent limitations generally specify the amount of a pollutant by weight which can be emitted for a certain volume of effluent. See 40 C.F.R. §400 et seq. for a listing of the effluent limitations applicable to various point source categories.

135. See, Comment, The Federal Water Pollution Control Act Amendments of 1972, 14 Boston College Ind. & Comm. L. Rev. 672, 693-94 (1973).
136. 33 U.S.C. §1316(d) (Supp. 1973).
137. 33 U.S.C. §1311(b)(1)(B). Secondary treatment is not defined in the Act, but EPA is required to publish within sixty days of the Act's effective date information on the degree of effluent reduction attainable from secondary treatment. 33 U.S.C. §1314(d)(1) (Supp. 1973).
138. 33 U.S.C. §1318(b)(1) (Supp. 1973). These standards are intended for those pollutants which are determined to be not susceptible to treatment by the treatment works or likely to interfere with its operation. Id.
139. 33 U.S.C. §1317(a)(1) (Supp. 1973). In specifying such pollutants, EPA is required to take into account "the toxicity of the pollutant, its persistence, degradability, the usual or potential presence of the affected organisms in any waters, the importance of the affected organisms

- and the nature and extent of the effect of the toxic pollutant on such organisms." Id.
140. 33 U.S.C. §1317(a)(2)(Supp. 1973).
141. 33 U.S.C. §1311(b)(1)(A)(Supp. 1973).
142. 33 U.S.C. §1314(b)(1)(B)(Supp. 1973). These other factors were "the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate." Id.
143. 33 U.S.C. §1311(b)(2)(A)(Supp. 1973).
144. The six factors to be considered were identical to the BPT factors, except that the cost factor was demoted from first to fifth place on the list of factors to be considered by EPA and merely stated as "the cost of achieving such effluent reduction." 33 U.S.C. §1314(b)(2)(B)(Supp. 1973).
145. 33 U.S.C. §1311(b)(1)(B)(Supp. 1973).
146. See notes 199 through 200, infra and accompanying text.
147. 33 U.S.C. §1312(Supp. 1973).
148. For an excellent discussion of the problems associated with integrating the two approaches, see Goldfarb, supra note 121.
149. 33 U.S.C. §1313(d)(Supp. 1973).
150. 33 U.S.C. §1311(a)(Supp. 1973). "Pollutant" is defined as "dredged spoil, solid waste, incineration residue, sewage, garbage, sewage sludge, munitions, chemical wastes, bio-

logical materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water." Certain types of sewage from vessels and wastes associated with oil and gas production are excluded. 33 U.S.C. §1362(b) (Supp. 1973).

151. 33 U.S.C. §1342(b) (Supp. 1973). See discussion in §C-3, infra, regarding NPDES authority in Florida.
152. 33 U.S.C. §1342(a)(1) (Supp. 1973).
153. 33 U.S.C. §1341(a)(1) (Supp. 1973).
154. 33 U.S.C. §1370 (Supp. 1973).
155. 33 U.S.C. §1312(e)(1) (Supp. 1973). This process must result in plans for all navigable waters within the State, which include, in part: (1) effluent limitations and compliance schedules at least as stringent as those required by the Act; (2) areawide waste management plans and basin plans as required by the Act; (3) adequate plans for implementing existing or revised water quality standards; (4) maximum load allocations for pollutant discharges in waters which do not meet water quality criteria despite the application of EPA effluent limitations; (5) controls over the disposition of residual waste from water treatment processing; and (6) an inventory and priority ranking of waste treatment works proposed for construction. Id., §1312(e)(3). For a discussion of the continuous planning process in Florida, see §C-2, infra.
156. 33 U.S.C. §1288 (a)(1) (Supp. 1973).

157. 33 U.S.C. §1288(a)(2), (4) (Supp. 1973).
158. 33 U.S.C. §1288(a)(3) (Supp. 1973).
159. 33 U.S.C. §1288(b)(1)(A), (2)(A) (Supp. 1973).
160. 33 U.S.C. §1288(b)(2)(F), (G), (H), (I) (Supp. 1973).
161. 33 U.S.C. §1288(b)(2)(C) (Supp. 1973).
162. 33 U.S.C. §1288(c) (Supp. 1973).
163. 33 U.S.C. §1288(f) (Supp. 1973).
164. 33 U.S.C. §1313(e)(3)(B) (Supp. 1973). For a discussion of section 208 planning in Florida, see §C-2, infra.
165. 33 U.S.C. §1289(a) (Supp. 1973). See Water Resources Planning Act, 42 U.S.C. §§7801-83 (Supp. 1973).
166. 33 U.S.C. §§1258, 1264 (Supp. 1973).
167. 33 U.S.C. §1254(1) (Supp. 1973).
168. 33 U.S.C. §1254(n) (Supp. 1973).
169. 33 U.S.C. §1254(p) (Supp. 1973).
170. 33 U.S.C. §1254(j) (Supp. 1973).
171. 33 U.S.C. §1254(m) (Supp. 1973).
172. 33 U.S.C. §1254(o) (Supp. 1973).
173. 33 U.S.C. §1254(a)(b) (Supp. 1973).
174. 33 U.S.C. §1255(a)(c) (Supp. 1973).
175. 33 U.S.C. §1255(d) (Supp. 1973).
176. 33 U.S.C. §§1255(a)(1), (e)(1) (Supp. 1973).
177. 33 U.S.C. §1257 (Supp. 1973).
178. 33 U.S.C. §1255(o) (Supp. 1973).
179. 33 U.S.C. §1255(d)(3) (Suppl 1973).
180. 33 U.S.C. §1261 (Supp. 1973).
181. 33 U.S.C. §§1254, 1259, 1260 (Supp. 1973).

182. 33 U.S.C. §1293(Supp. 1973).
183. 33 U.S.C. §1256(Supp. 1973).
184. This litigation was generated by the ambiguous language of section 304(b) of the FWPCA, which required EPA to "publish within one year of enactment of this title, regulations, providing guidelines for effluent limitations" 33 U.S.C. §1214(b)(Supp. 1973). Industry argued that this language supported its contention that Congress had not intended for EPA to fix specific, numerical effluent limitations. The majority view was that EPA had the authority to adopt specific effluent limitations. See American Food Institute v. Train, 539 F.2d 107 (D.C. Cir. 1976); Hooker Chemicals and Plastics Corp. v. Train, 537 F.2d, 620 (2d Cir. 1976); American Iron and Steel Institute v. EPA, 526 F.2d 1027 (3d Cir. 1975); American Meat Institute v. EPA, 526 F.2d 442 (7th Cir. 1975). But see American Petroleum Institute v. EPA, 540 F.2d 1023 (10th Cir. 1975), rev'd in part, 430 U.S. 112 (1977), which adopted the opposite view.
185. See §B-5(b), infra for a discussion of FWPCA variance procedures.
186. E.I. du Pont de Nemours & Co. v. Train, 430 U.S. 112, 132 (1977).
187. Id., at 128.
188. See e.g., American Paper Institute et al. v. Train, 543 F.2d 329 (D.C. Cir. 1976), cert. denied, 975 S. Ct. 398 (1976); FMC Corp et al. v. Train, 539 F.2d 973 (4th Cir. 1976

189. See e.g., *Tanners Council of America v. Train*, 540 F.2d 1188 (4th Cir. 1976); *C.P.C. International v. Train*, 515 F.2d 1032 (8th Cir. 1975).
190. See *American Iron and Steel Institute v. EPA*, 526 F.2d 1027 (3d Cir. 1975), which discusses the problems surrounding the interpretation of an ambiguous legislative history regarding congressional intent to take cost into account for the Phase Two guidelines, finding that "it is clear that for "BATEA" standards, cost was to be less important than for the "BPCTA" standards...." Id., at 1048. See also *California and Hawaiian Sugar Co. et al. v. EPA*, 553 F.2d 280 (2d Cir. 1977), in which energy intensive tertiary treatment processes were required despite EPA analysis that they would have only resulted in BOD reductions of approximately ten percent, and *American Paper Institute et al. v. Train*, 543 F.2d 329 (D.C. Cir. 1975), in which the court upheld Phase Two guidelines requiring expensive tertiary treatment processes that would have resulted in an incremental reduction in suspended solids effluent of approximately five percent.
191. 539 F.2d 973 (4th Cir. 1978).
192. Id., at 978-9.
193. 537 F.2d 620 (2d Cir. 1976).
194. Pub. L. No. 95-217, 91 Stat. 1566 (1977).
195. Hall, The Clean Water Act of 1977, 11 Nat. Res. Law 343, 345 (1977).
196. 33 U.S.C. §1314(a)(4)(1979). EPA has proposed the addition

of chemical oxygen demand (COD), phosphorous and oil and grease to the conventional pollutants list. 43 Fed. Reg. 32857-9 (July 28, 1978). The agency has identified the following classes of substances which may be considered as conventional pollutants: oxygen demanding substances, suspended solids and nutrients. Id., at 32857. In identifying particular substances, EPA considers the environmental effects of the pollutants (i.e., whether such pollutants "are naturally occurring, biodegradable, oxygen demanding materials, and solids which have similar characteristics to naturally occurring biodegradable substances"), and whether such pollutants have traditionally... been the primary focus of waste water control. Id. The agency does not automatically exclude toxic pollutants from the conventional pollutant list, but rather, weighs the pollutant's toxic properties against its conventional properties and assigns it to the list deemed appropriate. Id., at 23858.

197. 33 U.S.C.A. §1311(b)(2)(E) (1979).

198. 33 U.S.C.A. §1314(b)(4)(B) (1979).

199. Marginal utility is a term generally used in economics to describe the incremental benefit to be derived from a given change on a unit cost basis. In this context the incremental benefit is the degree of pollutant reduction to be achieved from a more stringent effluent limitation.

200. See H. Rep. 95-830, 95th Cong., 1st Sess., p. 85 (December 6, 1977), which is the conference report concerning the

1977 amendments. The original House Report was H. Rep. 37570-607 (August 23, 1978), which contains proposed rules regarding the application of best conventional pollutant control technology to various industrial point source categories. The proposed methodology adopted by EPA in determining whether an existing BAT standard meets the reasonableness test required by the 1977 amendments is to compare the incremental cost to the industry of a change from BPT to BAT control technology with the incremental cost of achieving a similar pollution reduction by a publicly owned treatment works. If the costs are similar, the BAT standard is considered reasonable and then becomes the new BCT standard. No such analysis is conducted if the BAT standard is equal to the BPT standard, due to the EPA determination that "[t]he legislative language clearly indicates that the final BCT effluent guidelines limitations cannot be... less stringent than... [BPT] guidelines." Id., at 37570. The proposed EPA approach is seriously flawed in that no absolute determination is made as to whether or not the marginal cost of a BCT effluent reduction is justified by health and other considerations. A BCT effluent limitation may be totally unreasonable on that basis, yet be considered acceptable simply because the cost of industrial control is similar to the cost of control at a POTW. A more sensible approach would be to fix an absolute incremental cost in dollars per pound of conventional pollutant

removed, and adjust BDT standards so that this cost is not exceeded. This would appear to be more in line with the congressional intent of comparing "the reasonableness of the relationship between the costs of attaining a reduction in effluents and the effluent reduction benefits derived." 33 U.S.C.A. §1314(b)(4)(B)(1979). Based upon the above-described test, EPA has proposed that BAT controls are reasonable for fifty subcategories and unreasonable for sixteen subcategories of conventional pollutants. 43 Fed. Reg. 37570, 37571-2 (August 23, 1978). Pollutants reviewed included all conventional pollutants except pH and fecal coliform, for which BPT and BAT standards are equal. Id., at 37570. BAT standards for the sixteen subcategories considered unreasonable have been dropped pending a determination of the applicable BCT standards. Id.

201. See Hall, supra note 195, at 351-58. The Natural Resources Defense Council and other groups were upset about EPA delays in defining toxic substances and prescribing effluent guidelines therefor. National Resources Defense Council et al. v. Train, 8 E.R.C. 2120 (D.D.C. 1976). At the time of the consent decree, EPA had promulgated effluent guidelines for a total of nine toxic substances due to a lack of adequate technical information and the unrealistic nature of the timetable prescribed by Congress. These and other problems are discussed in the preamble to the notice of proposed rule making, which proposed standards for

aldrin/dieldrin, DDT, endrin, and toxaphene, 41 Fed. Reg. 23576-78 (June 10, 1976). See 40 C.F.R. §129 (1979) regarding effluent standards for toxic pollutants. See also, R.M. Hall, The Evolution and Implementation of EPA's Regulating Program to Control the Discharge of Pollutants in the Nation's Waters, 10 Nat. Res. Law 507 (1977).

202. Section 402(k) of the FWPCA, which protects the holder of an NPDES permit from the imposition of more stringent effluent limitations for the duration of the permit (up to five years), is not applicable to "any standard imposed... for a toxic pollutant injurious to human health." 33 U.S.C.A. §1342(k) (1979). This maximum five year limitation is a benefit primarily to existing sources, in that new sources are given a ten year exemption from more stringent standards under the provisions of section 306(d) of the Act. See note 135 supra and accompanying text.
203. 33 U.S.C.A. §1317(a)(1) (1979). In revising the list of toxic substances, EPA must consider "the toxicity of the pollutant, its persistence, degradability, the usual or potential presence of the affected organisms in any waters, the importance of the affected organisms, and the nature and extent of the effect of the toxic pollutant on such organisms." Id. See 43 Fed. Reg. 29592 (July 10, 1978) for a list of these 65 toxic substances.
204. 33 U.S.C.A. §1311(b)(2)(C) (1979).
205. 33 U.S.C.A. §1311(b)(2)(D) (1979). This parallels section 307(a)(6) of the Act, which requires compliance with

newly promulgated BAT effluent limitations within one year of promulgation, but permits a two year extension when compliance is "technologically infeasible." 33 U.S.C.A. §1317(a)(b)(1979).

206. 33 U.S.C.A. §1311(b)(2)(F)(1979).
207. Id.
208. 33 U.S.C.A. §1311(c)(1979). EPA regulations also require the applicant to demonstrate that he is subject to factors which are "fundamentally different" from those factors taken into consideration by EPA in formulating the uniform effluent limitation. The variance procedure is separately mentioned in each of the BAT effluent guidelines and standards contained in 40 C.F.R. §§401-60.
209. See 33 U.S.C.A. §1311(g)(1)(1979).
210. See 33 U.S.C.A. §1311(h)(1979).
211. 33 U.S.C.A. §1317(b)(1)(A)(1979). See also, 33 U.S.C.A. §1345, which requires EPA to promulgate regulations governing the issuance of permits for disposal of sewage sludge. These regulations are contained in 40 C.F.R. §241 (1979).
212. See discussion in §G-1, infra.
213. 33 U.S.C.A. §1319(a)(5)(1979).
214. 33 U.S.C.A. §1319(a)(6)(1979).
215. Id.
216. 33 U.S.C.A. §1311(i)(1)(1979).
217. 33 U.S.C.A. §1311(i)(2)(1979).
218. 33 U.S.C.A. §1311(k)(1979).

219. 33 U.S.C.A. §1281(a)(5)(1979). See also, 33 U.S.C.A. §1281(k)(1979), which requires EPA to encourage the development of "waste treatment management methods, processes and techniques which will reduce total energy requirements."
220. 33 U.S.C.A. §1314(d)(3)(1979).
221. 33 U.S.C.A. §1281(a)(2)(1979). See also, 33 U.S.C.A. §1285(j)(1979), regarding additional expenses which may be paid by such grants.
222. 33 U.S.C.A. §1281(j)(1979). The life cycle cost is the total cost of building and operating a treatment facility during its usable life.
223. 33 U.S.C.A. §1295(h)(1979).
224. 33 U.S.C.A. §1323(b)(2)(1979).
225. 33 U.S.C.A. §1345(d)(1979).
226. 33 U.S.C.A. §1376(d)(1979).
227. See, §A-2(d), supra.
228. 33 U.S.C.A. §1462(14)(1979).
229. 33 U.S.C.A. §1342(1)(1979). The definition of "pollutant", which includes "agricultural waste discharged into water" had created uncertainty regarding whether such flows should be considered as a point source subject to NPDES regulatory authority.
230. See, 33 U.S.C.A. §1288(j)(1979). "Best management practices" are defined by EPA as "a practice, or combination of practices, that is determined by a state (or designated areawide planning agency) after problem assessment,

examination of alternative practices, and appropriate public participation to be the most effective, practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by non-point sources to a level compatible with water quality goals." 40 C.F.R. §130.2(1) (1979).

231. 33 U.S.C.A. §1288(j) (2) (1979).
232. 33 U.S.C.A. §1314(e) (1979). These pollutants include plant site runoff, spillage or leaks, sludge, runoff from waste disposal sites, and drainage from raw material storage or toxic or hazardous substances. Id.
233. 33 U.S.C.A. §1284(a) (5), (b) (3) (1979).
234. 33 U.S.C.A. §§1281(g), 1288(b) (2) (A) (1979).
235. 33 U.S.C.A. §1281(L) (1979).
236. 33 U.S.C.A. §1376(d) (1979).
237. 33 U.S.C.A. §1364(b) (1979).
238. 33 U.S.C.A. §1294 (1979).
239. Chapter 67-436, Laws of Florida (1967), codified as Fla. Stat. §§403.011-.4153 (1979).
240. Fla. Stat. §381.251 (1965).
241. If a polluter refused to cooperate or delayed in acting a suit was filed. Many complaints were filed, but only a few cases actually went to trial. From 1958 to 1967 legal action was initiated in 62 instances. Interview with David Lee, Directory of the Sanitary Engineering Bureau of the Fla. State. Bd. of Health, June, 16, 1966.

242. As stated by the Board: "[E]nforcement is deficient because resources are not available for proper surveillance of domestic and industrial waste disposal facilities nor to provide the legal and scientific staffs to put the program into full effect." 59 Fla. Health Notes, Jan. 1967, at 48.
243. Fla. Stat. §387.02 (1967).
244. Chapter 67-436, Laws of Florida, s. 1 (1967).
245. The Commission was composed of the Governor, Secretary of State, Attorney General, Commissioner of Agriculture, and two "discrete citizens" appointed by the Governor and confirmed by the Senate. Fla. Stat. §403.045 (1967).
246. Chapter 69-106, Laws of Florida (1969).
247. Florida Environmental Organization Act of 1975, Chapter 75-22, Laws of Florida, codified as Fla. Stat. §§403.801-.817 (1979). See generally, Rhodes, Environmental Agency Reorganization: The Practitioner's Perspective 50 Fla. B.J. 272 (May 1976).
248. Fla. Stat. §403.061(6) (1979). The Department of Natural Resources (DNR) and the Department of Health and Rehabilitative Services also have certain responsibilities regarding the protection of water quality. See discussion in §§D-3, F-3(a), infra.
249. Consumptive uses of water are regulated pursuant to Chapter 373, Florida Statutes.
250. Fla. Stat. §20.261(1) (1979). For a detailed discussion of DER organization, see Chapter 3.

251. Fla. Stat. §403.804(1)(1979). The Commission consists of seven citizens of Florida who are appointed by the Governor to serve four year terms. Membership must be representative of various interest groups, including "agriculture, real estate, environmentalists, the construction industry, and lay citizens," and must include at least one member from each of the five water management districts. Fla. Stat. §20.061(3)(1979).
252. Fla. Stat. §403.804(2)(1979). The Governor and Cabinet do not, however, have jurisdiction to hear appeals from determinations by the Commission as to which state environmental standards are more stringent than the federal standards. Florida Elec. Power Coordinating Group v. Askew, 366 So. 2d 1186 (Fla. 1st D.C.A. 1978). Such determinations are judicially reviewable pursuant to Chapter 120, Florida Statutes. Id., at 1188. See §C-1(f), infra.
253. See discussion in §C-3, infra.
254. Fla. Stat. §403.061(10) (1979). See discussion in §C-4, infra, regarding the classification of Florida waters.
255. Fla. Stat. §403.061(11)(1979). See discussion in §C-5, infra, regarding water quality criteria.
256. "Installation" is defined as "any structure, equipment, facility, or appurtenances thereto, or operation which may emit air or water contaminants in quantities prohibited by rules of the department." Id. (emphasis

added). The use of the word, operation, in the definition indicates that any operation which is a source of pollution is subject to the jurisdiction of the Department. It would not appear to be necessary that the pollution be deposited in the waterbody through a discrete point source conveyance as is the case under the Federal Water Pollution Control Act. See note 132, supra. Thus, for the control of pollutants from non-point sources such as agricultural operations, state regulatory authority remains the primary means of pollution control in Florida.

257. Fla. Stat. §403.061(14), .087(1) (1979).

258. Fla. Stat. §403.061(13) (1979).

259. Fla. Stat. §403.061(12) (1979).

260. Fla. Stat. §403.061(7) (1979).

261. Fla. Stat. §403.061(8) (1979).

262. "Waters" of the state are defined to "include, but not be limited to rivers, lakes, streams, springs, impoundments, and all other waters or bodies of water, including fresh, brackish, saline, tidal, surface or underground. Underground waters include, but are not limited to, all underground waters passing through pores of rock or soils or flowing through in channels, whether man-made or natural." Fla. Stat. §403.031(3) (1979). See Chapter 6, infra for a detailed discussion of the navigability concept.

263. Fla. Stat. §403.817(1), (2) (1979). See discussion in

§G-3(b), infra for further details regarding jurisdiction to control water pollution in Florida.

264. Fla. Admin. Code §17-4.03(1979). See, Fla. Admin. Code §17-4.04(1979) for exemptions to the permitting requirements.
265. Fla. Stat. §403.087(4) (Supp. 1978). These prohibitions pertain to the following types of discharges identified by the Environmental Protection Agency: (a) any radiological, chemical or biological warfare agent or high level radioactive waste; (b) any discharge which the Army Corps of Engineers finds would substantially impair anchorage and navigation; (c) any discharge to which the regional EPA administrator has objected to in writing; and (d) any point source discharge which is in conflict with a section 208 plan. 40 C.F.R. §124.41(1979). See §B-3(c), infra regarding section 208 planning under the FWPCA.
266. Fla. Admin. Code §17-4.07(1)(1979). These plans and other information must be certified by a registered professional engineer, with certain exceptions. See, Fla. Admin. Code §17-4.05(4)(1979).
267. Fla. Admin. Code §17-4.07(1)(1979).
268. Fla. Admin. Code §17-4.28(11)(d)(1979). See §G-3(d), infra for a discussion of DER dredge and fill permitting procedures.
269. "Construction permit" is defined as "the legal authorization granted by the Department to construct, expand,

modify, or make alterations to any installation and to temporarily operate and test such new or modified installations." Fla. Admin. Code §17-4.02(5) (1979). The Industrial Siting Act of 1979 now permits certain applicants to avoid this dual permitting requirement. See §C-1(i), infra.

270. Fla. Admin. Code §17-4.21(1)(c) (1979).
271. Fla. Admin. Code §17-4.21(1)(d) (1979).
272. Fla. Stat. §403.088(3)(a) (1979). Application of pesticides to the waters of the state for the purpose of controlling insects, aquatic weeds, or algae are exempted from the permitting requirements if made under a program approved by DNR or DHRS in cooperation with the Department. Fla. Stat. §403.088(1) (1979).
273. Fla. Admin. Code §17-4.24(2) (1979).
274. Fla. Stat. §403.088(3)(b) (1979).
275. Fla. Stat. §403.088(3)(c) (1979). DER is authorized to establish qualifications for, examine, and certify all water and waste-water treatment plant operators. Fla. Stat. §403.101(3) (1979). See, Fla. Admin. Code, chapter 17-16 for rules promulgated in this regard.
276. Fla. Stat. §403.088(3)(c) (1979).
277. DER must affirmatively find that: (1) the applicant is presently taking or has submitted plans to take those measures necessary to satisfy the operating permit requirements, or is making a bona fide effort through research to develop treatment techniques for a waste for

which no acceptable method of treatment and disposal presently exists; (2) there is no present, reasonable alternative means of disposing of the waste; (3) the denial of a permit will work an extreme hardship on the applicant; and (4) the granting of a permit will be in the public interest or will not be "unreasonably destructive" to the quality of the receiving waters. Fla. Stat. §403.088(c)(1979). These conditions provide some significant loopholes whereby water quality may be substantially degraded. Presumably, if water quality standards have been established based upon what is considered a reasonable use of a particular waterbody, any operation which requires a variance from the water quality based effluent limitations would be unreasonably destructive to the waters in question. See, §C-5 and text accompanying note 297, infra.

278. Fla. Stat. §403.088(4)(b)(1979).

279. Fla. Stat. §403.088(4)(d)(1979).

280. See, Fla. Admin. Code §17-6.01(2)(a)2.a.(1979) for specific effluent limitations adopted by the Department. More stringent effluent limitations have been adopted by the Environmental Regulation Commission for concentrated animal feeding operations and phosphate mining operations. Id. For a discussion of federal effluent limitations, see §B-3(a), supra.

281. Fla. Admin. Code §17-6.01(1)(1979). See also, Fla. Stat. §403.085(1979).

282. These waterbodies are Old Tampa Bay, Tampa Bay, Hillsborough Bay, Boca Ciega Bay, St. Joseph Sound, Clearwater Bay, Sarasota Bay, Little Sarasota Bay, Roberts Bay, Lemon Bay, and Punta Gorda Bay, and include tributaries to such waterbodies. Fla. Stat. §405.086(1)(b) (1979). Advanced waste treatment is that treatment which will provide an effluent containing no more than the following concentrations: BOD₅ (5 mg/l); suspended solids (5 mg/l); total phosphorus (1 mg/l); total nitrogen (3 mg/l). Fla. Admin. Code §16-6.01(3)(b) (1979).
283. Fla. Admin. Code §18-6.01(3)(c) (1979). "Alternative effluent disposal is a mini-system... which will prevent any effluent from being discharged into the surface waters of the state. Such disposal may include land disposal, deep injection wells, or combinations thereof, or other methods approved by the Department." Fla. Admin. Code §17-6.01(3)(b)3 (1979).
284. Fla. Admin. Code §16-6.02(2)(a)2.c (1979). For a discussion of these FWPCA requirements, see §§B-3(a), -5(a), supra.
285. Fla. Admin. Code §17-6.01(2)(a)2.b (1979).
286. Id. Thus, this section is of no effect without concurrent EPA approval. See, §B-5(b), supra for a discussion of variance procedures under the FWPCA.
287. Fla. Admin. Code §17-6.01(1) (1979).
288. Fla. Admin. Code §17-6.01(2)(a)c (1979). Secondary waste treatment is defined in a manner similar to that applicable

to domestic waste. Wastes not amenable to biological treatment must attain a "comparable degree of treatment" as approved by the Department. Id.

289. Fla. Admin. Code §17-6.01(2)(a)4(1979).
290. Fla. Admin. Code §17-6.01(2)(a)2.d., 3.a.(1979). See text accompanying note 147, supra.
291. Fla. Admin. Code §17-6.10(2)(1979).
292. Fla. Admin. Code §17-6.10(1)(d)(1979). In such instances, it may be necessary for aggrieved persons to resort to common law remedies. See, §A supra.
293. Fla. Stat. §403.201(1)(1979). These provisions do not apply to variances from the provisions of the Florida Safe Drinking Water Act. Fla. Stat. §403.854. See, §F-3(c), infra.
294. Fla. Stat. §403.201(1)(c)(1979).
295. Fla. Stat. §403.201(2), (3)(1979).
296. Fla. Admin. Code §17-1.57(1)(d), (f), (g), (h)(1979). See also, §C-5, infra regarding exemptions from the water quality standards and criteria.
297. For example, the metal plating industry, which is responsible for the emission of large amounts of such heavy metals as chromium, cadmium, and zinc, consists of many small-scale facilities which are not in an economically feasible position to modify for adequate control of such emissions.
298. Fla. Stat. §403.121(1)(a), (2)(a)(1979).
299. Fla. Stat. §403.121(1)(c)(1979). This statutory provision

is in response to the ruling in *St. Regis Paper Co. v. State*, 257 So. 2d 253 (Fla. 1971), in which the court upheld a district court decision, 237 So. 2d 797 (Fla. 1st D.C.A. 1970), which required the Department to conduct an administrative hearing prior to the initiation of a civil action to impose penalties under section 403.161. See also, *State v. St. Regis Paper Co.*, 275 So. 2d 21 (Fla. 1st D.C.A. 1973), in which the court reversed its prior decision on other grounds; *Gardiner Inc. v. Florida Dept. of Pollution Control*, 300 So. 2d 75 (Fla. 1st D.C.A. 1974) (DER cannot require immediate forfeiture of surety bond without a judicial hearing).

300. Fla. Stat. §403.121(2)(c)(1979).
301. Fla. Stat. §403.121(1)(1979).
302. Fla. Stat. §403.141(2)(1979).
303. Fla. Stat. §403.141(3)(1979). See, Fla. Admin. Code §17-11(1979) for table of fish values adopted by the Department.
304. Fla. Stat. §403.141(4)(1979).
305. 329 So. 2d 5 (Fla. 1976).
306. Id., at 6.
307. Fla. Stat. §§403.121(1)(b), .141(1)(1979).
308. Fla. Stat. §403.161(3)(1979). This is also a first degree misdemeanor, punishable by up to one year in jail for each offense. Id.
309. Fla. Stat. §403.161(4)(1979). This is also a first degree misdemeanor, punishable by up to six months in jail for

each offense. Id.

310. Fla. Stat. §403.131(1) (1979).

311. Fla. Stat. §403.131(2) (1979). Judicial and administrative remedies to recover damages are, however, "alternative and mutually exclusive." Id.

312. Fla. Stat. §§120.50-.73 (1979).

313. Fla. Stat. §120.57 (1979).

314. Fla. Admin. Code §17-1.19 (1979). Section 120.54 of the APA specifies procedures applicable to rulemaking proceedings which have been adopted by DER. Fla. Admin. Code §17-1.06 (1979). These procedures require DER to give notice of the proposed rule to interested parties, prepare an analysis regarding the economic impact of the proposed rule on affected persons, and give such persons the opportunity to present evidence and arguments on all issues under consideration at a public hearing, if requested. Fla. Stat. §120.54(1), (2), (3) (1979). Persons who are substantially affected by a proposed rule are entitled to challenge the rule on the ground that it constitutes an "invalid exercise of delegated legislated authority." Fla. Stat. §§120.54(4), 120.56 (1979). An administrative hearing is held pursuant to section 120.57, which may invalidate all or part of the proposed rule, subject to judicial review under section 120.68. Fla. Stat. §§120.54(4)(c), (d), 120.56(3), (5) (1979). As an additional check on agency action, the Administrative Procedures Committee is required to examine all proposed

rules to determine "whether the rule is within the statutory authority upon which it is based, whether the rule is in proper form, and whether the notice given prior to its adoption was sufficient to give adequate notice of the purpose and effect of the rule." Fla. Stat. §120.545(1) (1979). Action of the committee is limited, however, to the filing of its objections with the Department of State, and publishing the same in the Florida Administrative Weekly and as a history note to the rule when it is published in the Florida Administrative Code. Fla. Stat. §120.545(8) (1979).

315. Fla. Admin. Code §17-1.58(1), (2) (1979). The twenty day notice requirement is mandated by section 403.121(2) (c), Florida Statutes.
316. Fla. Admin. Code §17-1.62(1) (1979).
317. Fla. Admin. Code §17-1.62(2) (1979). All allegations of fact made by the agency are "deemed uncontested and true" during subsequent appeals. Fla. Admin. Code §17-1.62(3) (1979). The record on appeal is limited to: the application and accompanying documentation; materials and information relied upon by DER, and the final order regarding the proposed action. Fla. Admin. Code §17-1.62(4).
318. Fla. Stat. §120.65(1) (1979).
319. Fla. Stat. §120.57(1)(b)3(1979). The officer may be a full-time Division employee with a minimum of five years membership in the Florida Bar, a full-time employee of another agency, or a qualified lay person. Fla. Stat.

- §120.65(2), (3), (4) (1979).
320. Fla. Stat. §120.58(1)(b) (1979).
321. Fla. Stat. §120.57(1)(b)8 (1979).
322. Fla. Stat. §120.57(1)(b)9 (1979).
323. Fla. Stat. §403.801-.817 (Supp. 1978). Appeals of DER decisions pursuant to Chapter 253, Florida Statutes, or the Power Plant Siting Act, are made to the Governor and Cabinet. Fla. Stat. §§403.509, .804(1) (1979). In those instances where DER action is taken pursuant to both Chapter 253 and Chapter 403, Florida Statutes, the ERC delegates its authority to hear the appeal to the Governor and Cabinet. Fla. Admin. Code §17-1.70(2) (1979). See, Fla. Admin. Code §17-1.87 -.104 for rules governing such appeals.
324. See, Fla. Admin. Code §§18-1.71 -.77 (1979) regarding procedural rules, which largely incorporate those requirements set forth in Florida Appellate Rule 3.7.
325. Fla. Admin. Code §17-1.78(1) (1979).
326. Fla. Stat. §403.804(1) (1979).
327. See Peterson v. Department of Environmental Regulation, 350 So. 2d 544 (Fla. 1st D.C.A. 1977) (plaintiff must exhaust remedies with ERC before seeking judicial review of administrative order); Brooker Creek Preservation, Inc. v. Department of Environmental Reg., 369 So. 2d 655 (Fla. 1st D.C.A. 1979) (ERC review required before judicial appeal of DER declaratory statement). Such exhaustion of administrative remedies may not be required, however, when

judicial action is based upon a cause of action which exists under the common law. See discussion in §A-3(e), infra.

328. Fla. Stat. §120.68(2) (1979).
329. Fla. Stat. §120.68(10) (1979).
330. Fla. Stat. §120.68(8) (1979).
331. Fla. Stat. §120.68(12) (a) (1979).
332. Fla. Stat. §120.68(13) (a) (1979).
333. See, REPORT, STORMWATER RUNOFF AND THE COASTAL ZONE: LEGAL ALTERNATIVES FOR EFFECTIVE MANAGEMENT 119-24, Eastern Water Law Center, University of Florida (March 1979).
334. See, Juergensmeyer & Wadley, 1 Florida Land Use Restrictions §§13.01-13.09 for a detailed discussion of municipal flood plain zoning, which includes an examination of the taking issue in this regard. See also, Maloney & Dambley, The National Flood Insurance Program, 16 Nat. Res. J. 665 (1976). The benefits of flood control ordinances are considerable. In addition to avoiding loss of life and property, benefits are derived in terms of maintaining water quality. "Overflows from septic tanks and combined sewers ... may be closely linked with improperly designed sewerage and drainage systems within the flood plain. By preventing excessive encroachment of developments upon the flood plain, these special zoning laws also serve to retard rates of runoff and consequent water pollution from stream bank erosion and adjacent land surfaces." Environ-

mental Law Institute Legal and Institutional Approaches to Water Quality Management Planning & Implementation, VI-9, EPA Contract No. 68-01-3564 (1977).

335. Fla. Stat. §166.021(3)(b), (c), (d)(1979). Municipalities are authorized to "exercise any power for municipal purposes except as otherwise provided by law." Fla. Const. art. VIII, §2(b).
336. See REPORT, supra note 333, for model ordinances regarding the control of surface water runoff and individual sewage disposal facilities. See also, Analysis of Laws Relating to Florida Coastal Zoning Management, Center for Governmental Responsibility, University of Florida, Holland Law Center (1976), which contains an extensive list of Florida local government ordinances relating to surface water runoff control.
337. See, §B-3(c), supra.
338. Although water management districts are primarily concerned with consumptive uses of water, their control over canal structures, drainage, groundwater levels and the uses for which water is allocated may have a significant effect upon water quality. See, Chapter 373, Florida Statutes.
339. See, discussion in §B-3(c), infra, regarding section 208 plans.
340. Fla. Stat. §403.182(1)(a)(1979).
341. Fla. Stat. §403.182(1)(b), (d)(1979).
342. Fla. Stat. §403.182(2)(1979).

343. Fla. Stat. §403.182(7) (1979).
344. Fla. Stat. §403.182(3) (1979).
345. Fla. Stat. §403.182(4) (a) (1979).
346. Fla. Stat. §403.182(4) (d) (1979). The classification may be based upon either the nature of the sources involved or their relationship to the size of the communities in which they are located. Id.
347. Fla. Stat. §403.182(b) (1979).
348. Id. For a discussion of local pollution control authority regarding dredge and fill projects, which are regulated by DER pursuant to Chapter 253, Florida Statutes, see §G-3(c), infra.
349. Fla. Stat. §403.165(1) (1979).
350. Fla. Stat. §403.165(2) (1979).
351. Fla. Stat. §403.0615 (1979).
352. See Fla. Admin. Code §17-1.123 -.130. The fund may not be used for: (1) construction of treatment facilities for domestic and industrial wastes; (2) restoration or preservation of waterbodies which still will not meet applicable water quality standards or will be inaccessible to the public; and (3) temporary treatments which are short lived and not designed to treat the cause of the problem. Fla. Admin. Code §17-1.126(3) (1979).
353. Fla. Admin. Code §17-1.29(2), (3) (1979).
354. Fla. Stat. §403.1833 (1979). For a discussion of assistance to municipalities under the FWPCA, see §B-3(d), -5(c), (e) supra.

355. Fla. Stat. §403.1826(1), (4), (9) (1979).
356. Fla. Stat. §403.1827(1979).
357. Final Report of the Governor's Task Force on Economic Policy 12-13 (January 1979).
358. Chapter 79-146, Laws of Florida (1979), codified as Fla. Stat. §403.901-918 (1979). See, Hopping and Rhodes, Penetrating the Permitting Profligacy: The Industrial Siting Act of 1979, 53 Fla. B.J. 555 (October 1979).
359. Fla. Stat. §403.902(2) (1979).
360. Fla. Stat. §403.903(13) (1979). Residential housing construction, electrical power plants, and projects which are located or discharge into outstanding Florida waters may not be permitted under the Act. Id. See, §C-4, infra.
361. Fla. Stat. §403.902(3) (1979). Applicants may not withdraw their application and resubmit the same in accordance with normal permitting procedures after DER makes its recommendation regarding the project. See text accompanying note 369 infra. Conversely, applications submitted under normal permitting procedures may not be resubmitted under the Act after the issuance of notice of intent to deny the application or final agency action has occurred. Fla. Stat. §403.906(1979). The application fee will range from \$2,500 to \$25,000 to cover processing costs, and is refundable in part if the application is denied or withdrawn. Fla. Stat. §403.904(8) (1979)

362. The purpose of the notice of intent is to permit the applicant to enter into negotiations with the Department regarding the type and level of information which will be required. See note 364 , infra.
363. Fla. Stat. §403.904(6), (7)(1979).
364. The Department must file a statement with the Division of Administrative Hearings within ten days of filing as to its position regarding the completeness of the application. If contested by the applicant, a hearing will be held to determine completeness. See, Fla. Stat. §403.907(1979). The applicant may enter into binding agreements with the Department prior to filing an application as to the date and level of information which will be required. Fla. Stat. §403.908(2)(1979).
365. Fla. Stat. §403.909(2), (3)(1979).
366. Fla. Stat. §403.909(4)(1979).
367. Fla. Stat. §403.909(5), (6)(1979).
368. Fla. Stat. §§403.904(9), .903(8)(1979).
369. Fla. Stat. §403.904(9)(a), (h)(1979).
370. Fla. Stat. §403.905(1)(1979).
371. Id.
372. Fla. Stat. §403.905(2)(1979). If local approval is not received within six months of filing a complete application, the application is withdrawn. Id.
373. Fla. Stat. §403.905(3)(1979).
374. Fla. Stat. §403.910(1)(a), (b)(1979).
375. Fla. Stat. §403.910(2)(a)(1979).

376. Fla. Stat. §403.910(2)(b)(1979).
377. Fla. Stat. §403.910(2)(c)(1979). The hearing officer may, however, permit intervention by parties whose substantial interests are affected but failed to file a timely notice at his discretion within fifteen days of the hearing. Fla. Stat. §403.910(2)(d)(1979).
378. Fla. Stat. §403.910(4)(1979). See §C-1(f), supra.
379. Fla. Stat. §403.910(1)(a)(1979).
380. Fla. Stat. §403.911(1)(1979). Such order may impose such conditions as deemed appropriate, Id., or grant variances, exceptions and exemptions from nonprocedural standards, provided the nonprocedural requirements and limitations set forth in the rules have been followed. Fla. Stat. §403.914(2)(1979).
381. Fla. Stat. §403.911(3)(1979). See, §C-1(f), supra.
382. Fla. Stat. §403.914(1)(1979).
383. Fla. Stat. §403.913(1)(1979).
384. Fla. Stat. §403.914(5)(1979).
385. Fla. Stat. §403.914(4)(a)(1979).
386. Fla. Stat. §403.918(1979). See, §C-1(f), supra.
387. The initial appropriation of \$50,000 appears to be woefully inadequate to successfully implement the provisions of the Act. Chapter 79-149, Laws of Florida, §3 (1979).
388. See, GOVERNOR'S ADVISORY COMM. ON WATER POLLUTION, REPORT 1-7 (Feb. 8, 1967).
389. Id., at 5.

390. Pursuant to authority contained in section 403.061(2), Florida Statutes, the following classifications have been adopted: Class I-A - Potable Water Supplies (Surface Waters); Class I-B - Potable and Agricultural Water Supplies and Storage (Groundwaters); Class II - Shellfish Propagation or Harvesting (Surface Waters); Class III - Recreation, Propagation and Management of Fish and Wildlife (Surface Waters); Class IV - Agricultural Water Supplies (Surface Waters); Class V-A - Navigation, Utility and Industrial Use (Groundwaters). Fla. Admin. Code §17-3.081(1) (1979). Water quality classifications are arranged in order of the degree of protection required with Class I water having generally the most stringent. Fla. Admin. Code §17-3.081(4) (1979).
391. Fla. Admin. Code §17-3.161(1) (1979).
392. See, Fla. Admin. Code §17-3.161(3) (a)-(m) (1979) for specific exceptions.
393. Fla. Admin. Code §17-3.161(1) (1979). Secondary and tertiary canals are defined as "any wholly artificial canal or ditch which is behind a control structure and which is a part of a water control system that is connected to the works (set forth in Section 373.086, Florida Statutes) of a water management district... and that is permitted by such water management district...." Fla. Admin. Code §17-3.021(21) (1979).
394. Fla. Admin. Code §17-3.161(2) (1979).
395. See, §C-5, infra regarding water quality criteria.

396. Fla. Admin. Code §17-3.081(2), (5) (1979).
397. Fla. Admin. Code §17-3.081(6), (7), (8) (1979).
398. Fla. Admin. Code §17-3.081(8) (1979). Cases from other states indicate that a waterbody classification system is a valid exercise of the police power, provided notice and hearing are given. See, *City of Utica v. Water Pollution Control Bd.*, 6 App. Div. 2d 340, 177 N.Y.S.2d 47 (1958); *Vermont Woolen Corp. v. Wacherman*, 167 A.2d 533 (Vt. 1961).
399. Fla. Admin. Code §17-3.041 (1979). These waters generally include: (a) waters in national parks, wildlife refuges, and wilderness areas; (b) waters in the State Park System and wilderness areas; (c) waters in environmentally endangered lands acquired by the state pursuant to Chapter 259, Florida Statutes; (d) rivers designated under the Florida Scenic and Wild Rivers Program or the National Wild and Scenic Rivers Act; (e) waters within national seashores, marine and estuarine sanctuaries, and certain national monuments; (f) waters in aquatic preserves created pursuant to Chapter 258, Florida Statutes; (g) waters within the Big Cypress National Freshwater Preserve; and (h) other waters of exceptional recreational or ecological significance. Fla. Admin. Code §17-3.041 (1) (1979).
400. See, Fla. Admin. Code §§17-3.031(3), 17-4.242(1) (1979).
401. Fla. Admin. Code §17-3.041(1)(h)1., 5. (1979). The Environmental Regulation Commission must make a finding

that the environmental, social and economic benefits of the action outweigh the costs. Fla. Admin. Code §17-3.041(1)(h)5(1979). At least one fact-finding workshop must be held in the affected area, with public notice through publication at least 60 days before the workshop. Fla. Admin. Code §17-3.041(1)(h)2., 4.(1979).

402. Acute toxicity is defined as that concentration which is greater than one-third the amount that would be lethal to 50% of the organisms tested during a 96 hour period. The LC₅₀ value that is used is the lowest value that is obtained for experiments conducted upon a species significant to the indigenous aquatic community. Concentrations which may reasonably be expected to produce effects similar to those specified above may also be considered as acute. Fla. Admin. Code §17-3.021(1)(1979).
403. Fla. Admin. Code §17-3.051(1)(1979).
404. Fla. Admin. Code §17-3.051(2)(1979).
405. See, Fla. Admin. Code §17-3.061(1979). These criteria are not applicable in the zone of mixing of these waters. Fla. Admin. Code §17-3.071(1)(1979). See, §C-5, infra regarding zones of mixing.
406. Fla. Admin. Code §17-3.061(2)(1979).
407. The pH of receiving waters must not be caused to vary more than one unit above or below the naturally occurring pH, but in no event be lower than 6.0 or greater than 8.5

- Fla. Admin. Code §17-3.061(2)(K)(1979).
408. See, Fla. Admin. Code §17-3.061(2)(a)-(r)(1979).
409. Fla. Admin. Code §17-3.05(1)(a)1(1979).
410. See, Fla. Admin. Code §17-3.05(1)(b), (d)(1979). These provisions regarding thermal discharges are especially important to electrical power plants, which produce a significant amount of thermal pollution. See, Maloney, More Heat Than Light: Thermal Pollution Versus Heat Energy Utilization, 25 U. Fla. L. Rev. 693 (1973). Newly constructed or expanded power plants must also comply with the provisions of the Florida Electrical Power Plant Siting Act, Fla. Stat. §§403.501 -.517(1979).
411. Fla. Admin. Code §17-3.05(1)(f)(1979). The applicant must affirmatively demonstrate that the proposed mixing zone will "assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made." Id. DER may still establish numerical temperature limits at the point of discharge which are intended to be related to the temperature limits at the boundary of the mixing zone. Id.
412. See, Fla. Admin. Code §§17-3.091 0.151(1979).
413. Fla. Admin. Code §17-3.111(1979). This is contrary to the generally decreasing order of stringency for the water quality criteria. See, note 390, supra.
414. Compare, Fla. Admin. Code §17-3.091(22)(b)(1979) and §17-3.111(19)(b)(1979).

415. Fla. Admin. Code §17-3.101(1979).
416. Fla. Admin. Code §17-3.101(15)(1979).
417. Fla. Admin. Code §17-3.151(1), (2)(1979).
418. See, text accompanying notes 147-149, supra regarding federal effluent limitations and their relationship to water quality standards.
419. See, Fla. Admin. Code §17-4.242(2)(1979).
420. Id. The procedure must be initiated by an applicant for a construction or operating permit. The applicant must identify those pollution sources which it wishes to have included in the allocation process with DER authorized to join additional parties in the proceeding. Fla. Admin. Code §17-4.242(2)(c)1., 2., 4.(1979).
421. Fla. Admin. Code §17-4.242(2)(f)(1979).
422. Fla. Admin. Code §17-4.242(2)(i)(1979).
423. Fla. Admin. Code §17-4.242(2)(j)(1979).
424. Fla. Admin. Code §17-4.242(2)(a)(1979).
425. Fla. Admin. Code §17-3.031(1)(1979).
426. Fla. Admin. Code §17-4.243(1979).
427. See, §C-1(d), supra.
428. Fla. Admin. Code §17-3.031(1)(1979).
429. Fla. Admin. Code §17-3.031(2)(1979).
430. See, note 297 supra and accompanying text.
431. Fla. Admin. Code §17-4.243(1979).
432. Exemptions may be available from the water quality criteria in the following instances: (a) artificial waterbodies classified for agricultural water supplies may be exempted from Class IV criteria; (b) installations

discharging into Class I-B groundwaters, Class V-B groundwaters or Class V waters; (c) experimental use of wetlands for low-energy water and wastewater recycling; (d) artificial systems used for urban stormwater conveyance or renovation may be exempted from Class III criteria; (e) wholly artificial or intermittent watercourses, including channelized water courses which were historically intermittent, where the discharge constituted a majority of the flow during a substantial portion of the year preceding March 1, 1979, may be exempted from the Class III or Class IV standards. See, Fla. Admin. Code §17-3.243(1979).

433. Fla. Admin. Code §17-4.243(4)(a)1(1979).

434. Fla. Admin. Code §17-4.243(1979).

435. No specific criteria for mixing zones existed prior to the adoption of the new rule in 1979. See, Fla. Admin. Code §18-2.05(1)(1978).

436. Fla. Admin. Code §17-4.244(1)(a)(1979). A zone of mixing is determined based upon a consideration of: (1) the condition of the receiving body of water, including present and future flow conditions and sources of pollutants; (2) the nature, volume and frequency of the proposed discharge, including possible synergistic effects with other pollutants; and (3) the cumulative effect of the proposed mixing zone and others in the vicinity. Fla. Admin. Code §17-4.244(1)(b)(1979).

437. Fla. Admin. Code §17-4.244(4), (5)(1979). See, notes

402-408 supra and accompanying text regarding minimum water quality criteria.

438. Fla. Admin. Code §17-4.244(4)(1979). A 96 hour LC₅₀ is that concentration of a pollutant which would be lethal to 50% of the test organisms when such organisms are exposed to the pollutant for a period of 96 hours.
439. Fla. Admin. Code §17-4.244(1)(c)(1979). These criteria are not, however, applicable to thermal discharges and nitrogen and phosphorus acting as nutrients. Id.
440. Fla. Admin. Code §17-4.244(1)(i)(1979).
441. Fla. Admin. Code §17-4.244(1)(h)(1979).
442. Fla. Admin. Code §17-4.244(6)(1979).
443. See, Fla. Admin. Code §17-4.224(7)(1979). This procedure has a weakness in allowing variances when "there is no practicable means known or available for adequate control of the pollution involved." See text accompanying note 297, supra.
444. Fla. Admin. Code §17-4.244(7)(c)(2)(1979).
445. See, notes 408 through 423, supra and accompanying text.
446. See, §§C-4, C-5, supra.
447. Fla. Admin. Code §17-4.245(1979).
448. Fla. Admin. Code §17-3.071(1)(3)(1979). See, §§C-4, C-5, supra.
449. Fla. Admin. Code §17-4.245(2)(1979).
450. Fla. Admin. Code §17-4.245(1)(1979).
451. Fla. Admin. Code §17-4.245(1)(a), (f)(1979).
452. Fla. Admin. Code §17-4.245(5)(1979).

453. It has been estimated that 2.1 million metric tons of oil are introduced annually into the oceans. Of this amount, approximately ninety percent is from routine spills from oil tankers and other ships, refineries, petrochemical plants, and submarine oil wells, the remaining ten percent being from catastrophic spills. MAN'S IMPACT ON THE GLOBAL ENVIRONMENT: ASSESSMENT AND RECOMMENDATIONS FOR ACTION 139 (1970). For an authoritative review of the oil pollution problem, see, Anderson, National and International Efforts to Prevent Traumatic Vessel Source Oil Pollution, 30 U. Miami L. Rev. 985 (1976).
454. Two deepwater ports have been proposed in the Gulf of Mexico off the coasts of Louisiana and Texas. It is estimated that the Louisiana port will result in from 55 to 200 loaded passages through the Florida Straits annually. U.S. Dept. of Commerce, Analysis of the Risk of Damage to the State of Florida and Louisiana From the LOOP, Inc. Proposed Deepwater Port 24-27 (March 25, 1978), potentially impacting the coast of Florida from Fort Pierce to the Dry Tortugas on the Atlantic and up to Everglades City on the Gulf. U.S. Dept. of Commerce, Analysis of the Risk of Damage to the States of Florida and Texas From the Seadock, Inc. Proposed Deepwater Port 36-37 (March 25, 1976).
455. See, Anderson, supra note 453, at 991-93. See also, Clingam, Law Affecting the Quality of the Marine

- Environment, 27 U. Miami L. Rev. 223, 225-6 (1971); Sweeney, Oil Pollution of the Oceans, 37 Ford. L. Rev. 115 (1968).
456. See, Anderson, supra note 453, at 1000-05; Mendelsohn, Maritime Liability for Oil Pollution --- Domestic and International Law, 38 Geo. Wash. L. Rev. 1 (1969).
457. See, Deepwater Port Act of 1974, 33 U.S.C. §§1501-24 (Supp. 1976) (site selection for deepwater ports); Outer Continental Shelf Lands Act of 1953, 43 U.S.C. §§1331-43 (Supp. 1976) (regulation of oil drilling activities in continental shelf); Ports and Waterways Safety Act of 1972, 46 U.S.C. §390 et seq. (Supp. 1976) (traffic control, tanker design, construction, maintenance, etc.); Merchant Marine Act of 1970, 46 U.S.C. §§1151-61 (Supp. 1976) (subsidizes construction of new tankers; design control).
458. 33 U.S.C. §1321(b)(1) (Supp. 1973). Discharge "includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying or dumping, but excludes (A) discharges in compliance with a permit under section 402 of this Act, (B) discharges resulting from circumstances identified and reviewed and made a part of the public record with respect to a permit issued or modified under section 402 of this Act, and subject to a condition in such permit, and (C) continuous or anticipated intermittent discharges from a point source, identified in a permit or permit application under section 402 of this

Act, which are caused by events occurring within the scope of relevant operating or treatments systems." 33 U.S.C.A. §1321(a)(2)(1979). These exclusions were added by the Clean Water Act Amendments of 1978, Pub. L. No. 95-576, 92 Stat. 2467 (November 2, 1978) to avoid overlapping jurisdiction between section 402 of the Act (NPDES) and section 311. See, 44 Fed. Reg. 10272 (February 16, 1979) for further interpretation. See also, §B-3(b), supra.

459. 33 U.S.C.A. §1321(b)(2)(a)(1979). Regulations were published by EPA on March 13, 1978 designating 271 substances as hazardous. See, 43 Fed. Reg. 10474, 40 C.F.R. §116 (1979). On February 16, 1979, regulations designating an additional 28 substances as hazardous were promulgated. See, 44 Fed. Reg. 10266. Designation of hazardous substances was originally based upon their acute toxicity to aquatic animals. 43 Fed. Reg. 10474 (March 13, 1978). EPA has noted, however, that substances may present an imminent and substantial danger to public health for reasons other than acute toxicity. 43 Fed. Reg. 10506 (March 13, 1978). New criteria have now been proposed by EPA which will consider as additional factors in designating hazardous substances chronic and long-term effects which include such factors as carcinogenicity (cancer causing), mutagenicity (altering genetic structure), bioaccumulative effects, synergistic and antagonistic chemical effects, and

- radioactivity. 44 Fed. Reg. 10270 (February 16, 1979).
460. 33 U.S.C.A. §§1321(b)(4)(1979). This section was substantially simplified as a result of the Clean Water Act Amendments of 1978, Pub. L. No. 95-576, 92 Stat. 2467 (November 2, 1978). Prior to being amended, EPA was required to promulgate guidelines to determine when discharges were in harmful amounts based upon the "time, locations, circumstances, and conditions" when the discharge occurred. 33 U.S.C. §1321(b)(4)(Supp. 1973). EPA regulations promulgated pursuant to this section were invalidated, however, in Manufacturing Chemists Ass'n et al. v. Costle, 455 F. Supp. 968 (W.D. La. 1978) on the ground that the EPA procedure of fixing definite quantities to be considered as harmful did not adequately take into account the circumstances surrounding the discharge. Id. at 975-78. The 1978 amendments no longer require that the surrounding circumstances be considered or that the discharge be proven harmful for the notice requirements to take effect. The EPA method of determining reportable quantities based on fixed amounts will therefore be continued. 44 Fed. Reg. 10271 (February 16 1979).
461. 33 U.S.C. §1321(b)(5)(Supp. 1973).
462. 33 U.S.C. §1321(b)(6)(Supp. 1973).
463. 33 U.S.C.A. §1321(b)(6)(B)(1979).
464. 33 U.S.C.A. §1321(b)(6)(E)(1979). These are discharges which are regulated pursuant to section 402 of the Act.

See, note 458, supra.

465. 33 U.S.C.A. §1321(c)(2)(1979).

466. 33 U.S.C.A. §1321(d)(1979).

467. Liability can only be avoided when it is proven that the discharge was caused solely by 1) an act of God, 2) an act of war, 3) negligence on the part of the United States Government, or 4) an act or omission of a third party without regard to whether such act or omission was or was not negligent. 33 U.S.C.A. §1321(f)(1979). However, owners and operators of a vessel from which a discharge occurs due to the act of a third party may nevertheless be held initially liable for cleanup costs, then being entitled by subrogation to any recovery which the federal government makes from the third party. 33 U.S.C.A. §1321(g)(1979).

468. 33 U.S.C.A. §1321(f)(4)(1979).

469. 33 U.S.C.A. §1321(f)(1), (2), (3)(1979). These liability limits were increased as a result of the 1977 amendments to the Act. The President is authorized to reduce the liability limits for "any class or category of onshore or offshore facilities" to not less than \$8,000,000.

33 U.S.C.A. §1321(q)(1979). Lower liability limits have been established for onshore oil storage facilities with fixed capacity of 1,000 barrels or less. See, 40 C.F.R. §113 (1979). See generally, Mendelson, Maritime Liability for Oil Pollution - Domestic and International Law, 38 Geo. Wash. L. Rev. 195 (1968); Note, Civil

- Liability for Oil Pollution, 10 Hous.L.Rev. 394 (1973).
470. 33 U.S.C. §1321(k) (Supp. 1973).
471. 33 U.S.C. §1321(p) (Supp. 1973).
472. 33 U.S.C. §1321 (Supp. 1973).
473. 33 U.S.C. §1321(j) (Supp. 1973). Detailed regulations regarding Spill Prevention Control and Countermeasure Plans (SPCC plans) have been promulgated by EPA. See, 40 C.F.R. §112 (1979).
474. 33 U.S.C. §1321(j) (2) (Supp. 1973). See, 40 C.F.R. §114 (1979).
475. 33 U.S.C. §1321(m) (Supp. 1973). A public vessel is "a vessel owned or bareboat-chartered and operated by the United States, or by a state or political subdivision thereof, or by a foreign nation, except where such vessel is engaged in commerce." 33 U.S.C. §1321(a) (4) (Supp. 1973)
476. The Act does specifically provide that nothing contained therein be construed to "affect or modify in any way" the liabilities that might otherwise exist for damages to publicly and privately owned property. 33 U.S.C. §1321 (o) (1) (Supp. 1973). State and local authorities are specifically authorized to impose "any requirement or liability with respect to the discharge of oil or hazardous substances into any waters" of the state. 33 U.S.C. §1321(o) (2) (Supp. 1973).
477. E.g., Maine, Oil Discharge Prevention and Pollution Control Act, Me. Rev. Stat. Ann. ch. 38, §541 et seq.; Washington, Oil Spill Act, Rev. Code. Wash. ch

- See generally, Bergman, No Fault for Oil Pollution, 5 J. Maritime L. & Com. 1 (1973).
478. Chapter 70-244, Laws of Florida (1970) as amended by Chapter 74-336, Laws of Florida (1974). Codified as Fla. Stat. §376.011-.12(1979).
479. Fla. Stat. §376.021(3)(b), (c) (1979).
480. Fla. Stat. §376.021(6) (1979).
481. Pollutants are defined to include "oil of any kind and in any form gasoline, pesticides, ammonia, chlorine and derivatives thereof." Fla. Stat. §376.031(7) (1979). Anhydrous ammonia is considered a pollutant. *W.R. Grace and Co. v. Dept. of Natural Resources*, DOAH Case No. 77-2174R (Feb. 22, 1978), aff'd. See also, Fla. Admin. Code §16N-16.09(2) (1979).
482. Fla. Stat. §376.032(3)(a) (1979).
483. Fla. Stat. §376.12(4) (1979). See, note 467, supra.
484. Fla. Stat. §376.11(1) (Supp. 1978). It is the legislative intent that this section be liberally construed. Id.
485. Fla. Stat. §376.06(1) (Supp. 1978). Terminal facilities are defined as "any waterfront or offshore facility of any kind, other than vessels not owned or operated by such facility, and directly associated waterfront or offshore appurtenances... which... are used or capable of being used for the purpose of drilling for, pumping, storing, handling, transferring, processing, or refining pollutants...." Fla. Stat. §376.031(a) (1979). This includes pipelines which are directly associated with the

- facility. Fla. Admin. Code §16N-16.09(3)(1979).
486. Fla. Stat. §276.11(4)(1979).
487. Vessels are defined to include "every description of watercraft or other contrivance used, or capable of being used, as a means of transportation on water, whether self-propelled or otherwise, and includes barges and tugs." Fla. Stat. §376.031(12)(1979).
488. Fla. Stat. §376.12(1)(1979).
489. Id.
490. Id.
491. Fla. Stat. §376.12(2)(1979).
492. Id. The Department may waive the statute of limitations upon a showing of "good cause." Id. Damages omitted from the claim at the time the award is made are deemed waived. Fla. Stat. §376.12(2)(c)(1979).
493. See, Fla. Stat. §376.12(3)(1979).
494. Fla. Stat. §376.205(1979).
495. Fla. Stat. §376.12(2)(d)(1979).
496. Fla. Stat. §376.06(3), (6)(1979).
497. Fla. Admin. Code §16N-16.11(1)(1979). See also, Fla. Admin. Code §16N-17.12, for criteria applicable to discharge cleanup organizations.
498. Fla. Admin. Code §16N-16.11(1)(1979).
499. Fla. Stat. §376.13(1), (3)(1979).
500. Fla. Admin. Code §16N-16.10(3)(1979).
501. Fla. Stat. §376.09(1)(1979).
502. Fla. Stat. §736.12(8)(1979).

503. Fla. Stat. §376.09(2)(1979).
504. Fla. Stat. §376.08(2)(e)(1979).
505. Fla. Admin. Code §16N-16.14(1)(1979).
506. Fla. Stat. §376.19(1979).
507. Fla. Stat. §376.165(1979).
508. Fla. Stat. §376.13(1979).
509. Fla. Stat. §376.16(1979). Actions taken to remove a discharge, whether voluntary or at department request, may not be construed as an admission of liability therefor. Fla. Stat. §376.09(3)(1979). Such persons are also immune from liability for civil damages which may result from such assistance, except in the case of gross negligence or willful misconduct. Fla. Stat. §376.09(4)(1979).
510. See, Fla. Stat. §376.07(2)(g), .12(8)(1979).
511. 335 F. Supp. 1241 (M.D. Fla. 1971), rev'd., 411 U.S. 325 (1973).
512. 411 U.S. at 325.
513. 46 U.S.C. §181-196 (Supp. 1976).
514. 46 U.S.C. §189 (1979).
515. 411 U.S. at 330-32. See generally, Note, Oil Spills - State Prevention and the Possibility of Pre-emption, 30 Mercer L. Rev. 559 (1979).
516. Id., at 328.
517. Id., at 33.
518. Id., at 33.
519. Id., at 343.
520. Leachate is defined by EPA as "liquid that has percolated

through solid waste and extracted dissolved or suspended materials from it." 40 C.F.R. §241.101(j)(1978).

521. This problem has occurred in the Biscayne Aquifer area of southern Florida, and is a primary reason for current EPA designation of the area as the "sole source" of public drinking water supplies. See, text accompanying notes 584 through 586, infra.
522. 43 Fed. Reg. 58952 (December 18, 1978) (Introduction to proposed rules for the control of hazardous wastes).
523. 43 Fed. Reg. 58947 (December 18, 1978).
524. FINAL DRINKING WATER MANAGEMENT PLAN FOR FEDERAL FISCAL YEAR 1978, 1-2, Department of Environmental Regulation (August 15, 1977). See generally, Council of State Governments, *The States' Role in Solid Waste Management: A Task Force Report* (1973).
525. Pub. L. No. 89-272, 79 Stat. 992 (1965).
526. Pub. L. No. 91-52, 84 Stat. 1227 (1970).
527. 84 Stat. §§1223, 1228 (1970).
528. Pub. L. No. 94-580, 90 Stat. 2795 (1976), codified as 42 U.S.C. §§6901-81 (1976).
529. 43 Fed. Reg. 58947 (December 18, 1978).
530. 42 U.S.C.A. §6901(b)(3)(1979).
531. 42 U.S.C.A. §6902(4)(1979).
532. See, 42 U.S.C.A. §6926(b)(1979).
533. 42 U.S.C.A. §6921(1979).
534. 42 U.S.C.A. §6922(1979).
535. 42 U.S.C.A. §6923(1979).

536. 42 U.S.C.A. §6924 (1979).
537. 42 U.S.C.A. §6925 (1979).
538. 42 U.S.C.A. §6926 (1979).
539. 42 U.S.C.A. §6928 (1979).
540. See, 43 Fed. Reg. 58946 (December 12, 1978) for proposed regulations under sections 3001, 3002 & 3004 of the Act. See also, 45 Fed. Reg. 12722 (February 26, 1980) for final regulations regarding standards applicable to generators of hazardous waste.
541. 43 Fed. Reg. 58974 (December 18, 1978). EPA estimates that approximately 270,000 waste generating facilities and 20,000 transporters will be regulated, although only about 30,000 will require treatment, storage, or disposal permits. Id., at 58946.
542. See, discussion in §C-3(c), supra.
543. 42 U.S.C.A. §§4002(a), 4006 (1979).
544. 42 U.S.C.A. §§4007(b), 4008 (1979).
545. 42 U.S.C.A. §4002(c)(1) (1979).
546. 42 U.S.C.A. §4005(b), (c) (1979).
547. 42 U.S.C.A. §4003(2), (3) (1979).
548. Chapter 74-342, Laws of Florida (1974), codified as Fla. Stat. §§403.701-.713 (1979).
549. Fla. Stat. §403.707(1) (1979). Facilities which are in operation on the effective date of the rule are given until July 1, 1977 to comply. Fla. Admin. Code §17-7.03 (8) (1979). Solid wastes which result from normal farming operations or the activities of "persons" on their

own property are exempt from the permitting requirements. Fla. Stat. §403.707(2)(1979). The exemption concerning persons conducting activities on their own property may be broader than intended due to the broad definition of "persons" in the Act, which includes private corporations and governmental entities. Fla. Stat. §403.703(3)(1979). No definition of "person" is included in the rules.

550. Fla. Admin. Code §17-7.03(1)(1979). "Resource recovery and management facility" is defined as "any solid waste disposal area, volume reduction plant, or other facility the purpose of which is resource recovery or the disposal, recycling, processing, or storage of solid waste." Fla. Admin. Code §17-7.02(5)(1979).
551. Fla. Admin. Code §17-7.02(1)(1979). See, Chapter 163, Florida Statutes, regarding interlocal agreements.
552. Fla. Admin. Code §17-7.04(2)(1979).
553. Fla. Admin. Code §17-7.05(1)(a), (b)(1979). When not feasible, the "best available information from governmental and other sources is required. Fla. Admin. Code §17-7.05(1)(b)(1979).
554. Fla. Admin. Code §17-7.05(3)(b)(1979). Putresible wastes are defined as those "materials capable of decomposition, causing environmental nuisances and/or obnoxious odors. Fla. Admin. Code §17-7.02(22)(1979).
555. Fla. Admin. Code §17-7.05(1)(c)2., (4)(a)2(1979). Sites for the disposal of yard trash are subject to less

- stringent criteria than sanitary landfill sites. See,
Fla. Admin. Code §17-7.05(4) (1979).
556. Fla. Admin. Code §17-7.05(3)(c), (4)(c)1(1979).
557. Fla. Admin. Code §17-7.05(3)(a) (1979).
558. Fla. Admin. Code §17-7.04(1) (1979).
559. Fla. Admin. Code §17-7.07 (1979).
560. Hazardous wastes are defined as "materials or combination of materials which require special management techniques because of the acute and/or chronic effects on air and water quality; on fish, wildlife, or other biota; and on the health and welfare of the public. These materials include, but are not limited to, volatile, chemical, biological, explosive, flammable, radioactive, and toxic materials." Fla. Admin. Code §17-7.02(9) (1979). Infectious wastes are "those wastes resulting from the operation of medical clinics, hospitals, abattoirs, and other facilities producing waste which may consist of, but are not limited to, human and animal parts, contaminated bandages, pathological specimens, hypodermic needles, contaminated clothing, and surgical gloves." Fla. Admin. Code §17-7.02(21) (1979).
561. Fla. Admin. Code §17-7.04(3) (1979). Should such a waste be capable of being rendered innocuous, the producer thereof must confer with DFR to determine a safe disposal or storage method. Id.
562. Fla. Admin. Code §17-7.23(3)(d) (1979).
563. Fla. Admin. Code §17-7.04(4) (1979).

- storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system, and (b) any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system." 42 U.S.C. §300(f)(4) (Supp. 1976).
575. 42 U.S.C. §300f.(7) (Supp. 1976).
576. 42 U.S.C. §300f.(1)(B) (Supp. 1976).
577. 42 U.S.C. §300f.(1)(C)(i) (Supp. 1976). A maximum contaminant level is defined as "the maximum permissible level of a contaminant in water which is delivered to any user of public water system." 42 U.S.C. §300f.(3) (Supp. 1976).
578. 42 U.S.C. §300f.(1)(C)(ii) (Supp. 1976).
579. 42 U.S.C. §300g-1.(b)(1)(B) (Supp. 1976).
580. 42 U.S.C. §300f(2) (Supp. 1976). These regulations may vary according to geographic and other circumstances. Id.
581. 42 U.S.C. §300h (Supp. 1976). Underground injection is defined as "the subsurface emplacement of fluids by well injection." 42 U.S.C. §300h.(d)(1) (Supp. 1976).
582. 42 U.S.C. §300h.(b)(1) (Supp. 1976). EPA must also publish a list of those states for which an underground control program may be necessary to protect drinking water supplies. 42 U.S.C. §300h-1(a) (Supp. 1976). Such a list has been published which names 22 states, including Florida. See, 43 Fed. Reg. 43420 (Sept. 25, 1978). Florida is rated fifteenth in the United States in its need for such a program. Id., at 43421.
583. 42 U.S.C. §300h-(d)(2) (Supp. 1976). The Administrator may not, however, "prescribe requirements which interfere with or impede 1) the underground injection of brine or other fluids which are brought to the surface in connection with oil or natural gas product

or 2) any underground injection for the secondary or tertiary recovery of oil or natural gas, unless such requirements are essential to assure that underground sources of drinking water will not be endangered."

42 U.S.C. §300H(b) (2) (Supp. 1976). This is a continuation of the protection afforded these type operations under the FWPCA. See, 42 U.S.C. §1362(6) (Supp. 1976).

584. 42 U.S.C. §300h-3(a) (1) (Supp. 1976).

585. 44 Fed. Reg. 58797 (October 11, 1979).

586. Article appearing in, The Miami Herald (October 24, 1978).

587. Id.

588. See, 42 U.S.C.A. §§300j-1.(d) (1), 300j-2.(a) (2), 300j-2.(b) (2) (1979). Certain types of grants and other assistance are not contingent upon state assumption of primary enforcement authority. 42 U.S.C.A. §§300j-1(a) (2) (technical assistance and emergency situations); 300j-1.(b) (3) (training programs); 300j-3. (new technology development); 300j-3a (demonstration projects).

589. 42 U.S.C.A. §300-g2.(a) (1979).

590. 42 U.S.C.A. §300h(b) (1) (1979). See also, §300h-1.(b) which appears to make underground injection programs mandatory for states designated for such programs by EPA.

591. 42 U.S.C.A. §§300q-4(1) (C), 300q-5(i) (1979). See, discussion in §F-3(c), infra.

592. 42 U.S.C.A. §§300g-4(a) (1) (G) (i), 300q-5(d) (2) (A) (1979).

593. Chapter 77-337, Laws of Florida (1977); codified as Fla. Stat. §§403.850-864 (1979).
594. Fla. Stat. §403.852(1) (1979).
595. Fla. Stat. §403.851(1979). See, notes 603 through 611, infra and accompanying text.
596. Public water systems are defined as those which meet the federal numerical criteria at least sixty days per year. Fla. Stat. §403.852(2) (1979). See, note 573, supra. Public water systems are further classified into community and non-community water systems. Community water systems serve residents on a year-round basis, while non-community systems serve "transients or persons who otherwise do not inhabit a building." Fla. Admin. Code §17-22.103(b) (1979).
597. Fla. Stat. §403.853(a) (1979).
598. Fla. Stat. §403.853(1) (a) (1979).
599. Fla. Stat. §403.853(3), (4), (5) (1979). See, text accompanying note 617, infra.
600. DER has prescribed maximum contaminant levels for the following inorganic contaminants: arsenic (0.05 mg/l); barium (1. mg/l); cadmium (0.010 mg/l); chromium (0.05 mg/l); lead (0.05 mg/l); mercury (0.002 mg/l); nitrate (as N) (10. mg/l); selenium (0.01 mg/l); silver (0.05 mg/l); fluoride (1.4-2.4 mg/l depending upon annual average of maximum daily air temperature). Fla. Admin. Code §17-22.104(1) (a) (1979).
601. Fla. Admin. Code §17-22.104(1) (b)-(e) (1979).
602. Fla. Admin. Code §17-22.104(2) (1979).

603. Fla. Admin. Code §17-22.104(3) (1979).
604. Fla. Stat. §403.862(1) (a) (1979).
605. Fla. Stat. §403.863(2) (1979).
606. Fla. Stat. §403.862(1) (b)-(d) (1979).
607. Fla. Stat. §331.261(1979).
608. Fla. Stat. §403.862(1) (1979).
609. Fla. Stat. §403.862(1) (b) (1979).
610. Fla. Stat. §403.862(1) (d) (1979).
611. Fla. Stat. §403.862(1) (c)1(1979).
612. Fla. Stat. §403.862(1) (c)2(1979).
613. Fla. Admin. Code §17-22.103(b) (1) (1979).
614. Fla. Admin. Code §17-22.108(b) (5) (1979).
615. Fla. Admin. Code §17-22.108(2) (c) (1979).
616. Fla. Admin. Code §17-22.106(3) (b) (1979).
617. Fla. Admin. Code §17-22.106(3) (c) (1979).
618. Fla. Admin. Code §17-22.106(3) (i) (1979).
619. Fla. Admin. Code §17-22.107(3) (c). Local county health units may assist in this process.
620. Fla. Admin. Code §17-22.105(1) (a)2., (1) (b)2 (1979).
But see, Fla. Admin. Code §17-22.111(2) (c) (1979), which appears to require notice to the Department within 48 hours of failure to comply with a maximum contaminant level, monitoring frequency, or analytical technique. This requirement is waived when DHRS does the laboratory analysis. Fla. Admin. Code §17-22.111(2) (d) (1979).
621. Fla. Admin. Code §17-22.000(2) (b) (1979).
622. See, Fla. Admin. Code §17-16 for rules concerning the

- licensing of water treatment plant operators.
623. Fla. Admin. Code §17-16.12(2), (4), (5) (1979).
624. Fla. Stat. §403.858(1979). See also, Fla. Admin. Code §17-22.110(1979).
625. Fla. Admin. Code §17-22.108(1)(a)1 (1979). Certain water management districts are authorized to perform this function. Id.
626. See, Fla. Admin. Code §17-20(1979) for rules concerning the licensing of water well contractors.
627. See, Fla. Admin. Code §17-21(1979).
628. See, Fla. Admin. Code §17-22.105(2) (1979).
629. Fla. Stat. §403.854(1) (1979).
630. Fla. Admin. Code §17-22.103(27) (1979).
631. Fla. Admin. Code §17-22.103(28) (1979). These reasons are generally economic in nature.
632. Fla. Admin. Code §17-22.109(2) (1979).
633. Fla. Admin. Code §17-22.109(2)(a)1(1979).
634. Fla. Admin. Code §17-22.109(1)(a)3(1979).
635. Fla. Admin. Code §17-22.109(2)(b)1(1979).
636. Fla. Admin. Code §17-22.109(2)(a)2(1979).
637. Fla. Admin. Code §17-22.109(2)(b)2(1979).
638. Fla. Stat. §403.854(2)(a) (1979). DER will consider as compelling such factors as the "construction, installation or modification of treatment equipment or systems" which will be required; the time needed to put into operation a new treatment facility, and the economic feasibility of compliance. Fla. Admin. Code §17-22.109(2)(b)3(1979).

639. Fla. Admin. Code §17-22.109(1)(b)5(1979).
640. Fla. Stat. §403.854(3)(b)(1979).
641. See, Fla. Admin. Code §17-22.109(2)(d)(ii)(1979).
642. Fla. Stat. §120.60(2)(1979). DER must act within the time period prescribed by federal law, if shorter.
Fla. Stat. §403.854(3)(a)(1979).
643. Fla. Admin. Code §17-22.109(2)(c)(1979).
644. See, 42 U.S.C. §300g-3(c)(Supp. 1976). This notice must be provided as follows: (1) publication of not less than three consecutive days in a newspaper of general circulation in the area, to be completed within 14 days of initial knowledge of the failure; (2) providing radio and television stations in the area with a copy of the notice within seven days of knowledge of the failure; (3) written notice to all users of the system with the first set of water bills, but in any event, within three months, which must be repeated at least once every three months while the violation occurs. Fla. Admin. Code §17-22.112(1), (2) (1979).
645. Fla. Admin. Code §17-22.112(1)(1979). See, Fla. Admin. Code §16-22.105(1979) for rules concerning sampling methods and monitoring requirements.
646. Fla. Admin. Code §17-22.112(4)(1979). DER may also require additional forms of notice when deemed appropriate. Fla. Admin. Code §17-22.112(7)(1979). See, note 643, supra.
647. Fla. Stat. §403.855(1979). These actions may include:

(1) adoption of emergency rules; (2) issuance of corrective orders which become effective when served on the alleged violator; and (3) civil suit for injunctive relief. Id.

648. See, Fla. Admin. Code §17-22.113(1979).
649. Fla. Stat. §403.856(1979).
650. For an excellent discussion of the value of wetland ecosystems, see Odum, Value of Wetlands as Domestic Ecosystems, appearing in, Proceedings of the National Wetland Protection Symposium, U.S. DEPT. OF THE INTERIOR, FWS/OBS-78-97, pp. 9-18 (November, 1978).
651. See, Forested Wetlands of Florida - Their Management and Use, Final Report to the Division of State Planning on a Contract for a Forested Wetlands Manual, CENTER FOR WETLANDS, University of Florida, Gainesville (June, 1977) (hereinafter cited as "Florida Wetlands Report.")
652. Id., at 198.
653. Ladd, E., Post, M., and Swatek, P., Wetlands and the Water Cycle, Publication of the Massachusetts Audubon Society, Lincoln, Massachusetts, pp. 8-12 (June, 1975).
654. See, Florida Wetlands Report, supra note 651, at 111-13, 198.
655. Id., at 103-7.
656. The noxious properties of blue-green algal species are well documented in the scientific literature. See, e.g., Kalff, J & Knoechel, Phytoplankton and Their Dynamics in Oligotrophic and Eutrophic Lakes, 9 Ann. Rev. Ecol. Syst. 475-95 (1978); Keating, K., Blue-Green Algal Inhibition

- of Diatom Growth: Transition from Mesotrophic to Eutrophic Community Structure, 199 Science 971-73 (1978).
657. See Espey, Environmental Aspects of Dredging in the Gulf Coast Zone with Some Attention Paid to Shell Dredging, appearing in, ESTUARINE POLLUTION CONTROL AND ASSESSMENT, Proceedings of a Conference, Volume 1, U.S. Environmental Protection Agency (February, 1975).
658. See REPORT, supra note 568, at 32-33 which recommends that nutrient loading of Lake Okeechobee could be significantly reduced by implementing management procedures which increase the residence time of surface water runoff in vegetated areas.
659. Pub. L. No. 94-370, 90 Stat. 1013 (1979), codified as 16 U.S.C. §§1451-1464 (Supp. 1978).
660. See generally, Haines, Wetland's Reluctant Champion: The Corps Takes a Fresh Look at "Navigable Waters", 6 Environmental Law 217 (1975).
661. See, §G-3(a), infra.
662. 33 U.S.C. §1344 (Supp. 1976). See, 33 C.F.R. §320.2, .3 for a discussion of the various acts upon which authority to regulate dredging and filling activities is based, including related federal legislation.
663. 30 Stat. 1151 (1899), codified as 33 U.S.C. §§403-418 (Supp. 1976). See, note 681, infra and accompanying text.
664. 33 U.S.C. §1344 (a) (Supp. 1976).
665. 33 U.S.C. §1362 (7) (Supp. 1976).
666. 42 Fed. Reg. 37,161 (July 19, 1977).
667. 40 C.F.R. §323.2, n.2 (1979).

668. 40 C.F.R. §323.2(a) (1979).
669. See, Weber v. Board of Harbor Comm'rs, 85 U.S. (18 Wall.) 57 (1873) in which the Supreme Court originally limited the government's control over navigable waters to navigational purposes.
670. See, discussion in Chapter 6, infra.
671. See, 34 OP. ATT'Y. GEN. 410, 412, 415-16, (1926).
672. 33 C.F.R. §209.330(a) (1968).
673. 296 F. Supp. 764 (M.D. Fla. 1969), rev'd, 430 F.2d 199 (5th Cir. 1970), cert. denied, 401 U.S. 910 (1971).
674. 430 F.2d at 201.
675. 373 F. Supp. 665 (M.D. Fla. 1974).
676. Id., at 780.
677. See, 39 Fed. Reg. 12119 (April 3, 1974).
678. 392 F. Supp. 685 (D.C. D.C. 1975).
679. For an excellent discussion of the development of the Corps' regulatory jurisdiction prior to the 1972 amendments, see Hoyer, Corps of Engineers Dredge and Fill Jurisdiction: Buttressing a Citadel Under Siege, 26 U. Fla. L. Rev. 19 (1973). See also, Note, Corps of Engineers - New Guardians of Ecology, La. L. Rev. 666 (1972); Comment, Protection of the Environment and the Army Corps of Engineers: The Extent of Responsibility, 1971 Law & Soc. Order 778.
680. 33 U.S.C. §1344(b) (Supp. 1976). See, 40 C.F.R. §230 (1979) for guidelines promulgated pursuant to this section. These guidelines state that "From a national

perspective, the destruction of aquatic resources by filling operations in wetlands is considered the most severe environmental impact covered by these guidelines." 33 U.S.C. §230.4-1(a)(1) (Supp. 1976).

681. 33 U.S.C. §1344(c) (Supp. 1976). The Corps may request a waiver from EPA on the ground that failing to utilize a disposal site will have an adverse economic impact on anchorage and navigation, but final authority rests with EPA. See, C.F.R. §230.1(a) (1979), 40 C.F.R. §225.4 (1979)

682. 33 U.S.C. §403 (Supp. 1976). Section 13 of the Act, which prohibits the discharge of "any refuse matter of any kind or description whatsoever other than that flowing from streets or sewers passing therefrom in liquid state" into any navigable water or tributary thereof was also used as a basis for Corps jurisdiction to regulate dredging and filling activities. The applicability of section 13 was expanded by judicial decision from refuse matter which obstructed or impeded navigation, to virtually all types of pollution. The leading case in this regard is *United States v. Standard Oil Co.*, 384 U.S. 224 (1966), in which the Court rejected the idea that refuse was limited to substances that lacked value before they were discharged or obstructed navigation. The Standard Oil decision was followed by numerous decisions which greatly expanded the coverage of section 13. See, e.g., *United States v. White Fuel Corp.* 498 F.2d 619 (1st Cir. 1974) (oil); *United States v. American Cyanamid Co.*, 480 F.2d 1132 (2d Cir.

1973) (titanium dioxide and calcium carbonate); *United States v. Lewis*, 355 F. Supp. 1132 (S.D. Ga. 1973) (dumping of fill); *United States v. Florida Power and Light Co.*, 311 F. Supp. 1391 (S.D. Fla. 1971) (heated water). The "Refuse Act," as it was commonly known, was relied upon largely because it was the only federal authority which existed at the time capable of providing an effective remedy to control pollution. Pursuant to Executive Order No. 11574, 3 C.F.R. 551 (Supp. 1972), the Refuse Act Permit Program (RAPP) was established by the Corps on April 7, 1971 as the first nationwide permit program to control water pollution. See, 36 Fed. Reg. 6564 (April 7, 1971). Due to inadequate funding, RAPP was largely ineffective in controlling pollution, and was enjoined by the court in *Kalor v. Resor*, 335 F. Supp. 1 (D.D.C. 1971) because environmental impact statements were not being prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) 42 U.S.C. §§4321-47 (Supp. 1976). Section 402(a)(5) of the FWPCA replaced the RAPP program with the NPDES program, while section 511(c)(1) of the FWPCA specifically exempts the NPDES permitting program from the NEPA environmental impact statement requirements. See, Rogers, Industrial Water Pollution and the Refuse Act: A Second Chance for Water Quality, 119 U. Pa. L. Rev. 761 (1971).

683. See, note 667, supra.

684. See, 33 C.F.R. §321 (1979).
685. See, 33 C.F.R. §322 (1979).
686. See, 33 C.F.R. §§321.1, 322.1 (1979).
687. Pub. L. No. 92-532, 86 Stat. 1052 (1972), codified as
33 U.S.C. §1413 (Supp. 1976).
688. See, 40 C.F.R. §§220-29 (1979).
689. 40 C.F.R. §225.4 (1979).
690. Compare, 40 C.F.R. §§220-29 with proposed EPA regulations
contained in 44 Fed. Reg. 54222 (September 18, 1979).
691. 33 U.S.C.A. §1344(g)-(1) (1979). Jurisdiction over
navigable waters presently used or susceptible to use in
interstate or foreign commerce, including adjacent wet-
lands, may not be so transferred. Id., §1344(g)(1).
692. 33 U.S.C.A. §1344(h)(1) (1979).
693. 33 U.S.C.A. §1344(j), (k) (1979).
694. See, 33 C.F.R. §322.4 (1979).
695. 33 C.F.R. §§322.5, 325.5(c) (1979).
696. 33 C.F.R. §322.5(b) (1979).
697. 33 C.F.R. §325.5(b) (1979).
698. See, 33 U.S.C. §1344(f) (1979). Among the statutory
exemptions are: (1) normal farming, silviculture and
ranching activities, (2) maintenance activities on dams,
levees, groins, riprap, breakwaters, etc., (3) con-
struction or maintenance of farm stock ponds or irriga-
tion ditches. Id.
699. See, 33 C.F.R. §323.4 (1979). These nationwide permits
may issue depending upon the type of discharge, Id.,

§323.4-3, or the waters into which the discharge occurs. Id., §323.4-2. Certain management practices must be followed to minimize "to the maximum extent practicable" adverse effects on the aquatic environment, Id., §323.4(b), including avoiding discharges into wetland areas. Id., §323.4(b)(5). In addition, certain specific conditions must be met, which include insuring that the discharge will be free of toxic pollutants in other than trace quantities, and will be properly maintained to prevent erosion and other non-point sources of pollution. Id., §323.4-2(2), (3).

700. See, 33 C.F.R. §323.3(c)(1979). General permits may be issued by the District Engineer under conditions similar to those mentioned in text accompanying note 696, supra.
701. See, 33 C.F.R. §320.4(1979).
702. See, 33 C.F.R. §325.2(b)(1979). See also, 40 C.F.R. §227.13(1979) for criteria applicable to dumping of dredged materials in ocean waters, and Id., §230.5 for additional criteria applicable to the selection of disposal sites and conditioning of dredge or fill material prior to discharge into navigable waters.
703. 33 C.F.R. §320.4(a)(1)(1979). Additional general criteria considered by the Corps are as follows: (1) the relative extent of the public and private need for the proposed structure or work, (2) the desirability of using alternative locations and methods, (3) the extent and permanence of the beneficial and/or adverse

effects on the public and private uses to which the area is suited, (4) the probable cumulative effect of similar structures or work in the general area. Id., §320.4(a)(2). The District Engineer must prepare an Environmental Assessment for all applications, and an environmental impact statement (EIS) when required by NEPA. If an EIS is necessary, the draft EIS may serve as the Environmental Assessment. Id., §325.2(a)(4).

704. 33 C.F.R. §320.4(b)(1)(1979).
705. 33 C.F.R. §320.4(b)(3)(1979).
706. 33 C.F.R. §320.4(b)(4)(1979).
707. 33 C.F.R. §320.4(d)(1979). See also, Id., §325.2(b)(1).
708. 33 C.F.R. §320.4(h)(1979). This requirement is waived if the Secretary of Commerce has ruled over the objections of the state agency that the proposed project is in the interest of national security. See, Id., §324.2(b)(2).
709. 33 C.F.R. §320.4(j)(1)(1979).
710. 33 C.F.R. §325.3(c)(1979). See, Id., §325.3(a) regarding the form and content of this notice.
711. 33 C.F.R. §325.3(c)(1979).
712. 33 C.F.R. §325.2(d)(2)(1979). The District Engineer may extend this period under unusual circumstances up to seventy-five days. Id.
713. 33 C.F.R. §327.4(a)(1979).

714. 33 C.F.R. §327.4(b) (1979).
715. 33 C.F.R. §327.5(a) (1979).
716. 33 C.F.R. §327.8(g) (1979).
717. 33 C.F.R. §325.2(a) (7) (1979). Whenever there are substantive objections to the proposed work which would have not been resolved to the satisfaction of the District Engineer, the application is forwarded to the Division Engineer for decision. Applications will also be forwarded to the Division Engineer if a federal agency objecting to the proposed activity request such review. Id., §325.8(b). In certain circumstances, the application may then be forwarded to the Chief of Engineers for final decision, such as when the recommended decision is contrary to the state position of the Governor of the state in which the work is to be performed. See, 33 C.F.R. §325.8(c), (d).
718. See, 33 C.F.R. §325.2(d) (3) (1979).
719. Chapter 84, 9 Stat. 519 (1850). Florida claimed 20.3 million acres, although some of this land was high and dry. Luther J. Carter, The Florida Experience, Land & Water Policy in a Growth State 62 (The John Hopkins University Press, 1974).
720. See, State, ex rel. Ellis v. Gerber, 56 Fla. 603, 47 So. 353 (Fla. 1906).
721. Chapter 791, Laws of Florida (1856). See, Maloney, Plager & Baldwin, Water Law & Administration: The Florida Experience (University of Florida Press 1968), §123.1 [hereinafter cited as Maloney].
722. State v. Black River Phosphate Co., 32 Fla. 82, 13 So.

- 640 (1893).
723. Carter, supra note 719, at 65-70.
724. Charlton W. Tebeau, A History of Florida 280 (Coral Gables - University of Miami Press, 1971).
725. Chapter 6458, Laws of Florida (1913), codified as Fla. Stat., Chapter 298 (1979).
726. See, Maloney, supra note 721, §100.2 for a detailed discussion of the General Drainage Act.
727. Chapter 6452, Laws of Florida (1913), granted the Trustees this authority for Dade and Palm Beach Counties. This was later extended to Monroe County, Chapter 6960, Laws of Florida (1914), and then the entire state. Chapter 7304, Laws of Florida (1917). The Florida Supreme Court upheld the constitutionality of this law in Pembroke v. Peninsula Terminal Co., 108 Fla. 46, 146 So. 249 (Fla. 1933), against claims that it violated the public trust doctrine.
728. Chapter 8534, Laws of Florida (1921).
729. For a detailed discussion of the Butler Act, see, Maloney, supra note 721, at 359-62.
730. Chapter 26776, Laws of Florida (1951). Title to such lands, except in Dade and Palm Beach Counties, including islands, sand bars and shallow banks, was no longer subject to divestment from the Trustees upon completion of dredging and filling activities. No policy was established, however, regarding further administration of these lands by the Trustees.

741. See, §G-3(e), infra.
742. Fla. Stat. §253.123(1) (1979).
743. Chapter 67-436, Laws of Florida (1967).
744. See, notes 746 through 754, infra and accompanying text.

Despite the existence of this authority since 1967, however, it was not utilized in any significant degree to control dredging and filling activities above mean high water until the mid 1970's, when it became increasingly apparent that such activities were having a detrimental effect upon water quality. In Florida, the black mangrove species predominates above mean high water. In addition, the range of the red mangrove species, extends from its juncture with the black mangrove (above mean high water) to the seaward extent of the mangrove swamp.

745. The taking issue remains the sole impediment to adequate protection of what remains of Florida's wetlands. See, §G-3(e), infra.

746. See, text accompanying note 742, supra.

747. Waters are defined to "include, but not be limited to rivers, lakes, streams, springs, impoundments, and all other waters or bodies of water, including fresh, brackish, saline, tidal, surface or underground. Waters owned entirely by one person other than the state are included only in regard to possible discharge on other property or water. Underground waters include, but are not limited to, all underground waters passing through

pores of rock or soils or flowing through channels, whether man-made or natural. Fla. Stat. §403.031(3) (1979).

748. See, State Department of Pollution Control v. Universal Adams, Inc., 44 Fla. Supp. 165 (9th Cir. Ct. 1974), in which the court found that jurisdiction under Fla. Stat. §403.087(1973) extended to the 15 foot contour line for a causeway and golf course under construction in a savanna area, due to the anticipated polluting effect of stormwater runoff from the area, and the effect of increased turbidity on plant, animal and aquatic life. This view corresponded with that taken by the federal courts regarding the FWPCA, in which jurisdiction to control dredging and filling activities resulting in water pollution extends beyond mean high water to the source, not being limited by traditional concepts of navigability. See, notes 669 through 679, supra and accompanying text.
749. Fla. Stat. §403.061(14)(1979). Prior to the Environmental Reorganization Act of 1975, Chapter 403 contained no specific reference to dredging and filling activity. The 1975 amendments, which transferred all of the regulatory functions of the Board of Trustees of the Internal Improvement Fund to DER, contain several specific references to DER dredge and fill jurisdiction. See, Fla. Stat. §§403.813(1)(a), (f), .813(2)(f), (g)(1979).
750. See, Fla. Admin. Code §17-4.04(10)(1979).

751. Fla. Admin. Code §17-4.28(2)(1979). These categories of waters include: (a) rivers and natural tributaries thereto; (b) streams and natural tributaries thereto; (c) bays, bayous, sounds, estuaries, and natural tributaries thereto; (d) natural lakes, except those owned entirely by one person; and except for lakes that become dry each year and are without standing water together with lakes of no more than ten (10) acres of water area at a maximum average depth of two (2) feet existing throughout the year; (e) Atlantic Ocean out to the seaward limit of the state's territorial boundaries; (f) Gulf of Mexico out to the seaward limit of the state's territorial boundaries. Natural tributaries do not include intermittent natural water courses which act as tributaries only following the occurrence of rainfall and which normally do not contain contiguous areas of standing water. Id.
752. Fla. Admin. Code §17-4.02(17)(1979). These species include the black, red and white mangroves, as well as various ferns, grasses and cypress species. Id.
753. Fla. Admin. Code §17-4.02(19)(1979). This precisely defined area consists of "the first fifty (50) feet landward of a line defined by the landward limit of a submerged land and an upland whichever is greater...."
Id. Controversy had arisen regarding the authority of DER to regulate in the transitional zone, but was settled by the enactment of Chapter 77-170, Laws of Florida (1977)

which authorizes the Department to determine the landward extent of the waters of the state for regulatory purposes on the basis of "species of plants or soils which are characteristic of those areas subject to regular and periodic inundation by the waters of the state." Fla. Stat. §403.817(2) (1979). This landward jurisdiction is only for regulatory purposes and has no significance with respect to submerged land ownership Fla. Stat. §403.917(5) (1979).

754. Fla. Admin. Code §17-4.02(18) (1979). Isolated areas which infrequently exchange water with a described waterbody or provide only insignificant benefit to the water quality of a waterbody are intended to be defined as uplands and excluded from the definition of submerged lands. Fla. Admin. Code §17-4.28(2) (1979).

755. See, Fla. Admin. Code §17-4.29(1979). For example, exemptions adopted by rule for Chapter 403 projects, Id., §17-4.04(10) (a-q), may vary from statutory exemptions incorporated by reference for Chapter 253 projects. Id., §17-4.29(1). Compliance with the requirements of rules adopted pursuant to Chapter 253, does not, however, relieve the applicant of any additional requirements imposed pursuant to Chapter 403. Id., §17-4.29.

756. 271 So. 2d 207 (Fla. 3d D.C.A. 1972).

757. Id., at 209. The court declined to read the restriction regarding artificially created navigable waters contained in section 253.123(1), Florida Statutes, as applying to

- filling projects authorized under section 253.124. Id.
758. 327 So. 2d 823 (Fla. 3d D.C.A. 1976).
759. Id., at 825.
760. See, section 253.123(2)(1979), Florida Statutes, which pertains to dredging activities but contains no such exemption.
761. Fla. Stat. §253.124(1)(1979). See also, Fla. Admin. Code §17-4.28(11)(a)3(1979).
762. Fla. Stat. §253.124(2)(1979).
763. Manucy v. DER, DOAH Case No. 76-1441 (December 21, 1976).
764. Fla. Stat. §253.124(8)(1979).
765. Askew v. Taylor, 299 So. 2d 72, 74 (Fla. 2d D.C.A. 1974).
766. Fla. Admin. Code §18-4.31(III)(A)(1979). See, the Beach and Shore Preservation Act, Fla. Stat. §151.041(1979)
767. MEMORANDUM OF UNDERSTANDING BETWEEN CORPS OF ENGINEERS AND FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION ON PERMIT PROCESSING AND ENFORCEMENT IN THE WATERS OF THE STATE, Fla. Admin. Code §18-4.31, Appendix 6, §11(1979).
768. Id., at §§4, 5.
769. Fla. Admin. Code §17-4.31(III)(A)(1979).
770. Fla. Admin. Code §17-4.31(III)(B)(1979).
771. Fla. Admin. Code §17-4.31(III)(C)(3)(1979).
772. Fla. Admin. Code §17-4.28(11)(d)(1979). See, discussion in §C-1(f), supra regarding DER hearing procedures.
773. Fla. Stat. §§403.901 -.918(1979). See, §B-1(i), supra.
774. See, Fla. Admin. Code §17-4.28(4), §17-4.29(3)(1979).

These sections are virtually identical, but are more lenient than the short form project criteria contained in Fla. Stat. §§403.813(1)(a), (c) (1979).

775. See, Fla. Admin. Code §17-4.04(10) (1979), Fla. Stat. §403.813(2) (1979).
776. Fla. Admin. Code §17-4.28(4) (1979).
777. Fla. Admin. Code §17-4.29(5) (1979). See also, Fla. Stat. §253.24(3) (1979). The fee for a short form application is \$20.00 as opposed to a \$200.00 application fee for projects conducted in navigable waters which do not meet the short form criteria. Fla. Admin. Code §17-4.29(9) (1979).
778. Fla. Admin. Code §17-4.28(11)(a)1 (1979). No biological or ecological surveys are required but the application will be forwarded to the Game and Freshwater Fish Commission for comment. Id., §17-4.28(11)(c).
779. Fla. Admin. Code §17-4.28(11)(a)4 (1979).
780. Fla. Admin. Code §17-4.28(11)(a)3 (1979).
781. Fla. Stat. §253.124(2), (8) (1979).
782. *Albrecht v. DER*, 353 So. 2d 883 (Fla. 2d D.C.A. 1978).
783. See, *Young v. Askew*, 293 So. 2d 395 (Fla. 1st D.C.A. 1974) in which the court interpreted section 253.123(3)(a), Florida Statutes, which requires that a permit "shall" be granted by the Trustees after consideration of a biological and ecological study, as not being mandatory in nature.
784. See, §G-3(e), infra.

785. Board of Trustees of the Internal Improvement Trust Fund v. Bankers Life & C. Co., 331 So. 2d 381, 385 (Fla. 1st D.C.A. 1976). But see, Askew v. Gables-by-the-Sea, Inc., 333 So. 2d 56 (Fla. 2d D.C.A. 1976), which indicates that a mandatory injunction to commence inverse condemnation proceedings may lie against the Trustees.
786. Fla. Admin. Code §17-4.29(11)(a)(2)(1979); Fla. Stat. §253.77(1979).
787. See, e.g., Leslie Salt Co. v. Froehlke, 578 F.2d 742 (9th Cir. 1978); United States v. Lewis, 355 F. Supp. 1132 (S.D. Ga. 1973).
788. See, §G-3(a), supra.
789. Fla. Admin. Code §17-4.28(3)(1979). Permits may not, however, be denied based upon standards established after the date of application. Sexton Cove Estates, Inc. v. State Pol. Cont. Bd., 325 So. 2d 468 (Fla. 1st D.C.A. 1976). See, §C-5, supra concerning water quality criteria
790. Fla. Admin. Code §17-3.081(1)(1979).
791. Fla. Admin. Code §17-4.28(8)(a)(1979).
792. See, Fla. Stat. §§253.123(2)(d), .124(2)(1979).
793. Fla. Admin. Code §17-4.29(6)(a)(1979).
794. Fla. Admin. Code §17-4.29(7)(b)(1979).
795. Fla. Stat. §253.123(3)(a)(1979). Dredging activities for the purpose of constructing drainage and water control facilities or trenches for the burial or installation of water, sewer, gas, oil, gasoline, fuel, electric, telegraph or telephone lines, cables or mains must also meet

- this standard. Id.
796. Shablowski v. State Dept. of Env. Reg., 371 So. 2d 50 (Fla. 1st D.C.A. 1979). See also, Young v. Askew, 293 So. 2d 395 (Fla. 1st D.C.A. 1974).
797. 146 So. 2d 361 (Fla. 1962).
798. Id., at 363.
799. See, e.g., Odum v. Deltona Corp., 341 So. 2d 977, 87 (Fla. 1976); Sarasota County v. Borg, 302 So. 2d 737, 741 (Fla. 1974); Zable v. Pinellas County Water & Navigation Cont. Auth., 176 So. 2d 376, 279-80 (Fla. 1965). See generally, Annot., Conservation: Validity, Construction, & Application of Enactments Restricting Land Development by Dredging and Filling, 46 A.L.R.3d 1422 (1973).
800. 353 So. 2d 883 (Fla. 1st D.C.A. 1978).
801. Fla. Const., Art. II, §3 (1968).
802. 353 So. 2d at 884-85.
803. Id., at 885.
804. Id., at 886.
805. 302 So. 2d 737 (Fla. 1974).
806. Id., at 739.
807. 353 So. 2d at 886. See also, Cross Key Waterways v. Askew, 351 So. 2d 1062, 1069 (Fla. 1st D.C.A. 1977), aff'd 372 So. 2d 913 (Fla. 1978).
808. 171 So. 2d 376 (Fla. 1965).
809. Id., at 378. Accord Askew v. Gables-by-the-Sea, 333 So. 2d 56, 57 (Fla. 1st D.C.A. 1976). But see, Hillsborough

Cty. Envir. Protection Comm'n v. Frandorson Properties, 283 So. 2d 65, 68 (Fla. 2d D.C.A. 1973) in which the court noted in dicta that the legislature had the power to prohibit the destruction of a mangrove area "even by a landowner on his own property."

810. 171 So. 2d at 378-80.
811. Venezia A., Inc. v. Askew, 363 So. 2d 367 (Fla. 1st D.C.A. 1978); Kirk v. Gables-by-the-Sea, 251 So. 2d 880 (Fla. 1st D.C.A. 1971).
812. Askew v. Taylor, 299 So. 2d 72 (Fla. 1st D.C.A. 1974).
813. Odum v. The Deltona Corporation, 341 So. 2d 977 (Fla. 1976). But see, Jefferson Nat'l Bank v. Metropolitan Dade County, 271 So. 2d 207, 214 (Fla. 3d D.C.A. 1972).
814. Zabel v. Pinellas County Water & Navigation Cont. Autho., 171 So. 2d 376, 379 (Fla. 1965); Askew v. Taylor, 299 So. 2d 72, 74 (Fla. 1st D.C.A. 1974).
815. Odum v. The Deltona Corporation, 341 So. 2d 977, 989 (Fla. 1976); Askew v. Taylor, 299 So. 2d 72, 74 (Fla. 1st D.C.A. 1974).
816. Askew v. Gables-by-the-Sea, 333 So. 2d 56 (Fla. 1st D.C.A. 1976).
817. Venezia A., Inc. v. Askew, 363 So. 2d 367 (Fla. 1st D.C.A. 1978).
818. 293 So. 2d 395 (Fla. 1st D.C.A. 1974).
819. Id., at 399.
820. 344 So. 2d 921 (Fla. 1st D.C.A. 1977).
821. Id., at 923.

822. See, Fla. Admin. Code §§17-4.07(1), 17-4.28(3) (1979).
For a discussion of applicable standards, see notes
788 through 795, supra and accompanying text.
823. See, e.g., Johnstone v. D.E.R., DOAH Case No. 76-2127
(April 19, 1977); V.E. Whitehurst & Sons, Inc. v. D.E.R.,
DOAH Case No. 76-1919 (April 6, 1977).
824. See, e.g., Berkley v. State Dept. of Environmental Reg.,
347 So. 2d 467, 471 (Fla. 1st D.C.A. 1977); Farrugia v.
Frederick, 344 So. 2d 921, 923 (Fla. 1st D.C.A. 1977);
Young v. Askew, 293 So. 2d 395, 401 (Fla. 1st D.C.A. 1974)
See also, Fla. Stat. §120.68(2) (1979).
825. 347 So. 2d 467 (Fla. 1st D.C.A. 1977).
826. Id., at 471.
827. 371 So. 2d 50 (Fla. 1st D.C.A. 1979).
828. Id., at 54. See also, Jacksonville Elec. Auth. v. Poll.
Cont. Bd. of Florida, 270 So. 2d 759 (Fla. 1st D.C.A.
1972).
829. See, SA-2, supra.
830. Jones v. Trawicks, 75 So. 2d 785 (Fla. 1953).
831. See, e.g., Town of Flagler Beach v. Green, 83 So. 2d 598
(Fla. 1955); Henry L. Doherty & Co., Inc. v. Joachin,
200 So. 238 (Fla. 1941).
832. Askew v. Hold the Bulkhead - Save Our Bays, 269 So. 2d
696, 697 (Fla. 2d D.C.A. 1972), as cited in, United States
Steel Corp. v. Save Sand Key, Inc., 303 So. 2d 9, 12
(Fla. 1974).
833. "An individual's remedy, it was assumed, was the ballot

- box if that public official was derelict in the premises." *Save Sank Key, Inc. v. United States Steel Corp.*, 281 So. 2d 572, 574 (Fla. 2d D.C.A. 1973), rev'd 303 So. 2d 9 (Fla. 1974).
834. 193 So. 2d 691 (Fla. 1st D.C.A. 1967); cert. denied, 200 So. 2d 178 (Fla. 1967).
835. 193 So. 2d at 693.
836. See, *Cannery, Citrus, Drivers, Warehouseman & Allied Employees of Local 444 v. Winter Haven Hospital, Inc.*, 279 So. 2d 23 (Fla. 1973); *Department of Administration v. Horne*, 269 So. 2d 659 (Fla. 1972); *Renard v. Dade County*, 261 So. 2d 832 (Fla. 1972).
837. See, *Rothstein, Private Actions for Public Nuisance: The Standing Problem*, 76 W.Va.L.Rev. 453 (1974); *Sax, Takings, Private Property & Public Rights*, 4 Env. L. Rev. 467 (1973).
838. 281 So. 2d 574 (Fla. 2d D.C.A. 1973), rev'd, 303 So. 2d 9 (Fla. 1974)
839. 281 So. 2d at 577.
840. Id., at 574.
841. Id., at 575. The court also considered the impact of Fla. Const., art. I, §21, which provides that the courts "shall be open to every person for redress of any injury." Id.
842. 309 So. 2d at 11. The court suggested that existing law should have been followed, with the case certified for review by the Supreme Court as one of great public interest. Id.
843. *Town of Surfside v. County Line Land Co.*, 340 So. 2d 1287 (Fla. 3d D.C.A. 1977) (residence located adjacent to refuse dump); *State ex rel. Gardiner v. Sailboat Key, Inc*

- 306 So. 2d 616 (Fla. 3d D.C.A. 1974) (residences located across waterway from high rise development. Cf. City of Miami v. City of Coral Gables, 233 So. 2d 7 (Fla. 3d D.C.A. 1970) (air pollution from municipal incinerator both a public and private nuisance).
844. Save Sand Key, Inc., v. United States Steel Corp., 281 So. 2d 572 (Fla. 2d D.C.A. 1973), rev'd, 303 So. 2d 9 (Fla. 1974); Askew v. Hold the Bulkhead - Save Our Bays, Inc., 269 So. 2d 696 (Fla. 2d D.C.A. 1972); Sarasota Anglers Club v. Burns, 193 So. 2d 691 (Fla. 1st D.C.A. 1967), cert. denied, 200 So. 2d 178.
845. Harrell v. Hess Oil & Chemical Corporation, 287 So. 2d 291, 295 (Fla. 1973) (riparian owner not limited to public officials seeking relief from water pollution); National Container Corp. v. State, 189 So. 4, 13-14 (1939) (riparians need not show special damage in suit to abate water pollution); Wetzel v. Duda & Sons, 306 So. 2d 533 (Fla. 4th D.C.A. 1975) (riparians on lake had standing to abate nuisance); Board of Trustees of Internal Improvement Trust Fund v. Madeira Beach Nominee, Inc., 272 So. 2d 209 (Fla. 2d D.C.A. 1973) (obstruction of riparian right of access considered special injury).
846. See, Skaggs-Albertson's v. ABC Liquors, Inc., 363 So. 2d 1082 (Fla. 1978); Keating v. State, 167 So. 2d 46 (Fla. 1st D.C.A. 1964).
847. Upper Keys Citizens Ass'n., Inc. v. Wedel, 341 So. 2d 1062 (Fla. 3d D.C.A. 1977).

848. Chapter 71-343, Laws of Florida (1971), codified as Fla. Stat. §403.412(1979).
849. See generally, Note, The Florida Environmental Protection Act of 1971: The Citizen's Role in Environmental Management, 2 Fla. State L. Rev. 736 (1974). Statutes in other states which grant standing to individuals in environmental litigation include: Ark. Stat. Ann. §82-2712(d) (Supp. 1973); Cal. Health & Safety Code §39077.7 (West 1973); Colo. Rev. Stat. Ann. §66-34-12 (Perm. Cum. Supp. 1971); Ga. Code Ann. §45-142 (Supp. 1973); Ill. Ann. Stat. ch. 111 1/2, §1002(a)(v) (Smith-Hurd Supp. 1974); Ind. Ann. Stat. §13-6-1-1(a) (Burns Code ed. 1973); Mass. Gen. Laws Ann. ch. 214, §10A (Supp. 1974); Mich. Comp. Laws Ann. §691.1202 (Supp. 1974-75); Minn. Stat. Ann. §116B.03 (Supp. 1974); Nev. Rev. Stat. §§41.540-.570 (1973). Illinois also provides in its constitution for standing to challenge environmental destruction. See, Ill. Const. art IX, §2. These statutes vary in the scope of standing conferred, the cause of action established, and the remedies provided.
850. Fla. Stat. §403.412(2)(a)(1979). The Department of Legal Affairs or any political subdivision or municipality in the state may also bring such action. Id.
851. Fla. Stat. §403.412(c)(1979). Failure to allege compliance with these necessary conditions is grounds for dismissal for failure to state a cause of action.

Furnans v. Santa Rosa Island Authority, 315 So. 2d 481 (Fla. 1st D.C.A. 1975). Compliance with these conditions is not required, however, in an action for a temporary restraining order to prevent "immediate and irreparable harm" from occurring. Fla. Stat. §403.412(c) (1979).

852. Fla. Stat. §403.412(e) (1979).

853. Fla. Stat. §403.412(f) (1979).

854. See, Note, supra note 849, at 750-53.

855. 276 So. 2d 542 (Fla. 4th D.C.A. 1973).

856. Id., at 543. The trial court had denied standing on the basis of a perceived intent to distinguish between a "citizen" and a "person." In reversing the trial court, the court noted that "To treat a corporation as a 'citizen' is consistent with this legislative declaration and the intent to be gathered from the context and the general purpose of the whole legislation." Id.

857. 285 So. 2d 447 (Fla. 2d D.C.A. 1973).

858. Id., at 450. See, notes 838-842, supra and accompanying text.

859. Fla. Stat. §823.05(1979). This section also declares houses where prostitution, gambling, drunkenness and general lewdness occurs to be a public nuisance. Id.

860. Fla. Stat. §60.05(1979).

861. Fla. Stat. §60.05(3) (1979).

862. See, Chapter 7367, §§2-4, Laws of Florida (1917).

863. 111 So. 801 (1927).

864. Id., at 113-14. Accord, Kathleen Citrus Land Co. v. City of Lakeland 169 So. 356 (1936).
865. 189 So. 4 (1939).
866. Id., at 8. Accord, Bair v. Central & Southern Florida Flood Control Dist., 144 So. 2d 818, 821 (Fla. 1962) (action to enjoin water pollution as public nuisance); State ex rel. Brown v. Sussman, 235 So. 2d 46 (Fla. 3d D.C.A. 1970) (action by tenants to enjoin unsanitary conditions as public nuisance).
867. 295 So. 2d 658 (Fla. 3d D.C.A. 1974), rev'd in part, 306 So. 2d 616 (Fla. 3d D.C.A. 1974).
868. 295 So. 2d at 660, n.2. The dismissal was later modified as to the individuals but not the associations.
869. 193 So. 2d 691 (Fla. 1st D.C.A. 1976); cert. denied, 200 So. 2d 178 (Fla. 1967).
870. Sarasota County Anglers Club v. Kirk, 200 So. 2d 178 (Fla. 1967).
871. 303 So. 2d 9, 11 (Fla. 1974).
872. 189 So. 3 (1939). See also, Orlando Sports Stadium, Inc. v. State ex rel. Powell, 262 So. 2d 881 (Fla. 1972) (nuisances under Fla. Stat. §823.10 need not be specifically defined).
873. See, text accompanying notes 853-854, supra.
874. "Citizen" is broadly defined for the purposes of this section as "a person or persons having an interest which is or may be adversely affected." 33 U.S.C. §1365(g) (Supp. 1976).

875. 33 U.S.C. §1365(a)(1)(Supp. 1976). Person includes the United States and any other governmental instrumentality or agency to the extent permitted by the eleventh amendment to the Constitution. Id. Available remedies include injunctive relief and the application of civil penalties of up to \$10,000 per day. Id., §1365(a). These remedies are in addition to "any right which any person (or class of persons) may have under any statute or common law...." Id., §1365(e).
876. 33 U.S.C. §1365(a)(2)(Supp. 1976).
877. 33 U.S.C. §1365(a)(Supp. 1976).
878. 33 U.S.C. §1365(b)(Supp. 1976). Appropriate action means that EPA or the state has commenced and is "diligently prosecuting" a criminal or civil action to require compliance with the standard, limitation, or order. Id.
879. Id. Furthermore, the governor may commence a civil action without complying at all with the notice requirements when the alleged violation is occurring in another state.
- 33 U.S.C. §1365(h)(Supp. 1976).
880. 33 U.S.C. §1365(d)(Supp. 1976).

CHAPTER V

DIFFUSED SURFACE WATER

Surface waters, or diffused surface waters as they are more accurately called, are those waters resulting from falling rain or melting snow or rising to the surface in springs, which have not collected in a lake or pond or natural watercourse, but are still in a diffused state or condition.¹ Rain is by far the greatest source of surface water, and of the rain that falls, the greatest amount is evaporated or transpired into the atmosphere, while some percolates into the soil and ultimately becomes ground water and some finds its way into a lake or stream. The remainder, probably less than 25 per cent, moves over the land as diffused surface water until it, too, evaporates, percolates, or reaches a waterbody. Because of the transitory nature of this surface water, little is known about its volume, behavior, or potential use for beneficial purposes, but capture and use of such waters for irrigation, stockwatering, and even recreation is increasing.²

Presently, the greatest problem of surface water is that of disposal. Heavy but seasonal rainfall frequently results in periodic overabundance of surface waters, and overtaxes natural and artificial drainage systems as well as the capacity of the soil to absorb water. The resulting flooding and standing water interfere with agricultural operations, make land unsuitable for improvement, and cause damage by erosion or silting.

As competition for available water supplies becomes more intense, another facet of the drainage problem has emerged. Large areas of swamp or marshland have been drained in order to provide land for agriculture or other development. These wetlands often serve before drainage as storage basins for flood waters and recharge reservoirs for extensive ground water aquifers. In such cases drainage of the wetlands results in more extreme fluctuations in streamflow and in lower ground water levels.³ This problem most often arises in the context of large public drainage projects, but the cumulative effect of many small private projects or the activities of large corporate landowners may produce similar consequences.⁴

A. Distinguishing Diffused Surface Water from Other Forms

The Restatement of Torts describes surface water as:⁵
"water from rain, melting snow, springs or seepage, or detached from subsiding floods, that lies or flows on the surface of the earth but does not form a part of a water course or lake." This definition emphasizes two aspects of surface water: its origin and its lack of the characteristics of a permanent waterbody. Classification on the basis of origin seems questionable and was rejected by the Florida Supreme Court in Tampa Waterworks Co. v. Cline,⁶ which defined surface water as water, regardless of origin, that drains without any distinct or well-defined channel. It is somewhat futile

to attempt to define surface water, however, because in the final analysis the courts treat as surface water those waters which do not fit within any other legal classification of water. A better understanding of the nature of surface water may be had, then, by discussing what it is not.

Probably the most certain thing that may be said of surface water is that it does not include water in a natural watercourse. A definition of diffused surface water based only on the absence of a well-defined channel⁷ fails to distinguish surface water from natural lakes and ponds, but it is well settled that a body of water which can be classified as a lake or pond is not diffused surface water.⁸ The main characteristic of surface water in contrast with a lake is its inability to maintain its identity and existence as a waterbody.⁹ Therefore, puddles and "ponds" with no outlet and which exist only in times of heavy rainfall are surface water.¹⁰

Surface waters do not lose their character merely because they are absorbed by or soaked into the marshy or boggy land.¹¹ A marsh or swamp which is not physically connected to a lake or stream by even occasional overflow is treated as surface water in spite of its permanence. A swamp has been defined as wet, spongy, soft, low ground saturated with water but not usually covered by it.¹²

Water which overflows the banks of a natural watercourse and which follows the course of the stream to its

outlet or which on subsidence returns to the stream is considered to be part of the watercourse from which it comes and is subject to the law of watercourses.¹³ Likewise, water which overflows the banks of a lake but which remains connected to the lake, flows through the natural outlet of the lake in a defined path into another body of water, or returns to the lake, is not surface water.¹⁴ On the other hand, flood waters which entirely lose their connection with a lake or stream and spread out over the adjoining country and settle in low places and become stagnant can no longer be treated as part of the lake or stream and are surface waters.¹⁵ Cases interpreting coverage under water damage insurance policies have termed flooding caused by accumulation of heavy rainfall as surface water, while water moving in volume, whose source is a stream, is called a flood.¹⁶

One who brings water on his property by artificial means cannot treat it as surface water. Therefore, if water is brought on land to store or use, it must be cared for, and it may not be discharged onto neighboring land.¹⁷ If percolating water is brought to the surface by excavation, well-drilling, or otherwise, it may not be treated as surface water.¹⁸ The same rule applies to the disposal of sewage, and the one who produces it is liable in damages if he allows it to escape onto the land of his neighbor.¹⁹

B. Rules Governing Disposal of Diffused Surface Water

Two basic doctrines are employed in determining the

legality of an upper owner draining his land over that of an adjoining lower owner, as contrasted with the possible right of the lower owner to turn the draining surface waters back upon his neighbor. The civil law rule provides that the upper owner has an easement on the lower owner's land for the water to drain in its natural manner.²⁰ The common enemy rule states that the lower owner may take any measures necessary to keep the water off his land, even to the point of turning the water back on the land of the upper owner.²¹ A few states have abandoned both rules in favor of the tort-oriented rule of "reasonable use."²²

1. The Civil Law Rule

The civil law rule for the disposition of surface water is expressed by the maxim "Aqua currit et debet currere, ut currere solebat"²³ ("Water runs and should run, as it is wont to do"). The rule in its purest form is that no one may interfere with the natural flow of surface waters. It is usually expressed in terms of an easement of natural drainage between adjoining lands, so that the lower owner must accept the surface water which naturally drains onto his land, but the upper owner can do nothing to increase that burden.²⁴ The rule is a part of the common law of England²⁵ and also appeared in Roman Law and the Code Napoleon.²⁶ The advantage of the civil law rule is that rights thereunder are readily predictable, but strictly applied it tends to inhibit development and improvement of land.²⁷

The need to accommodate the strictness of the civil law rule with the practical necessity for improvement and development of lands has led most jurisdictions following the civil law rule to modify it in various ways. The rule is almost universally interpreted to allow the upper owner to enhance the drainage of his property to some degree, particularly for agricultural purposes.²⁸ The upper owner is generally allowed to hasten the flow of water by improving the natural drainage.²⁹ The degree to which he is allowed to artificially drain his upper estate has been limited by the requirement that he not act unreasonably or negligently;³⁰ by a balancing of relative benefit and harm;³¹ by the condition that the increase in flow not be substantial or material;³² by a prudent regard for the welfare of his neighbor;³³ and by the requirement that the waters not be diverted from their natural flow and concentrated so as to flow onto the lower lands at a different point.³⁴ On the other hand, the upper owner is sometimes allowed to increase the flow of water by a simple finding that the drainage channel by which the water leaves his land is a "natural watercourse."³⁵

While the lower owner is forbidden by the rule to obstruct the "natural" flow of surface waters, his burden may be eased by finding that the flow obstructed is not natural, but that it has been artificially created or enhanced by another. Other courts have allowed the

lower owner to obstruct surface water as long as he did not act negligently.³⁶

As a result of these modifications the general civil law rule today is that the upper owner may improve and enhance the natural drainage of his land as long as he acts reasonably and does not divert the flow, and that the lower owner is subject to an easement for such flow as the upper owner is allowed to cast upon him. Any obstruction of this flow by the lower owner or diversion by the upper owner is generally forbidden, but may be allowed in some jurisdictions subject to the limitation of reasonableness.

2. The Common Enemy Rule

In its pure form the common enemy rule gives each landowner the right to deal with surface water on his land without regard for the consequences to his neighbor. The doctrine originated in the right of a property owner to use his own property as he pleases,³⁷ but has been justified on the basis of the right to fight the "common enemy,"³⁸ and on the ground that it encourages land improvement and cultivation.³⁹ Some courts have adopted the rule on the mistaken assumption that it represented the common law of England.⁴⁰ Because of the early extension of the common drains to all portions of England, there are few English decisions on the question of interference with the flow of surface waters,⁴¹ but what authority there is favors the civil law.⁴²

Taken literally, the common enemy rule means that the upper owner may drain or divert the flow of surface waters onto the land of his neighbor at will, and that the lower owner is free to obstruct the water as he pleases and back it up onto the upper owner again. The rule has the advantage of simplicity, and since there can be no invasion of one another's legal rights, litigation should be minimized. On the other hand, landowners are encouraged to engage in contests of hydraulic engineering in which might makes right and breach of the peace is often inevitable. Fortunately, the rigors of the common enemy rule have led the courts adopting it to affix qualifications to meet the various situations that have arisen.

Several modifications have taken place in the application of this rule. For example in Sheehan v. Flynn⁴³ the Minnesota Court announced that even under the common enemy rule it is the duty of an owner draining his land to deposit surface water in some natural waterbody if one is reasonably accessible. In another case applying the common enemy rule, the Missouri Court held that a landowner was not justified in improving his own property so as to interfere seriously with adjacent properties.⁴⁴ The modern common enemy rule can be said to give the landowner the right to obstruct or divert surface water only so long as such obstruction or diversion is incident to ordinary use, improvement, or protection of his land, and is done without malice or negligence.⁴⁵

It is appropriate to compare the modified common enemy rule with the modified civil law rule. The complementary way by which the modifications of each rule tend to bring them toward the same result is evident. For example, the civil law owner may never drain his land except by following the natural drainage, but the common enemy owner may always drain his land except that he may not use artificial channels. The civil law owner may never obstruct the natural flow of surface waters unless he acts reasonably, while the common enemy owner may always obstruct the natural flow if he acts reasonably. It would be erroneous, however, to conclude that the rules have been so modified as to be indistinguishable. Although the same result might theoretically be reached in a particular situation under either rule, the practical question of prediction and proof is still substantially different. The basic premise of the civil law rule is that neither landowner may interfere with the natural flow of surface waters, and the burden is placed on the one who does so to prove that his interference falls within one of the recognized exceptions. Under the common enemy rule, a landowner starts with an unqualified right to do as he pleases, and it is for the injured neighbor to show that his conduct falls within one of the modifications of that rule.

3. The Reasonable Use Rule

The rule of reasonable use, early adopted in a few

jurisdictions and more recently in some others, occupies the middle ground between the common enemy and civil law rules in their extreme forms, and produces results similar to the modified versions of both. The advantage of the rule is that it embodies tort principles and disregards the cumbersome property notions of servitude and absolute ownership, but since the question of reasonableness is regarded as a mixed question of law and fact for the jury,⁴⁶ much of the predictability embodied in the other rules is lost.

The rule according to the Restatement of Torts⁴⁷ is that liability for invasion of a person's interest in the use and enjoyment of his land resulting from interference with natural or normal flow of the surface waters depends upon whether the action, if intentional, was unreasonable or, if unintentional, was negligent, reckless, or ultrahazardous.⁴⁸ The courts more often simply recognize the right of each owner to deal with surface water as he wishes as long as his act is reasonable under all the circumstances.⁴⁹

The doctrine of reasonable use was first applied in New Hampshire⁵⁰ and has since been expressly adopted by New Jersey,⁵¹ Minnesota,⁵² and Alaska.⁵³ Other states, without expressly adopting the rule, have reached practically the same results through modification of the traditional rules. The Maryland courts, for example, follow the civil law rule, but equity courts apply the doctrine of reasonable use when it

appears that undue hardship will result from the civil law rule.⁵⁴

Although the courts have treated the doctrine of reasonable use as a separate rule on equal footing with the civil law and common enemy rules, it is in reality merely the general tort principle which would decide such cases in the absence of the application of either of the two "property" rules.⁵⁵ The relationship between adjoining landowners, in the absence of specific property rights, has always been governed by the maxim "Sic utere tuo ut alienum non laedas" ("Use your property in such a manner as not to injure that of another"). Much confusion and strained reasoning could be avoided if the courts would limit the application of the traditional rules to the narrowest possible situation or discard them altogether.⁵⁶

C. Application of the Rules

Little real insight into the relative rights and duties of landowners with regard to surface waters is gained by discussion in terms of the traditional rules. Emphasis on abstract rules leads to sweeping generalities in which the application of the rules to specific fact situations is obscured or confused. The true nature of the law of surface waters can be better understood through examination of the commonly recurring fact situations in which these rights and duties are in issue. Surface water litigation almost invariably arises from situations in which an upper owner seeks to

drain his land or in which a lower owner attempts to prevent surface waters from flowing onto his land.

Since the civil-law rule impresses a servitude upon the lower land for the flow of surface waters and the common-enemy courts frequently differentiate between the rights of upper and lower owners, it is well to consider the rights of upper owner and of the lower owner separately. It should be recognized, also, that it is the situation of the land in its natural state that determines whether it is to be considered upper or lower. If the lands are artificially elevated by filling or grading to a level above that of naturally higher neighboring land, the land so raised does not thereby attain the status of upper lands.⁵⁷

On the other hand, if the lower land is gradually filled by natural deposits its status can change,⁵⁸ and the possibility of changing the relative rights and duties by prescription must not be overlooked.

1. The Upper Owner

Most surface water cases involve acts of an upper owner which cause water to flow in increased quantity or different manner onto the land of the lower owner to his injury. The abundance of such cases is ready proof of the inadequacy of the traditional rules, for under the strict common-enemy rule the lower owner would have no cause of action while under the strict civil-law rule the upper owner would have no defense, and with

such predictable results litigation would be infrequent. The courts have been repeatedly called upon, however, to determine to what extent and in what situations the various modifications to both rules apply.

(a) Augmenting Natural Drainage

When a landowner seeks to improve his land by deepening or widening a natural drainage course, the lower land may be damaged by the increased flow of water. A greater total volume of water may be cast upon the lower land because water which might otherwise percolate into the upper land or evaporate is drained off, and the same total volume may do more damage because it is discharged in a shorter period. Such injury is not actionable under the common-enemy rule.⁵⁹ Thus, in the Pennsylvania case of Leiper v. Heywood-Hall Constr. Co.,⁶⁰ the defendant diverted the flow of water incident to the development of his land for housing. On a showing that the water entered the lower land at the same point it had for years, the court held that the lower owner had no cause of action even though the volume of flow was increased.

If the upper owner were prohibited from improving the natural drainage of his property much land would be condemned to sterility or uneconomic use. Therefore, this is one area where the strict civil-law jurisdictions allow a landowner to improve the drainage of his land so long as he merely enhances the natural drainage and does

change the direction of flow.⁶¹ In Turner v. Hopper⁶² for example, the upper owner constructed a ditch 20 feet wide down a natural swale 250 feet wide through water had previously drained, thereby increasing the velocity but not the total volume of the flow. The California court held that the upper owner's act was not such a change in natural conditions as to justify a complaint by the lower owner.

Some courts are stricter on the upper owner where not only the velocity but also the total volume of flow onto the lower owner is increased.⁶³ In the early Ohio case of Butler v. Peck,⁶⁴ there was a swale or pond on the upper land with no natural outlet but which would overflow in times of heavy run-off and drain across the plaintiff's lower land. The Ohio court held that the upper owner had no right to construct a ditch draining the pond in the direction of the overflow.⁶⁵

(b) Diversion

If an upper owner in draining his land substantially alters the natural drainage pattern, he not only may increase the quantity of water cast onto the lower land, but he may also cause it to discharge at a different point, or even onto land where it would not otherwise have found its way. Such diversion by an upper owner is forbidden by the civil-law rule even in its modified forms.⁶⁶ The strict common-enemy rule allows the upper owner to deal with surface water as he pleases,

but most courts qualify this right to divert water from its natural course with a requirement of reasonableness.⁶⁷ A similar test is applied to the upper owner who diverts surface water in a reasonable-use jurisdiction.⁶⁸

Since civil-law courts may reach opposite results depending upon whether the drainage is found to be a mere augmentation of natural flow or diversion, the factual distinction between the two is critical. Unfortunately, the physical distinction is not always so apparent as the legal. When an upper owner diverts water on his own land from one natural drain to another which carries the water off his land, he will say he is merely enhancing the drainage of his land through the natural channels, but his flooded neighbor will say that he has diverted water which would not normally have flowed onto his land. When the upper owner raises the level of a major portion of his land, the water may still drain out through the same channels, but it will be hard to convince the lower owner that there has been no diversion.

The cases do not give much insight into the fact-finding process, but frequently seem to classify the upper owner's acts according to the result reached. This is not necessarily bad, for in close cases it preserves a useful discretion in courts while predictability is still retained in the clearer cases. Each landowner is aware that his land is subject to a servitude of natural flow from above, which may be increased

somewhat by his neighbor incident to improvement of his land, but when a case is clearly one of diversion, the upper owner is on notice that he must be prepared to pay for the damage he does. When a case is in the gray area, the upper owner is best advised to act with utmost regard for the rights of his neighbor, anticipating that the diversion issue may well be resolved on the basis of reasonableness and the relative benefit and harm to each.

(c). Collection and Discharge

If the upper owner collects surface water by means of dams, ditches, or otherwise and then causes or allows it to be discharged in a body onto the lower land, he is generally liable under either rule,⁶⁹ Such a situation is generally treated as an exception to or modification of the common-enemy rule, and is clearly outside the most liberal modification of the civil-law. The legal distinction is clear, but, again, the factual question may be a close one. When surface water is collected in a pond or reservoir and suddenly released, the point is clear, but when it is "collected" in a ditch or drain, the matter is open to dispute. In a common-enemy jurisdiction that allows the upper owner to "divert" surface water, he may yet be prevented from doing so if his diversion is found in fact to have collected the water. In a civil-law jurisdiction which allows an upper owner to augment the natural drainage of his land, the upper owner who deepens or widens a natural

drain may be said to have "collected" water by such a drain and cast it on his neighbor. Again, the cases give no clear indication of just what facts will amount to collection, diversion, or augmentation. Many cases decided on the basis of collecting and discharging water could easily be classified as diversion or hastening of natural flow cases, and the factual distinctions give the courts considerable discretion in arriving at an equitable result.

(d) Raising the Level of the Land

When potholes, sag holes, or other depressions in the land are filled, or when the general level of the land is raised, the natural flow of surface water over the land is almost inevitably altered. This presents a problem very much like that of diversion. Water which formerly flowed onto the land from above may be backed up onto the upper land or diverted onto other lands. When the natural drainage courses on the land are altered by grading or filling, surface water is almost surely discharged onto the lower land in a different manner.

Under the strict common-enemy view there is no liability for damage to the lower land resulting from such acts.⁷⁰ In Mason v. Lamb⁷¹ defendant filled a depression in which surface water ordinarily accumulated and raised the overall elevation of his property. The Virginia court, following the common-enemy rule, held

that he was not liable for injury done by water diverted over plaintiff's land.

Most common-enemy courts place a limitation on the right to divert surface water by grading and filling. This limitation may be expressed in terms of reasonableness,⁷² or as a prohibition against collection and discharge⁷³ or against discharge in an artificial channel.⁷⁴ However expressed, such limitations provide a means whereby extreme hardship under the common-enemy rule can be judicially tempered. In Freudenstein v. Heine,⁷⁵ for example, the court, while affirming the owner's right to raise the level of his lot, refused to allow him to do so in a manner that caused his neighbor's cellar to be flooded.

Civil-law jurisdictions usually impose liability on the upper owner on the theory that he has diverted surface water from its natural course.⁷⁶ In Blocker v. McArthur,⁷⁷ plaintiff had built a basement apartment at a time when water flowing from defendant's higher lot was of no consequence. The defendant subsequently raised the level of his lot, causing the apartment to be flooded. The Texas court approved a finding of the jury that the raising of the ground level was the instrumentality by which surface water was diverted and concentrated.

A strict prohibition against leveling or filling property would substantially hinder the improvement and development of urban property; therefore, courts

frequently except city lots from the application of the civil-law rule.⁷⁸ This does not necessarily mean that the owner of a city lot may disregard the rights of his neighbors, however. In Kay-Noojin Development Co. v. Hackett,⁷⁹ the Alabama court recognized that city lots were excepted from the civil-law rule in Alabama, but that this did not give an upper owner the right to collect surface water in a channel and cast it in concentrated volume onto the lower land.

The civil-law rule may not deny the landowner the right to improve his land if he can show that he has not changed the general natural drainage pattern of the area. This is a part of the exception to the civil-law rule which allows an upper owner to hasten the flow of surface waters off his property by improving the natural drainage. In Switzer v. Yunt⁸⁰ the owner of a tract of land described as "hog wallow" land graded and leveled his land and planted grape vines. He also partly filled in a "duck pond" and other depressions. As a result, more surface water flowed from the upper land than previously, and the lower land suffered erosion. The California court found that the upper owner had not violated the civil-law proscription against altering the natural flow of surface waters. The court emphasized that the flow of waters after the upper owner had leveled the "hog wallows" and filled the "duck pond" was the same as it would have been before had these

depressions overflowed, and that the general natural slope and drainage of the locality was unchanged.

(e) Rendering the Surface Impervious

When a property owner erects a building which completely occupies his lot or paves a major portion of his land for use as a parking area the natural system of water disposal is drastically altered. Water which formerly percolated into the soil must now find another means of escape and water which normally flowed off the land in natural depressions may now flow in a different direction or be concentrated by rain spouts and gutters or other artificial drainage features.

Where rain spouts and gutters on a building discharge water directly onto neighboring land, the owner of the building is usually held liable.⁸¹ Where the roof waters are not discharged directly onto neighboring land but are mingled with other surface waters before flowing onto the neighboring land, the rules concerning diversion of surface water are appropriate.

Thus, in the Kansas case of Liston v. Scott⁸² where waters from the upper owner's roof and paved walk mingled with other surface waters before flowing off the upper land in a natural channel, the upper owner was found not liable under the common-enemy rule.

Where the surface of the land is paved there would seem to be sufficient alternation of the natural flow of surface waters to create liability under the civil-law rule.⁸³ Under the common-enemy rule paving is

treated as any other diversion of surface water, and there is generally no liability unless the defendant's action can be characterized as a collection and discharge of surface waters.⁸⁴ But in Johnson v. Goodview Home, Inc.,⁸⁵ the plaintiff charged the defendant with diverting and accelerating the flow of surface waters onto the plaintiff's land by the construction of hard surface parking areas. Although Ohio purports to follow the common-enemy rule with respect to urban lands and there was no clear showing of diversion, the court held that defendant was liable for causing substantially increased quantities of water to flow over plaintiff's lot.

(f) Drainage into a Natural Watercourse

When a landowner improves the surface drainage of his land, by ditches or otherwise, into a natural watercourse flowing through or past his land, the flow of the watercourse may be increased causing overflow of lower land along the watercourse. This is an area where the law of surface water overlaps the law of riparian rights and some confusion has understandably resulted.

Many courts have developed a special rule that, regardless of whether a state follows the civil-law or common-enemy doctrine, a landowner has the right to drain surface water into a natural watercourse without liability.⁸⁶

There are three recognized limitations on this rule,

which may be applied singly or in combination depending on the jurisdiction. These limitations are: (1) the drainage must result from a reasonable use of the land; (2) waters must not be diverted into the watercourse which would not have found their way there naturally; (3) the capacity of the watercourse must not be overtaxed.⁸⁷

The limitation that the acts of the upper owner which result in drainage into a natural watercourse must be reasonable is almost universal.⁸⁸ The reasonable-use limitation has been interpreted by some courts to mean without negligence,⁸⁹ but other courts have treated it as a requirement that the use of the land be reasonable.⁹⁰

The courts giving the requirement of reasonable use the latter interpretation rarely bother to define what use would be considered unreasonable. Still other courts emphasize the reasonableness with respect to the lower owner.⁹¹ It is doubtful that the reasonableness limitation when interpreted in this manner adds anything to the lower owner's protection. No case has been found where such unreasonableness alone made the upper owner's act unlawful, and any such act would doubtless violate one of the other limitations anyway. It seems fair to say that the limitation of reasonableness, while almost universally given lip service, is seldom a deciding factor and is significant only insofar as it

provides a basis for possible exercise of judicial discretion in future cases.

In addition, most courts purport to require that only waters be drained into a natural watercourse which would have found their way there naturally,⁹² but here again it is difficult to find a case denying the upper landowner's right on this ground alone. Some courts, mostly in common-enemy jurisdictions, refuse to apply this limitation or use it only in combination with one of the other limitations.⁹³

Lastly, many courts, both in common-enemy, and civil law jurisdictions, allow drainage into a natural watercourse only if the capacity of the watercourse is not exceeded.⁹⁴ Other courts have refused to apply this limitation, but have instead emphasized either the dominant owner's absolute right to drain his land through natural channels,⁹⁵ the difficulty of determining the natural capacity,⁹⁶ or the impracticality of the limitation.⁹⁷

Failure to apply the natural capacity limitation has been criticized as disregarding the fundamental principle that surface water cannot be gathered into a body and cast onto the property of a lower owner,⁹⁸ and it may be said that one should not be privileged by in-direction to cast his residual water upon the surface of the lower land when he is not privileged to do so directly.⁹⁹

When surface water is drained into a natural watercourse it becomes part of the watercourse and loses its character as surface water. Therefore, it seems inappropriate to attempt to apply the law of surface waters when a lower owner is damaged by the increased flow of the watercourse since the law of riparian rights defines the relative rights and duties of owners of land on watercourses. Much of the conflict and confusion found in the cases discussed above is the result of the struggle to fit a riparian square peg into the common-enemy or civil-law round hole.

A riparian owner has the right to use water from a watercourse flowing through or by his land so long as such use is reasonable with respect to the similar rights of the riparians, and this right extends to the use of the watercourse as a conduit for disposal of his excess surface water.¹⁰⁰ In the leading case of Noonan v. City of Albany¹⁰¹ the New York court said: "The right of a riparian owner to drain the surface water on his lands into a stream which flows through them . . . is an incident to his right as a riparian owner to the reasonable use of the stream."¹⁰²

The practical results under the law of riparian rights are the same as under the general surface water rules. An owner is allowed to drain into a watercourse so long as he does not do "unreasonable" harm to other riparians,¹⁰³ so long as water is not diverted

into the stream which would not have found its way there naturally,¹⁰⁴ and so long as the natural capacity of the stream is not exceeded.¹⁰⁵ Although the diversion and natural capacity rules are frequently expressed as limitations on the right to reasonably drain into a stream, they are merely acts judicially determined to be unreasonable.

Other advantages of applying the riparian doctrine are that there is a considerably larger body of precedent available to help determine questions of reasonableness, and the wide conflict in results in different jurisdictions brought about by the diversity of surface water rules is reduced.

2. The Lower Owner

Interpretation of the traditional rules of surface water law is also required when a landowner deals with his land in such a way that the normal flow of surface waters onto his land from higher land is obstructed and the water is backed up on the higher land.

(a) Damming Back

When the lower owner constructs a dam or dike or otherwise blocks the flow of a natural drain he is generally liable under the civil-law rule for the damage caused by the water backed up or diverted. This constitutes an actionable interference with the upper owner's civil-law easement of drainage across the lower property.¹⁰⁶ In Lewallen v. Davenport,¹⁰⁷ the lower

proprietor constructed a dirt fill fifty feet long and five feet high to protect himself from surface waters flowing onto his land. A Kentucky court held the lower owner liable for damages to the upper owner's grist mill caused by the backed-up waters.¹⁰⁸

Under the strict common-enemy rule, the lower owner may deal with the common enemy in such a manner without liability.¹⁰⁹ But in McGehee v. Tidewater Ry. Co.,¹¹⁰ the railroad constructed a right of way filling a depression through which surface water had formerly flowed. Since any harm could easily have been prevented by the installation of culverts under the road bed, a Virginia court held that the railroad had been careless in exercising its right to fend off surface waters and was liable for damage caused when storm waters were backed up.¹¹¹

Other common-enemy jurisdictions have limited the lower owner's right to fend off surface waters by treating the drain involved as a watercourse or by excepting well-defined drainways from the operation of the common-enemy rule. In the Ohio case of McKiernann v. Grimm¹¹² the lower owner filled in a natural depression or gully thereby obstructing the flow from the upper land. Although Ohio purports to follow the common-enemy rule with respect to the lower owner of urban property, the court permitted an injunction against the lower owner referring to the depression as a natural watercourse.¹¹³

The courts of Virginia apply an exception to the common-enemy rule whereby surface water flowing in a natural channel or "watercourse" is treated as if it were water flowing in a natural stream.¹¹⁴ Under this rule the lower owner is liable regardless of negligence if he obstructs the flow to the injury of the upper owner.¹¹⁵ Although the courts often speak of surface water in a watercourse, it is clear that the term watercourse does not encompass a natural watercourse or stream but refers only to surface water flowing in a well-defined channel cut into the soil.¹¹⁶

(b) Raising the Level of the Land

The consequences of an upper owner's raising the surface of his land have been discussed earlier, and the treatment of the lower owner is very similar. When the lower land is filled or graded to the extent that water is backed up on the upper land and the owner is liable under the civil-law rule,¹¹⁷ but is not liable under the strict common-enemy rule.¹¹⁸

In Farkas v. Towns,¹¹⁹ a lower Georgia owner who raised the level of his land above that of his neighbor was held to be a wrongdoer under the civil-law rule and liable for damages from obstructed surface waters. But improvement of urban land by grading or filling represents the situation in which the urban exception to the civil-law rule is most often applied. The Alabama courts have

expressly excepted city lots from application of the civil-law rule.¹²⁰ With respect to the rights of the lower owner the court in Shahan v. Brown¹²¹ said:

Since it has been long settled in this state that town or city lots are, because of artificial conditions created or to be created, excepted from the general rule that makes land legally servient to the natural flowage of unchanneled waters, . . . the lower proprietor of urban lots owes no duty to the upper proprietor of urban lots to afford drainage for unchanneled surface or subsurface waters in or on the upper lots, nor to refrain from the improvement of his lots because that change will interfere with or prevent the natural flowage of such waters from the upper lots upon or into such lower lots, to the end that the upper lots may be drained.¹²²

The early Massachusetts case of Luther v. Winnisimmet Co.¹²³ illustrates the common-enemy view. In that case it was held that the upper owner had no cause to complain that the lower owner had filled his lands so as to obstruct the natural drainage of surface waters from the upper land.

D. The Florida Position

The Florida courts recognized diffused surface waters and surface streams as distinct legal classifications at an early date,¹²⁴ although they continue to refer to diffused surface waters as "surface waters."¹²⁵ Callan v. G.M. Cypher Co.,¹²⁶ decided in 1916, was the first case in which the Florida Supreme Court faced a diffused surface water problem. The case involved a bill to enjoin the use of a ditch on the defendant's land to carry runoff waters into Callan's Drain, a

creek which flowed from the defendant's land onto the plaintiff's property. The court discussed the possible application of a rule against diversion of runoff and a rule against overtaxing a natural drain with runoff, but since the court found neither rule to be violated on the facts, it declined to adopt either rule.

The leading Florida case on diffused surface water is Brumley v. Dorner,¹²⁷ decided in 1919. The County Commissioners of Seminole County built a roadway that blocked the natural drainage of the plaintiff's land and made a ditch to drain the road. Water from this ditch overflowed onto plaintiff's land. Finding on the facts that defendants' action amounted to gathering waters and throwing them onto the plaintiff's land, the court declared:

The almost universal rule, as gathered from the decisions, is that no person had the right to gather surface waters that would naturally flow in one direction by drainage, ditches, dams, or otherwise, and divert them from their natural course and cast them upon the lands of the lower owner to his injury. 128

The court stated and discussed the civil law and common law rules but again found it unnecessary to expressly adopt either.

In the 1932 case of Seaboard All Florida Railway Co. v. Underhill¹²⁹ the defendant railroad was ready to concede that an actionable wrong was done when plaintiff's land was flooded as a result of the railroad's

changing the natural flow of surface waters from plaintiff's land, but the case was decided strictly on the basis of whether the remedy of injunction was available.

The Florida Supreme Court again faced the problem of diffused surface water being drained into and over-¹³⁰taxing a natural watercourse in Edason v. Denison.

The Court determined that a deepened ditch was indeed a natural watercourse and seemed to approve the principle that an owner may enhance his drainage even by exceeding the capacity of a natural watercourse, citing civil law and common enemy doctrine jurisdictions.

A few years later, the Court reaffirmed its view that the natural capacity of a stream could be exceeded¹³¹ by artificial drainage. In Bray v. City of Winter Garden, the City had drained surface waters and industrial waste waters into a stream. A downstream owner sought to enjoin the City from exceeding the stream's natural capacity. The Supreme Court quoted the language in Edason v. Denison, that the upper owner is not liable for such over-taxing of a watercourse, but implied that this was only true when there was no diversion and no unreasonable use of the watercourse. The Court found that the evidence was sufficient to prove that it was the lower owner's obstruction of the watercourse that caused its overflow.

Probably the most thorough discussion of the characteristics of diffused surface waters is contained in

the 1959 decision of Libby, McNeil, & Libby v. Roberts. In that case the issue of whether the defendant had the right to maintain a dam depended on whether the water involved was a lake, a stream or diffused surface water. The court found that it was not a lake but found it unnecessary to decide whether it was a stream or diffused surface water. The court did, however, attempt at some length to define all three terms, and adopted¹³³ the well-worn treatise definition of surface water as that "which is derived from falling rain or melting snow, or which rises to the surface in springs, and is diffused over the surface of the ground, while it remains in such diffused state or condition."¹³⁴

While Florida has not expressly adopted a drainage rule, cases like Willis v. Phillips,¹³⁵ where the court states "the law sustains the natural flow of surface waters,"¹³⁶ suggest a preference for the civil law rule.¹³⁷ Later cases have emphasized modifications that are characteristic of the modern civil law rule such as allowing an upper owner to enhance his natural drainage but prohibiting unreasonable diversion¹³⁸ or obstruction.¹³⁹

The First District Court of Appeal, in the case of New Homes of Pensacola, Inc. v. Mayne,¹⁴⁰ stated what it determined to be the well-settled law of Florida in the classic language of civil law rule:

The servitude that the owner of the higher adjoining land has on the

lower land for the discharge of surface water naturally flowing onto the lower land from the dominant estate ordinarily extends only to surface water arising from natural causes, and cannot be increased or made more burdensome by the acts or industry of man. No person has the right to gather, by drainage ditches, dams, or other means, surface waters that would naturally flow in one direction, and divert them from their natural course and cast them onto lands of a lower owner to his injury.¹⁴¹

The conclusion of the court in New Homes of Pensacola is both sound and inescapable. The courts of Florida have applied in an almost unbroken line of decisions practically all the elements of the more logical modified civil law rule. The basic principles of the civil law rule are apparent in the recurring emphasis on the natural flow of surface waters¹⁴² and frequent reference to the dominant and servient estates.¹⁴³

However, the Florida courts have not yet adopted a special rule for urban land to eliminate the natural flow servitude where artificial drainage is available.¹⁴⁴ Several of the older Florida cases involved urban lands,¹⁴⁵ but no attempt was made to apply a special rule. However, a difference between the application of the Florida modified civil law rule in rural versus urban areas may have been alluded to in Koger Properties, Inc. v. Allen.¹⁴⁶ There the court upheld a jury award of compensatory and punitive damages against a development which had exhibited "gross negligence in not coordinating its

construction with [stormwater drain] improvement by the City of Tallahassee"¹⁴⁷ with the result that "[w]ith the rains, a huge deluge of water was projected with great force from the terminus of Koger's storm drainage system at appellee's home."¹⁴⁸ The court concluded that:

In this day and age of construction of large concrete and asphalt complexes, it is only reasonable that persons building such complexes do so in a manner that will reasonably guard against injuring another landowner who happens to be in the path of the outflow from their drainage system.¹⁴⁹

Thus, the natural flow servitude on the lower land, although not eliminated by the availability of artificial drainage, may be modified substantially by the concept of reasonableness in the urban environment.¹⁵⁰

E. Remedies

When surface waters wrongfully invade another's property, liability may be based on a theory of trespass, negligence, or nuisance. The development of specialized rules of liability for interference with surface waters has tended to blur the distinctions between the different theories of action, and modern courts frequently disregard the nature of the action altogether. The theory of action adopted cannot always be ignored, however, for important procedural consequences may sometimes turn on the theory applied.

1. Trespass to Land

When there is a physical invasion of the plaintiff's property by wrongfully diverted surface waters, some courts treat it as a trespass to real property.¹⁵¹ At common law every unauthorized entry of a person or thing upon the soil of another is a trespass.¹⁵² Therefore, if the defendant's act is unauthorized because it violates the rule of interference with surface waters applicable in his jurisdiction and if a physical invasion of the plaintiff's property by surface waters results, a trespass has been committed. Under the old common law such an indirect invasion would have required an action on the case for consequential injuries,¹⁵³ and this distinction has survived to the present to the extent that the plaintiff may be required to show that the invasion was intentional or the result of negligent or ultrahazardous conduct and also that substantial damage has resulted.¹⁵⁴

Since the key to the action of trespass is physical invasion of the land, there is generally no cause of action, and the statute of limitations does not begin, until an actual invasion occurs. Thus, an action of trespass might be available when an action in nuisance against the activity causing the trespass is barred by the limitation period. When the negligence of the defendant causes an overflow onto plaintiff's property,

the theory of trespass may be desirable from the plaintiff's viewpoint to avoid the defense of contributory negligence (in jurisdictions which still recognize it) or to make the remedy of injunction available.

2. Negligence

Some courts impose liability for interference with surface waters on the basis of the negligence of the defendant.¹⁵⁵ This is the only theory available in some common enemy jurisdictions where acts of interference with surface water are actionable only if negligently done. A negligence action has the advantage that it does not usually accrue, and thus the statute of limitations does not begin to run, until actual harm is done. But there is the disadvantage that the plaintiff's action may be defeated entirely by his own contributory negligence in those states which recognize this defense.

3. Nuisance

The preponderance of modern cases treat surface water interference on the theory of private nuisance.¹⁵⁶ Nuisance has traditionally been defined as an unlawful act which causes injury to a person in the enjoyment of his estate, unaccompanied by an actual invasion of the property itself;¹⁵⁷ this latter distinction is frequently disregarded today.¹⁵⁸ In order for a surface water case to fit this definition, attention must be focused on the defendant's act as the nuisance and not

the resulting overflow which actually invades the plaintiff's property. If emphasis is placed on the overflow of the property, then the theory of trespass may appear more appropriate. When defendant creates a condition which threatens imminent overflow, the plaintiff may be successful in abating the condition as a nuisance, while he might be required to wait for actual injury if he sued in trespass or negligence. On the other hand, some courts treat the limitation period in such cases as beginning to run upon completion of the structure, regardless of when actual overflow occurs.

4. Injunction

The preferred type of relief against wrongful interference with surface waters is the injunction. This is because injunctive relief is preventive and can furnish relief before, rather than after, a threatened violation. Moreover, an injunction may in many cases be the only effective sanction because provable injury may be so small that a judgment for damages would be valuable only as a means of preventing the gaining of a prescriptive right by the defendant.

An injunction will ordinarily issue only if the plaintiff establishes facts that would entitle him to an injunction according to the traditional equity rules governing issuance of injunctions. Thus, the plaintiff must show, not only that the defendant's act is unlawful, but also that the threatened injury is irreparable,

or one that cannot be adequately compensated by an action at law, or that an injunction is necessary to prevent a multiplicity of suits at law.¹⁵⁹ Although these factors are undoubtedly prerequisites, in theory at least, for an injunction against interference with surface waters, they are rarely considered in direct terms by modern courts. Instead, it seems clear from the cases that any actionable interference with surface waters will give rise to an injunction if the plaintiff can show a definite threat of substantial continuous or future injury.¹⁶⁰ The reason for this liberal treatment of persons injured by surface waters is the unique nature of real estate. Damages for its invasion by surface waters will nearly always be an inadequate remedy, and to force the person injured to give up some of his rights of ownership in return for damages confers a power of eminent domain on the wrongdoer. However, in cases in which the public benefit from the continuance of the nuisance outweighs the harm to the injured party, the injunction may be denied by some courts as a matter of discretion under the balance of convenience doctrine.¹⁶¹

5. Damages

The measure of damages for wrongful interference with the flow of surface waters depends upon the nature and extent of the injury sustained. The identification of an injury as permanent or temporary determines the manner in which damages may be collected. In surface

water cases the Florida Court appears to take the position that if the condition is physically abatable, it will be considered temporary.¹⁶²

If the injury is permanent, there can be but one action, and all damages, past, present, and future, are recoverable therein.¹⁶³ The normal recovery is the difference in market value of the land before and after the injury¹⁶⁴ or the cost of restoring the land to substantially the same condition as before the nuisance.¹⁶⁵ The position of the Restatement is that the plaintiff should have his election between the two.¹⁶⁶ This does not preclude recovery for diminution in the value of the use of the property when its market value is not materially affected by the damage.¹⁶⁷

If the injury is temporary in nature, recovery is allowed only for damages up to the time of suit, and successive recoveries in subsequent actions are permitted if the injury continues or recurs.¹⁶⁸ If the damages to realty are temporary, the general recovery is the loss in rental value, or the depreciation in the value of the use of the property if it is not rented.¹⁶⁹ When specific damage to buildings, crops, or other property is incurred, or when continued injury is threatened, the reasonable cost of repairs, removal, or abatement may be recovered.¹⁷⁰

6. Defenses

(a) Contributory Negligence

Contributory negligence is conduct on the part of

the plaintiff contributing to his damages as a legal cause.¹⁷¹ When the act of the injured party substantially contributes to the occurrence of the injury, the wrongdoer may be excused fully from liability. Florida no longer recognizes contributory negligence as a separate defense, but instead applies comparative negligence principles.¹⁷² However, in Bray v. City of Winter Garden¹⁷³ the upper owner drained surface waters into a watercourse which overflowed to the plaintiff's injury. The plaintiff was denied relief when the Florida Court found that he had allowed the watercourse to become obstructed where it crossed his land and was thus the cause of his own injury. The defense of contributory negligence was not expressly available in Bray because the complaint was not based on a charge of negligence. The court, utilizing the same reasoning, based its conclusion on the lack of causation on the part of the defendant. Under comparative negligence, however, the plaintiff might have recovered part of his damages.

(b) Assumption of Risk

The doctrine of assumption of the risk relieves the defendant of his legal obligation to the plaintiff because of the plaintiff's expressed or implied consent to injury from a particular risk.¹⁷⁴ The doctrine of assumption of the risk often parallels an alternative doctrine, such as contributory negligence, which the

court may use to preclude recovery on behalf of the plaintiff. In Stoer v. Ocala Mfg. Ice & Packing Co.¹⁷⁵ the court refused relief for plaintiff against defendant's diversion because of his failure to keep open the natural watercourses which would have adequately carried off the surface waters. In a similar case¹⁷⁶ in which contributory negligence was not available,¹⁷⁷ the court based its decision on lack of causation on the part of the defendant. The court noted, however, that the injury caused by the overflow of surface waters was acknowledged by the plaintiffs and resulted from their failure to protect their property. Since these cases were decided, however, Florida has abolished assumption of risk as a separate defense.¹⁷⁷

(c) Avoidable Consequences

The doctrine of avoidable consequences imposes an affirmative duty on one injured by the fault of another to protect himself against the consequences of such injury by reasonable conduct.¹⁷⁸ The factual determination as to what constitutes "reasonable conduct" is often a difficult question. In one case in which the \$100 surface water drainage damage to plaintiff's land could have been prevented by an expenditure of \$25, the court applied the doctrine.¹⁷⁹ Another court refused to apply the doctrine when it would have required the expenditure of \$300 by plaintiff¹⁸⁰ in order to protect himself against overflow from the defective construction

of a roadbed. The court found such expense was beyond "ordinary care and effort" required of the plaintiff.

Even taking into account the difficult factual determinations involved with the use of this doctrine, it produces an equitable result in many cases. The injured owner, if found to be at fault, is not barred from relief altogether, but is merely denied recovery for those damages which he could have prevented. The one doctrinal weakness in the application of avoidable consequences may be in those cases in which the wrongful act of another has already been committed but no overflow has taken place. If the plaintiff fails to anticipate the damage and improves the land, the doctrine may be held inapplicable, since most courts would hold that there is no invasion of plaintiff's rights until there is actual injury or overflow.¹⁸¹

(d) Comparative Negligence

One approach to more equitably apportioning the damages between the parties employed in some jurisdictions is the doctrine of comparative negligence.¹⁸² Under this approach the defendant is held liable for all damages except those he can prove were caused by the plaintiff. As mentioned before, this doctrine is recognized in Florida.¹⁸³

(e) Self-Help

The right of a landowner to interfere with waters artificially flowing onto his land is subject to varying considerations primarily depending on whether the artificial flow was caused by the party complaining of the

interference or by an outsider. Initially the lawfulness of diversion must be determined according to the rules applicable to the diversion of surface waters in the particular jurisdiction; then the availability of self-help as a defense by the landowner can be assessed.

Regardless of whether the common enemy, civil law, or reasonable use rule is followed in a particular jurisdiction, it is well settled that a landowner who has unlawfully diverted water onto another's land will not be heard to complain of the actions of the other in defending himself from such unlawful flow.¹⁸⁴ This rule undoubtedly does much to resolve minor problems and reduce unnecessary litigation. The owner injured by his neighbor's unlawful act thus has a choice of suing or protecting himself and forcing the other party to sue, with the incidental advantages of the defense.

The availability of self-help as a defense to a landowner whose actions would injure an innocent party is not so well established. For example: a remote owner X unlawfully collects and diverts surface waters so that they now flow over the lands of A onto the lands of B. May B dam back these waters to the injury of A? Or may B further divert the waters onto the land of C onto which they would not otherwise pass?

The question has not been raised in a common enemy jurisdiction, and the scant civil law authority is in some conflict. The issue under the civil law rule is

generally whether the flow interfered with by the defendant is to be considered "natural" so as to invoke the civil law servitude. In a California case¹⁸⁵ surface water was diverted from its natural course by the county while making road improvements. The diverted water flowed over plaintiff's land onto defendant's property where an embankment constructed by defendant caused the water to back and overflow plaintiff's land. In refusing defendant's claim of a right to fend off the unnatural flow, the court held that "natural" did not mean "original," but referred merely to water undiverted by the plaintiff upper proprietor. However, in a similar Texas case¹⁸⁶ in which defendant obstructed surface waters which had been diverted onto his land by a third party, the court denied relief to the innocent plaintiff, holding that a lower owner is not burdened with servitude to receive water not naturally flowing onto the land.

Holding the obstructing owner liable to his innocent neighbor seems to reach the more logical result. Since there is very little land on which the original natural drainage patterns have not somehow been altered by development of other lands, to hold that such alteration constitutes a defense for unlawful acts of the present owner would present extremely complex problems of proof and inject further uncertainty into an already confused area of the law.

(f) Statutes of Limitation

One of the most commonly raised defenses in a suit for diffused surface water damages is the statute of limitations. The primary difficulty in this area is determining when the statutory period begins to run.

When the plaintiff is seeking relief for wrongful interference with surface waters on the theory of trespass or negligence, the cause of action accrues, and the statute of limitations begins to run when his land is injured or overflowed.¹⁸⁷ In Florida the statutory period for trespass to real property is three years, and the period for negligence is four years.¹⁸⁸

When the theory of action is nuisance, there exists a divergence of views as to when the period begins to run. In Town of Miami Springs v. Lawrence¹⁸⁹ the city raised the elevation of the street adjoining plaintiff's property in the summer of 1952. No injury was noticed until January of 1953. The defendants alleged that the statute of limitations ran from 1952. The court found "[T]he statute does not begin to run until actual harm is inflicted to the plaintiff's land, regardless of the installation date of the construction or obstruction causing the overflow."¹⁹⁰

Other courts hold that if the structure which constitutes the nuisance is a permanent character and necessarily injurious, a cause of action for the entire injury, both present and prospective, arises when the structure is completed.¹⁹¹ Even under this view, however,

if the nuisance is not permanent or is not such that its continuance is necessarily injurious, a cause of action arises only when injury occurs.¹⁹²

Regardless of whether the running of the statute is keyed to the occurrence of actual harm to the plaintiff or to the erection of the structure by the defendant, each new injury creates a new cause of action.¹⁹³ It should be noted, however, that if the injury is classed as permanent, based on the nature of the structure involved, the statute runs once for the entire action.¹⁹⁴

(g) Prescription

A right to overflow another's land in an otherwise unlawful manner may be acquired by prescription. Thus, an upper owner may acquire a prescriptive easement of drainage over the lower land, and a lower owner may extinguish by prescription the natural easement of drainage over his land.¹⁹⁵ Such a right may consist of the right to maintain a ditch or tile drain over the lower land;¹⁹⁶ or the right to discharge water onto the lower land through ditches, culverts, or tiles;¹⁹⁷ or the right to divert the natural flow of surface water onto the lower land by erection and maintenance of a building, terrace, embankment, or other obstruction.¹⁹⁸

Acquisition of a right by prescription should not be confused with the bar of an action by the state of limitations. The running of the statute of limitations merely bars suit by the injured party for the defendant's

wrongful act. The passage of the prescriptive period makes the wrongful act rightful. Suppose A unlawfully diverts water onto the land of B by means of a ditch. If the statute of limitations has run, B may not sue A, but B may erect a dam to keep the waters off his land. The running of the statute on B's cause of action against A does not affect B's right to defend his property from wrongfully diverted surface water, but if A has a prescriptive right to the diversion, then B's land is subject to an easement of flow and B is liable if he interferes with it.¹⁹⁹

Prescriptive rights are usually acquired by methods substantially similar to those by which title may be acquired by adverse possession.²⁰⁰ The claimant must prove actual, continuous, adverse use with the actual or presumed knowledge of the owner for the prescribed period. Prescription differs from adverse possession in that title is acquired through adverse possession, while only an easement or right to use is obtained by prescription, and such right is acquired by use regardless of possession. The extent of the right acquired by prescription is limited to the extent of the use. Adverse possession must be exclusive, but exercise of prescriptive rights may be in sommon with the owner or with the public.

The period required may also present an important difference. In Florida the prescriptive period is twenty years,²⁰¹ while the adverse possession period is only

seven²⁰² and the limitation period for an action for trespass to realty is four.²⁰³

(h) Priority of Occupation

The defense of priority of occupation, or coming to a nuisance, has been rejected in England for more than one hundred years.²⁰⁴ However, a small minority of courts in the United States still hold that this factor alone is sufficient to deny relief.²⁰⁵ Some jurisdictions which subscribe to the reasonableness test in determining whether the use constitutes a nuisance regard priority of occupation as an important, although not necessarily controlling, factor, to be considered with other matters in the decision.²⁰⁶

The Florida Supreme Court, in Lawrence v. Eastern Air Lines²⁰⁷ clearly rejected priority of occupation as a defense to a nuisance action. In that case the plaintiff had acquired a home on property adjoining the land which defendant had recently filled, paved, and elevated. The failure of defendant to provide adequate drainage facilities caused the surface water to be diverted onto plaintiff's property and resulted in extensive injury. The court upheld a cause of action for a private nuisance, and found that the fact that plaintiff came to the nuisance was no defense. Thus, Florida would appear to reject any consideration of priority of occupation in determining whether a nuisance is actionable.

Most jurisdictions reject priority of occupation as

a valid defense.²⁰⁸ As one court pointed out, a person "cannot place upon his land anything which the law would pronounce a nuisance, and thus compel his neighbor to leave his land vacant, or to use it in such a way only as the neighboring nuisance will allow."²⁰⁹ The nuisance concept itself supports this position. Historically a nuisance must involve an injury to the use and enjoyment of property or to the property itself.²¹⁰ A nuisance does not exist if the activity is conducted in a vacant area beyond the reach of harm to others.²¹¹ Under such analysis there can be no problem of moving to a nuisance, since the nuisance does not exist until someone is injured by it.

(7) Inverse Condemnation

When property is flooded by government action, owners may be able to recover under a theory of inverse condemnation. Inverse condemnation is a cause of action to recover the value of property which has been taken by the government, even though no formal exercise of eminent domain has been attempted by the taking agency.²¹² In a typical case, public construction disrupts the existing drainage pattern and thereby causes the plaintiff's land to be flooded. The plaintiff's theory is that the government agency involved should have anticipated the flooding and compensated the land owner by obtaining a flowage easement. However, since the government failed to do so, the landowner initiates the proceeding himself, alleging that his property has been taken without compensation.

The action is called "inverse" condemnation because the landowner, rather than the government, invokes the principle of eminent domain.²¹³

Since inverse condemnation is not based on a tort theory, the doctrine of governmental tort immunity can generally be avoided.²¹⁴ In order to recover, the landowner must establish that the government intended to take the property or acted in such a way that damage to the plaintiff's property was certain to occur.²¹⁵ Liability is then determined according to the civil law or common enemy property doctrines discussed earlier.²¹⁶ When the government act is merely negligent, however, the issue is decided on the basis of tort principles and recovery may be denied in those jurisdictions that continue to recognize governmental tort immunity.

Because the conceptual basis for recovery under inverse condemnation is eminent domain, courts limit recovery to property interests that are condemnable in a formal eminent domain proceeding. Thus recovery has been allowed if the landowner's interest is one which can be reduced to a recognized property right,²¹⁷ but has been denied if the interest can not be reduced to condemnable form.²¹⁸ In the case of flooding, since the landowner has not been ousted from possession, the interest involved is usually analyzed as an easement or servitude.²¹⁹

In Mehl v. People ex. rel. Department of Public Works,²²⁰

The plaintiff owned unimproved property which, although a natural drainage swale ran through it, was suitable for industrial development. When the state constructed a freeway adjacent to the property, it installed culverts to allow the natural drainage to pass through the swale and also channeled runoff from the freeway into the swale. An action was brought against the state for inverse condemnation alleging that the state had taken a flowage easement to the extent that waters in excess of the natural flow were drained into the swale. The Supreme Court of California, agreed, Stating:²²¹

The Mehls presented evidence that the freeway construction directed more drainage flow onto the property at a higher speed in a more concentrated location than had been the case before the construction of the freeway, . . . that the division of the property by the county's drainage ditch diminished its value, and that the change in drainage pattern substantially increased the cost of developing the property. This evidence supports the finding of a taking of property as a consequence of the freeway construction . . .

Another case in which runoff directed from a road onto private property was treated as a taking was B & W Construction v. City of Lacey.²²² The City had widened a road, constructed a storm sewer system to drain the road and channeled the runoff from the road into a peat bog owned by the plaintiff. B & W owned upland property adjacent to the peat bog which it planned to develop as a lake front subdivision after extracting the peat. The runoff had two impacts on

this scheme. First, it made extraction of the peat more expensive. Second, it degraded the quality of water and thus the value of lots in the subdivision. The court held that this diminution of property value constituted a taking for which compensation must be paid.

Masley v. City of Lorain,²²³ involved an action for inverse condemnation brought by four plaintiffs who live adjacent to a natural watercourse. The defendant city had constructed storm sewers to carry runoff from urban areas into the watercourse. As a result, the volume and rate of flow of the creek had increased above natural levels and subjected the plaintiff's property to increased levels and frequencies of flooding. The Supreme Court of Ohio held that a taking had occurred.

Florida courts have often stated that in order for flooding caused by government action to constitute a taking there must be injury to the property of such magnitude

". . . as substantially to oust the owner and deprive him of all beneficial enjoyment thereof."²²⁴

A close examination of the facts in these cases, however, shows that in no case was it held to be necessary for all of the property to be rendered completely unusable before an action could be brought for inverse condemnation. On the contrary, whenever substantial injury to the usefulness of property has resulted from a government-caused physical invasion of it, the courts

have found a taking, absent other, special considerations in the case such as res judicata.

Moreover, the Florida courts have often allowed recovery against governmental agencies for flood damage even when only part of the property was affected. For example, in State Road Department v. Darby²²⁵ contractors of the SRD had reconstructed a road. As a result of the work a substantial amount of red clay, sand and silt from the fill and construction work was washed onto appellee's property, resulting in permanent damage to it. The trial court found that by this injury there had been a taking of a portion of plaintiff's property for public use without just compensation. The First District Court of Appeal upheld this determination stating.²²⁶

Those agencies which under the power of eminent domain set about to perform works that require the use of private property are charged with the responsibility of procuring the title to or easements over and upon all such property as may be required for their purposes, and the constitutional requirement to pay just compensation to the private owner will not be frittered away by failure to take the preliminary precaution of acquiring the necessary interests

Another leading case in this area is Kendry v. State Road Department.²²⁷ In Kendry the State Road Department had widened a road and improved its drainage. A group of landowners brought an action for inverse condemnation, claiming that water flowed onto

their lands and rendered them "useless" for residential purposes, apparently by causing septic tanks to back-up. The trial court dismissed the complaint and was reversed by the Fourth District Court of Appeals.

The District Court first stated the applicable law to be "... that construction by the state which causes flooding on abutting private property may constitute a taking where the flooding is a permanent invasion of land amounting to an appropriation."²²⁸ Although the State Road Department had not created a permanent body of water on the plaintiff's property, it had rendered the property permanently susceptible to flooding whenever rain occurred and therefore met the criterion of permanence. As to whether the invasion amounted to an appropriation, the court states, "... to constitute a taking, the flooding need not completely destroy all value in the property flooded."²²⁹ The allegations of the complaint were therefore held sufficient to state a cause of action.

F. Government Programs to Deal with Surface Water Runoff

Under present law, municipalities have authority to provide for drainage of city streets and reclamation of wet, low or overflowed lands within their jurisdiction.²³⁰ They may construct sewers and drains and may levy special assessments on benefitted property owners to pay all or part of the costs of such works.²³¹ Additionally,

municipalities have the power of eminent domain to condemn property for these purposes.²³² Thus, they have the means to deal directly with storm and surface water runoff problems. The general zoning power which municipalities may exercise pursuant to Chapter 166 enables them to enact flood plain zoning ordinances.²³³ Such ordinances may simply require compliance with special building regulations or may exclude certain types of development in a designated flood plain.²³⁴ Enactment of such ordinances is another method by which municipalities can address runoff problems.

Counties differ in their grants of authority depending upon whether they have a charter. In charter counties, the charter itself contains the provisions that describe the extent of county regulatory authority and it determines whether county or municipal ordinances will prevail where there is a conflict.²³⁵ In non-charter counties, the municipal ordinance in conflict will always prevail over the county ordinance.²³⁶

Both charter and non-charter counties are given broad governmental powers in Chapter 125 of the Florida Statutes. This authority includes the power to establish and administer programs of flood and beach erosion control, navigation, and drainage programs.²³⁷ Regulations designed to control surface water runoff are included in many Florida city and county codes.²³⁸

Local governments usually merge regulatory provisions regarding disposal of runoff with those addressing general pollution controls. Typically, the ordinances of small local governments are concerned primarily with sedimentation and the velocity and quantity of runoff.²³⁹ They appear under a variety of titles including plat requirements for subdivisions;²⁴⁰ septic tank restrictions;²⁴¹ minimum lot size requirements,²⁴² and most frequently, drainage plan ordinances.²⁴³

In addition, most counties and municipalities have a drainage plan ordinance requiring that a drainage plan be submitted for proposed developments. They commonly require in addition that a drainage impact assessment be prepared and submitted if there is to be a change in the development site.²⁴⁴ Many local ordinances also incorporate a flood plain regulation element²⁴⁵ or minimum elevations for old and new buildings in order to comply with the Federal National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.²⁴⁶ The virtues of flood control ordinances are multiple. As one study concluded:

while such regulations are primarily designed to avoid direct flood damage to life and property, they yield clear benefits in the context of water quality maintenance as well. Overflows from septic tanks and combined sewers, for example, may be closely linked with improperly designed sewerage and drainage systems within the flood plain. By

preventing excessive encroachment of developments upon the flood plain, these special zoning laws also seem to retard rates of runoff and consequent water pollution from stream-bank erosion and adjacent land surfaces.²⁴⁷

Several local governments have ordinances restricting the amount of impermeable cover on lots.²⁴⁸ Others limit the total amount of surface water runoff that may be carried by a particular drainage system,²⁴⁹ or the amount of sediment transported by the runoff.²⁵⁰ Subdivision regulations relating to surface water runoff control tend to be more detailed than the generalized ordinances just described.²⁵¹ Most subdivision regulations require the submission of a comprehensive drainage plan, approval of which is often a prerequisite for plat approval.²⁵² Some regulations include runoff and rainfall criteria to which the proposed drainage system must conform,²⁵³ while others indicate some permitted or preferred surface water runoff control structures and techniques.²⁵⁴ Other provisions that occur in subdivision regulations include: a requirement that runoff from paved areas meet certain water quality standards; the encouragement of on-site retention of runoff; the regulation of grading and erosion control methods;²⁵⁵ and a monitoring requirement for the discharge of surface water runoff into lakes, streams, and canals.²⁵⁶

The foregoing discussion makes it clear that the extent of regulation that a Florida county or municipality can exercise to effectively control surface water runoff through the enactment of zoning ordinances, subdivision regulations and other assorted local codes is potentially great. Once this authority is recognized, the next step toward managing runoff is the careful organization of regulatory measures into a comprehensive program which accounts for all of the activities and conditions which significantly impact upon surface water runoff and provides for efficient administration of the control program.

1. See generally 3 Farnham, Waters & Water Rights § 878 (1904).
2. Davis, Law of Diffused Surface Water in Eastern Riparian States, 6 Conn. L. Rev. 227 (1973); Dolson, Diffused Surface Water and Riparian Rights: Legal Doctrines in Conflict, 1966 Wis. L. Rev. 58; Note, The Ownership of Diffused Surface Water in the West, 20 Stan. L. Rev. 1205 (1968).
3. Comprehensive Report on Central & Southern Florida for Flood Control & Other Purposes, H.R. Doc. No. 643, 80th Cong., 2d Sess. (1949).
4. One corporation in Florida, for example, has undertaken a drainage project embracing 60,000 acres for timber-growing purposes. See Jervis & Beers, Reclamation of a Wasteland in Central Gulf Coastal Florida, 63 J. Forestry 3 (Jan. 1965).
5. Restatement (Second) of Torts § 846 (1979).
6. 37 Fla. 586, 20 So. 780 (1896).
7. E.g., Davis v. Ivey, 93 Fla. 387, 112 So 264 (1927).
8. 3 Farnham, note 1 supra, at § 878. In Libby, McNeil & Libby v. Roberts, 110 So2d 82 (2d D.C.A. Fla. 1959), the court recognized that the determinative point in the case was the chancellor's finding of fact that

the water involved was not a lake, but was either surface water or a watercourse. The court attempted to define all three terms.

9. Hunt v. Smith, 238 Iowa 543, 28 N.W.2d 213 (1947).
10. Brandenburg v. Zeigler, 62 S.C. 18, 29 S.E. 790 (1901) (water in pond unable to maintain its existence for a considerable length of time held mere surface water).
11. Enderson v. Kelehan, 226 Minn. 163, 32 N.W.2d 286 (1948).
12. Campbell v. Walker, 137 Ore. 375, 380, 2 P.2d 912, 914 (1931).
13. Watts v. Evansville, Mt. C. & N. Ry., 191 Ind. 27, 129 N.E. 315 (1921); Frese v. Michalec, 148 Neb. 567, 28 N.W.2d 197 (1947). But cf. DeRuwe v. Morrison, 28 Wash. 2d 797, 184 P.2d 273 (1947); Keener v. Sharp, 341 Mo. 1192, 111 S.W.2d 118 (1937).
14. Thomson v. Public Serv. Comm., 241 Wis. 243, 5 N.W.2d 769 (1942).
15. Hengelfelt v. Eframann, 141 Neb. 322, 3 N.W.2d 576 (1942); Crawford v. Rambo, 44 Ohio St. 279, 7 N.W. 249 (1886); 3 Farnham, note 1 supra, at § 880.

16. E.g., Poole v. Sun Underwriters Inc. Co., 65 S.D. 422, 274 N.W. 658 (1937); Miller v. Eastern R. & Lumber Co., 84 Wash. 31, 146 P. 171 (1915).
17. Thomson v. Public Serv. Comm., 241 Wis. 243, 5 N.W.2d 769 (1942); 3 Farnham, note 1 supra, at § 881.
18. Parker v. Larsen, 86 Cal. 236, 24 P. 989 (1890).
19. 3 Farnham, note 1 supra, at § 881.
20. See, e.g., Tiedeman v. Village of Middleton, 25 Wis.2d 443, 130 N.W.2d 783 (1964); Phillips v. Chesson, 231 N.C. 566, 58 S.E.2d 343 (1950); Slatten v. Mitchell, 22 Tenn. App. 547, 124 S.W.2d 310 (1938); Note, California's Surface Waters, 39 So. Cal. L. Rev. 128 (1966).
21. See e.g., Turner v. Smith, 217 Ark. 441, 231 S.W.2d 110 (1950); Tide Water Oil Sales Corp. v. Shimelman, 114 Conn. 182, 158 A. 229 (1932); Bennett v. Cupina, 253 N.Y. 436, 171 N.E. 698 (1930); Davis, The Law of Surface Water in Missouri, 24 Mo. L. Rev. 137 (1959).
22. See, e.g., Weinberg v. Northern Alaska Dev. Corp., 384 P.2d 450 (Alaska 1963; Armstrong v. Francis Corp., 20 N.J. 320, 120 A.2d 4 (1956); Franklin v. Durgee, 71 N.H. 186, 51 A. 911 (1901).

23. 3 Kent, Commentaries on American Law 439 (14th ed. 1896); Kauffman v. Griesemer, 26 Pa. 407, 413 (1856).
24. Gough v. Goble, 2 Ill., 2d 577, 119 N.E.2d 252 (1954); see Annot., 59 A.L.R.2d 421, 429 (1958).
25. 3 Farnham, note 1 supra, at § 877. The modern English law of drainage is largely statutory; see Coulson & Forbes, Law of Waters 823-37 (6th ed. 1952).
26. 3 Farnham, note 1 supra, at § 889a.
27. The present provisions of the Louisiana Civil Code express the civil law position: "It is a servitude due by the estate situated below to receive the waters which run naturally from the estate situated above, provided the industry of man has not been used to create that servitude. "The proprietor below is not at liberty to raise any dam or to make any other work, to prevent this running of the water." "The proprietor above can do nothing whereby the natural servitude due by the estate below may be rendered more burdensome". La. Stat. Ann., Civil Code, art. 660 (1972).
28. E.g., Martin v. Jett, 12 La. 501 (1838).
29. E.g., La Fleur v. Kolda, 17 S.D. 162, 22 N.W.2d 741 (1946).

30. E.g., Ratcliffe v. Indian Hill Acres, Inc., 93 Ohio App. 231, 113 N.E.2d 30 (1952); Thompson v. Andrews, 39 S.D. 477, 165 N.W. 9 (1917).
31. E.g., Venson v. Turner, 252 Ala. 271, 40 So.2d 863 (1949); Battisto v. Perkins, 210 Md. 542, 124 A.2d 288 (1956).
32. E.g., Cundiff v. Kopseiber, 245 Iowa 179, 61 N.W.2d 443 (1953); Bishop v. Richard, 193 Md. 6, 65 A.2d 334 (1949).
33. E.g., Huges v. Anderson, 68 Ala. 280 (1880).
34. E.g., Martin v. Jett, 12 La. 501 (1838).
35. See Annot., 81 A.L.R. 262 (1932).
36. Taylor v. Harrison Const. Co., 178 Pa. Super. 544, 115 A.2d 757 (1955).
37. Gannon v. Hargadon, 92 Mass. 106 (1865), citing the maxim "Cujus est solum, ejus est usque ad coelum."
38. Town of Union v. Durkes, 38 N.J.L. 21 (1875).
39. E.g., Timmons v. Clayton, 222 Ark. 327, 259 S.W.2d 501 (1953); Borkley v. Wilcop, 86 N.Y. 140 (1887); Bowlsby v. Speer, 31 N.J.L. 351 (1865).
40. E.g., Walker v. New Mexico & S.P.R. Co., 165 U.S. 593 (1897); Jordan v. City of Benwood, 42 W.Va. 312,

- 26 S.E. 266 (1896); Little Rock & Ft. S.R. Co. v. Chapman, 39 Ark. 463 (1882).
41. See 3 Farnham, note 1 supra, at § 889b.
 42. E.g., Ewart v. Cochrane, 4 Macq. H.L. Cas. 117, 7 Jur. N.S. 925, 5 L.T.N.S. 1, 10 week Rep. 3 (1861) (existence of natural drain held to establish upper owner's right to drain).
 43. 59 Minn. 436, 61 N.W. 462 (1894).
 44. Frenenstein v. Heine, 6 Mo. App. 287 (Ct. App. 1878).
 45. See Dobbins, Surface Water Drainage, 36 Notre Dame Law. 518, 523-24 (1961).
 46. Franklin v. Durgee, 71 N.H. 186, 51 A. 911 (1901); Swett v. Cutts, 50 N.H. 439 (1870).
 47. Restatement (Second) of Torts §§ 822-31, § 833 (1979).
 48. Id. at § 833, Comment (b).
 49. E.g., Sheehan v. Flynn, 59 Minn. 436, 61 N.W. 462 (1894).
 50. Franklin v. Durgee, 71 N.H. 186, 51 A. 911 (1901); Swett v. Cutts, 50 N.H. 439 (1870).

51. Hopler v. Morris Hills Regional Dist., 45 N.J. Super. 409, 133, A.2d 336 (Super. Ct. App. Div. 1957); Armstrong v. Francis Corp., 20 N.J. 320, 120 A.2d 4 (1956).
52. Enderson v. Kelehan, 226 Minn. 163, 32 N.W.2d 286 (1948); Sheehan v. Flynn, 59 Minn. 436, 61 N.W. 462 (1894).
53. Weinberg v. Northern Alaska Dev. Corp., 384 P.2d 450 (Alaska 1963).
54. Whitman v. Forney, 181 Md. 652, 31 A.2d 630 (1943); see Comment, 11 Md. L. Rev. 58 (1950).
55. Weston, Gone with the Water, Drainage Rights and Stormwater Management in Pennsylvania, 22 Vill. L. Rev. 901, 911 (1977).
56. See 3 Farnham, note 1 supra, at §§ 882-903 (courts limited application of rules to right to obstruct the flow of surface water in "natural channel").
57. Biberman v. Funkhouser, 190 Md. 424, 58 A.2d 668, original civil law easement not extinguished by filling lower land.
58. Louisville & N. Ry. Co. v. Maxwell, 126 Tenn. 232, 148 S.W. (1912).

59. E.g., *Holman v. Richardson*, 115 Miss. 169, 76 So. 136 (1917), drainage along natural swale improved by tile drain); *Leiper v. Heywood-Hall Constr. Co.*, 381 Pa. 317, 113 A.2d 148 (1955); *La Fleur v. Kolda*, 71 S.D. 162, 22 N.W.2d 741 (1946).
60. 381 Pa. 317, 113 A.2d 148 (1955).
61. E.g., *Turner v. Hopper*, 83 Cal. App. 2d 215, 188 P.2d 257 (1948); *Willis v. Phillips* 147 Fla. 368, 2 So.2d 132 (1941); *Stouder v. Dashner*, 242 Iowa 1340, 49 N.W.2d 859 (1951) (dominant owner may cause water to flow in its natural direction through a ditch instead of over the surface or by percolation as formerly).
62. 83 Cal. App. 2d 215, 188 P.2d 247 (1948).
63. E.g., *Butler v. Peck*, 16 Ohio St. 335 (1865); *Vinson v. Turner*, 252 Ala. 271, 40 So.2d 863 (1949). (Dictum).
64. 16 Ohio St. 335 (1865).
65. Id., but cf., *La Fleur v. Kolda*, 71 S.D. 162, 22 N.W.2d 741 (1946) (no liability for increasing the natural flow of surface water by cutting the rim of a bond or basin.)
66. E.g., *Gough v. Goble*, 2 Ill.2d 577, 119 N.E.2d 252 (1954); *Wallace v. Schneider*, 310 Ky. 17, 219 S.W.2d

- 977 (1949); *Persin v. City of Youngstown*, 95 N.E.2d 237 (Ohio App. 1949).
67. E.g., *Town of Everett v. Teigeler*, 162 Neb. 769, 77 N.W.2d 467 (1956); *Lunsford v. Stewart*, 95 Ohio App. 383, 120 N.E.2d 136 (1953) (urban land); *King v. Cade*, 205 Okla. 666, 240 P.2d 88 (1951).
68. E.g., *Armstrong v. Francis Corp.*, 20 N.J. 320, 120 A.2d 4 (1956).
69. E.g., *Tide Water Oil Sales Corp. v. Shimelman* 114 Conn. 182, 158 A. 229 (1932) (liability under common-enemy rule for collecting water into pockets from which it discharged into lower land); *Butler v. Peck* 16 Ohio St. 335 (1865) (liability under the civil law rule for discharging water in natural depressions or ponds on to neighbor).
70. E.g., *Stein v. Coleman* 73 Conn. 524, 48 A. 206 (1901); *Liston v. Scott*, 108 Kan. 180, 194 P. 642 (1921); *Mehrday v. Foster*, 132 Mo. App. 229. 111 S.W. 882 (1908).
71. 189 Va. 348, 53 S.E.2d 7 (1949).
72. E.g., *Freudenstein v. Helne*, 6 Mo. App. 287 (1878) *Carter v. Grundy* 259 P. 2d 528, (Okla. 1953).
73. E.g., *Smith v. Atkinson*, 133 Ind. App. 430, 180 N.E.2d 542 (1962); *Behm v. King Louie's Bowl, Inc.*

- 350 S.W.2d 285 (Mo. App. 1961); Granger v. Elm Tree Village, 23 N.J. Super 592, 93 A.2d 641 (1952).
74. Kuklinska v. Maplewood Homes, Inc. 336 Mass. 489, 146 N.E.2d 523 (1957).
75. 6 Mo. App. 287 (1878).
76. E.g., Looby v. Buck, 20 Ill. App. 2d 156, 155 N.E.2d 641 (1959); Steinke v. North Vernon Lumber Co., 190 Ky. 231, 227 S.W. 274 (1921); Blocher v. McArthur, 303 S.W.2d 529 (Tex. Civ. App. 1957).
77. 303 S.W.2d 529 (Tex. Civ. App. 1957).
78. Hall v. Rising, 141 Ala. 431, 37 So 586 (1904) (Defendant filled his land to street level causing flooding of neighbor's basement; no liability). Lunsford v. Stewart, 95 Ohio App. 383, 120 N.E.2d 136 (1953) (but only if reasonable). But see, Lawrence v. Eastern Airlines, 81 So.2d 632 (Fla. 1955), (urban nature not considered); and Carland v. Aurin, 103 Tenn. 555, 53 S.W. 940 (1899) (distinction for urban land refused).
79. 253 Ala. 588, 45 So.2d 792 (1950).
80. 5 Cal. App. 2d 71, 41 P.2d 974 (1935).
81. E.g., Friedman v. Anderson, 257 Mass. 107 153 N.E. 337, (1926); Schlessinger v. Rosenheim, 2 Tenn. App.

- 529 (1926); Harms v. Kuchta, 141 Md. 610, 119 A. 454 (1922). See also, 3 H. Farnham, Waters and Water Rights § 888 (1904). But see, Melin v. Richman, 96 Conn. 686 115 A. 426, (1921) (no liability unless artificial distribution of surface water shown.)
82. 108 Kan. 180, 194 P. 642 (1921).
83. E.g., Weimer v. Cauble, 214 Ga. 634, 106 S.E.2d 781 (1959) (construction of houses and streets which changed the natural flow of surface waters); Battisto v. Perkins, 210 Md. 542, 124 A.2d 288 (1956) (grading, removal of vegetation, and housebuilding increased flow of surface waters). See also, Moore v. Standard Paint & Glass Co., 145 Colo. 1151, 358 P.2d 33 (1960) where defendant held liable on negligence theory very similar to reasonable use for flooding caused by construction of a parking lot. Dissent urged adoption of common-enemy rule.
84. E.g., Nathanson v. Wagner, 118 N.J. Eq. 390, 179 A. 466 (1935) (roof and concrete yard; no liability); Kapayanis v. Fishbein, 344 Mass. 86, 181 N.E.2d 653 (1962) (may erect house without regard to surface water unless it is discharged onto lower land in a definite artificial channel); Liston v. Scott, 108, 194 P. 642 (1921).
85. 167 N.E.2d 132 (Ohio C.P. 1960).

86. E.g., Walley v. Wiley, 56 Ind. App. 171, 104 N.E. 318 (1914); Board of Drainage Comm'rs v. Board of Drainage Comm'rs, 130 Miss. 764, 95 So. 75 (1923); City of Hamilton v. Ashbrook, 62 Ohio St. 511, 57 N.E. 239 (1900).
87. Maloney & Plager, Diffused Surface Water; Scourge or Bounty?, 3 Nat. Res. J. 72, 89 (1968); Annot., 28 A.L.R. 1262 (1924).
88. See, e.g., Callens v. Orange County, 129 Cal. App. 2d 255, 276 P.2d 886 (1954); North Dakota v. Minnesota, 263 U.S. 583 (1924); Anthony v. Huntley Estates 137 N.Y.S.2d 664 (1954).
89. E.g., Willison, 50 Md. 138, 33 Am. R. 304 (1878); Todd v. York County, 72 Neb. 207, 100 N.W. 299 (1904).
90. E.g., Archer v. City of Los Angeles, 47 Cal. App. 2d 68, 110 P.2d 1 (1941); People ex rel. Speck v. Peeler, 290 Ill. 451, 125 N.E. 306 (1919) (sanitary & agricultural); Board of Drainage Comm'rs v. Board of Drainage Comm'rs, 130 Miss. 764, 95 So. 75 (good husbandry).
91. E.g., North Dakota v. Minnesota, 263 U.S. 583 (1924) (cannot burden lower owner with more than is reasonable); Leiper v. Heywood-Hall Constr. Co., 381 Pa. 317, 113 A.2d 148 (1955) (cannot unreasonably or unnecessarily change quantity or quality of water in

- in stream); *Thompson v. Andrews*, 39 S.D. 477, 165 N.W. 9 (1917) (no unusual or unnatural quantities).
92. See, e.g., *Everett v. Davis*, 18 Cal. 2d 389, 115 P.2d 821 (1941); *Stoer v. Ocala Mfg., Ice & Packing Co.*, 157 Fla. 4, 24 So.2d 579 (1946); *Mizell v. McGowan*, 129 N.C. 93, 39 S.E. 729 (1901); *Coleman v. Wright*, 155 S.W.2d 382 (Tex Civ. App. 1941).
93. E.g., *Baldwin v. Ohio Tp.*, 70 Kan. 102, 78 P. 424 (1904) (diversion allowed if damage not serious); *Bainard v. City of Newton*, 154 Mass. 255, 27 N.E. 995 (1891) (where change only slightly and occasionally enlarged the flow within the capacity of the stream).
94. E.g., *People ex rel. Speck v. Peeler* 290 Ill. 451, 125 N.E. 306 (1919); *Baldwin v. Ohio Tp.*, 70 Kan. 102, 78 P. 424 (1904).
95. E.g., *Board of Drainage Comm'rs v. Board of Drainage Comm'rs* 130 Miss. 764, 95 So. 75 (1923).
96. E.g., *Mizell v. McGowan*, 129 N.C. 93, 39 S.E. 729 (1901).
97. *San Gabriel Valley Country Club v. Los Angeles County*, 182 Cal. 932, 118 P. 554 (1920) (limitation would destroy the rule); *Mizell v. McGowan* 129 N.C. 93, 39 S.E. 729 (1901) (limitation would prevent

drainage of large bodies of swamplands rendering them useless and hindering process).

98. See Annot., 28 A.L.R. 1262, 1270 (1924).
99. 6 American Law of Property § 28.64 at 193 (Casner ed. 1954).
100. See, 3 H. Farnham, Waters and Water Rights § 488 (1904).
101. 79 N.Y. 470 (1879).
102. Id. at 477.
103. Noonan v. City of Albany, 79 N.Y. 470 (1879); e.g., Kay v. Kirk, 76 Md. 41, 24 A. 326 (1892) (flow increased so as to injure owner's dam); cf. Hicks & Carter v. Owensboro, City of, 6 Ky. L. Rep. 225 (1884) (no liability for damage of lower owner's building erected below the level of the banks).
104. E.g., Baldwin v. Ohio Tp., 70 Kan. 102, 78 P. 424 (1904); Tillotson v. Smith, 32 N.H. 90, 64 Am. Dec. 355 (1855).
105. Noonan v. City of Albany, 79 N.Y. 470 (1879); Jackman v. Arlington Mills, 137 Mass. 277 (1884).
106. E.g., Lewallen v. Davenport, 255 S.W.2d 16 (Ky. 1953); Bishop v. Richard, 193 Md. 6, 65 A.2d 334 (Md. 1949); Robinson v. Belanger, 332 Mich. 657, 52 N.W.2d 538 (1952).

107. 255 S.W.2d 16 (Ky. 1953).
108. Id.
109. E.g., Watts v. Evansville, Mt. C. & N. Ry. Co., 191 Ind. 27, 129 N.E. 315 (1920); Greeley v. Maine Cent. R. R. Co., 53 Me. 200, (1865); Harvie v. Town of Caledonia, 161 Wis. 314, 154 N.W. 383 (1915).
110. 108. Va. 508, 62 S.E. 356 (1908).
111. See also, Note, 44 Va. L. Rev. 135, 141 (1958).
112. 31 Ohio App. 213, 165 N.E. 310 (1928).
113. See also, Saelens v. Pollentier, 7 Ill.2d 556, 131 N.E. 2d 479 (1956) (artificial drainage ditch in existence 50 years treated as a natural water-course).
114. Cook v. Seaboard Air Line Ry., 107 Va. 32, 57 S.E. 564 (1907); Norfolk & W.R. Co. v. Carter, 91 Va. 587, 22 S.E. 517 (1895).
115. See Maloney and Plager, Florida's Streams-Water Rights in a Water Wonderland, 10 U. Fla. L. Rev. 294 (1957), for discussion of the rights of riparians to obstruct stream flow.
116. See Note, 44 Va. L. Rev. 135 (1958). Similar treatment is given surface water flowing in natural channels in other common-enemy jurisdictions. See

e.g., Tidewater Oil Sales Corp. v. Shimelman, 114 Conn. 182, 158 A. 229 (1932); Ricenbaw v. Kraus, 157 Neb. 723, 61 N.W.2d 350 (1953); But cf., Capes v. Barger 123 Ind. 212, 109 N.E.2d 725 (1953) (enforcing strict common-enemy rule).

117. E.g., Farkas v. Towns, 103 Ga. 150, 29 S.E. 700 (1897) Pickerill v. City of Louisville, 125 Ky. 213, 100 S.W. 873 (1907); Carland v. Aurin 103 Tenn. 555, 53 S.W. 940 (1899); Liston v. Scott, 108 Kan. 180 194 P. 642 (1921) (applying the urban exception).
118. E.g., Luther v. Winnisimett Co., 63 Mass (9 Cush.) 171 (1851); Walther v. City of Cape Birardeau, 166 Mo. App. 467, 149 S.W. 36 (1912); Barkley v. Wilcox, 86 N.Y. 140 (1881).
119. 103 Ga. 150, 29 S.E. 700 (1897).
120. Hall v. Rising, 141 Ala. 431, 37 So. 586 (1904).
121. 179 Ala. 425, 60 So. 891 (1913).
122. 60 So. 891, 894. See also Liston v. Scott, 108 Kan. 180, 194 P. 642 (1921); Lunsford v. Stewart, 95 Ohio App. 383, 120 N.E. 2d 136 (1953).
123. 63 Mass. (9 Cush) 171 (1851).
124. Tampa Waterworks Co. v. Cline, 37 Fla. 586, 20 So. 780 (1896).

125. See e.g., *Libby, McNeil & Libby v. Roberts*, 110 So.2d 82 (2d D.C.A. Fla. 1959).
126. 71 Fla. 14, 70 So. 841 (1916).
127. 78 Fla. 495, 83 So. 912 (1919).
128. *Id.* at 501, 83 So. at 914.
129. 105 Fla. 409, 141 So. 306 (1932).
130. 142 Fla. 101, 194 So 343 (1940).
131. 40 So.2d 459 (Fla. 1949).
132. 110 So.2d 83 (2d D.C.A. Fla. 1959).
133. Id. at 84.
134. 78 Am. Jur. Waters § 117 (1975).
135. 147 Fla. 368, 2 So.2d 732 (1941).
136. Id. at 372, 2 So.2d at 733.
137. The only reported break in the line of Florida decisions compatible with the civil law rule is the Hendry County Circuit Court case of *Babcock v. Red Cattle Co.*, 6 Fla. Supp. 113 (Cir. Ct. 1953). Among the alternate grounds for a decree denying a mandatory injunction for the removal of a dike, the chancellor stated the right of each man to deal with problems so as to protect himself. This sounds similar to the common enemy doctrine but

cannot be given undue weight because it is a lower court case and also because the court gave two other valid alternate grounds for decision.

138. Lawrence v. Eastern Air lines, 81 So.2d 632 (Fla. 1955); Panama City v. York, 157 Fla. 425, 26 So.2d 184 (1946).
139. Libby, McNeil & Libby v. Roberts, 110 So.2d 82 (2d D.C.A. Fla. 1959); Pearce v. Pearce, 97 So.2d 329 (2d D.C.A. Fla. 1957).
140. 169 So. 345 (1st D.C.A. Fla. 1964).
141. Id. at 347.
142. Lawrence v. Eastern Air Lines, 81 So.2d 632 (Fla. 1955); Willis v. Phillips, 147 Fla. 368, 2 So.2d 732 (1941); Seaboard All Fla. Ry. Co. v. Underhill, 105 Fla. 409, 141 So. 306 (1932); Libby, McNeil & Libby v. Roberts, 110 So.2d 82 (2d D.C.A. Fla. 1959); Pearce v. Pearce, 97 So.2d 329 (2d D.C.A. Fla. 1957).
143. Edason v. Denison, 142 Fla. 101, 194 So. 342 (1940); New Homes of Pensacola, Inc. v. Mayne, 169 So.2d 345 (1st D.C.A. Fla. 1964).
144. See 3 Farnham, note supra, at § 889d.

145. Lawrence v. Eastern Air Lines, 81 So.2d 632 (Fla. 1955); Edason v. Denison, 142 Fla. 101, 194 So. 342 (1940); New Homes of Pensacola, Inc. v. Mayne, 169 So.2d 345 (1st D.C.A. Fla. 1964).
146. 314 So.2d 792 (1st D.C.A. Fla. 1975).
147. Id. at 795.
148. Id. at 793.
149. Id. at 794. It is interesting to note that the city of Tallahassee also was sued by Allen but the jury exonerated the city. See also, Breiner v. C & P Home Builders, Inc., 536 F.2d 27 (3d Cir. 1976), modifying 398 F. Supp. 250 (E.D. Penn. 1975).
150. Comment, From Good Husbandry to Reasonable Use: Illinois Surface Water Drainage Law Evolves in Subdivision Case, 52 Chi-Kent L. Rev. 169, 181 (1975).
151. Brumley v. Dorner, 78 Fla. 495, 83 So. 912 (1919) (water diverted onto plaintiff's property by defendant's roadway and ditch).
152. See Prosser, Torts 63 (4th ed. 1971).
153. See Woodland v. Lyon, 298 P.2d 380 (Idaho 1956) (action on the case for consequential injuries to real estate from obstruction of a watercourse).
154. Prosser, Torts 65-68 (4th ed. 1971). Restatement (Second) of Torts § 166 (1965).

155. E.g., *City of Ashland v. Kittle*, 305 S.W.2d 768 (Ky. App. 1957). (negligently installed and maintained culvert); *McGehee v. Tidewater Ry. Co.*, 108 Va. 508, 62 S.E. 356 (1908).
156. See, e.g., *Lawrence v. Eastern Air Lines*, 81 So.2d 632 (Fla. 1955); *Deason v. Southern R. Co.*, 142 S.C. 328, 140 S.E. 575 (1927); *Henry v. Ohio River R. Co.*, 40 W. Va. 234, 21 S.E. 863 (1895).
157. Defuniak, Handbook of Modern Equity 59 (2d ed. 1956).
158. See *Miami Springs v. Lawrence*, 102 So.2d 143 (Fla. 1958).
159. *Koch v. Wick*, 87 So.2d 47 (Fla. 1956) (plaintiff seeking injunction and damages against city in ground water case); *Roughton v. Thiele Kaolin Co.*, 209 Ga. 577, 74 S.E.2d 844 (1953).
160. *New Homes of Pensacola, Inc. v. Mayne*, 169 So.2d 345 (1st D.C.A. Fla. 1964); *Hunt v. Smith*, 238 Iowa 543, 28 N.W.2d 213 (1947); see also *Mader v. Mettenbrink*, 159 Neb. 118, 65 N.W.2d 334 (1954); *Dixon v. City of Nashville*, 29 Tenn. App. 282, 203 S.W.2d 178 (1946).
161. *Harris v. City of Lakeland*, 141 Fla. 795, 193 So. 826 (1940); *City of Lakeland v. Harris*, 143 Fla. 761, 197 So. 470 (1940) (court used balance of convenience doctrine to refuse injunctive relief against

- city); Maloney, The Balance of Convenience Doctrine in the Southeastern States, Particularly as Applied to Water, 5 S.C.L.Q. 159 (1952). The fact that the defendant is a municipality is not necessarily controlling. *Lawrence v. Eastern Air Lines*, 81 So.2d 632 (Fla. 1955).
162. *Miami Springs v. Lawrence*, 102 So.2d 143, 146 (Fla. 1958); *Albany v. Jackson*, 33 Ga. App. 30 125 S.E. 478 (1924).
163. *Miami Springs v. Lawrence*, 102 So.2d 143, 146 (Fla. 1958).
164. *Rouse v. City of Kinston*, 188 N.C. 1,123 S.E. 482 (1924); Kinney, Irrigation & Water Rights § 1144 (2d ed. 1912).
165. *Superior Const. Co. v. Elmo*, 102 A.2d 739 (Md. App. 1954).
166. Restatement (Second) of Torts § 929 (1979).
167. *Labruzzo v. Atlantic Dredging & Const. Co.*, 54 So.2d 673 (Fla. 1951).
168. *Miami Springs v. Lawrence*, 102 So.2d 143 (Fla. 1958); *Archer v. J.S. Compton, Inc.*, 238 Iowa 1182, 30 N.W.2d 92 (1947); *Phillips v. Chesson*, 231 N.C. 566, 58 S.E.2d 343 (1950).

169. Willoughby v. Southern Pac. Co., 83 Cal. App. 2d 414, 188 P.2d 816 (1948); Lewallen v. Davenport, 255 S.W.2d 16 (Ky. App. 1953).
170. Farrow v. Eldred Drainage & Levee Dist., 268 Ill. App. 432 (1932); cf. Cason v. Florida Power Co., 74 Fla. 1, 76 So. 535 (1917).
171. Prosser, Torts 416-17 (4th ed. 1971).
172. Hoffman v. Jones, 280 So.2d 431 (Fla. 1973).
173. 40 So.2d 459 (Fla. 1949).
174. Priestly v. Fowler, 150 Eng. Rep. 1030 (1837).
175. 157 Fla. 4, 24 So.2d 579 (1946).
176. Bray v. City of Winter Garden, 40 So.2d 459 (Fla. 1949).
177. Blackburn v. Dorts, 348 So.2d 287 (Fla. 1977).
178. Prosser, Torts 422-24 (4th ed. 1971).
179. Lloyd v. Lloyd, 60 Vt. 288, 13 A. 638 (1888).
180. Galveston, H. & S.A.R. Co. v. Borsky, 2 Tex. Civ. App. 545, 21 S.W. 1011 (1893).
181. Garrett v. Winterrich, 84 N.W. 1006 (Ind. App. 1908).

182. See Maloney, From Contributory to Comparative Negligence: A Needed Law Reform, 11 U. Fla. L. Rev. 135 (1958).
183. Hoffman v. Jones, 280 So.2d 431 (Fla. 1973).
184. Jackson v. Keller, 95 Ark. 242, 129 S.W. 296 (1910); Hancock v. Stull, 206 Md. 117, 110 A.2d 522 (1955); King v. Cole, 205 Okla. 666, 240 P.2d 88 (1951).
185. Le Brun v. Richards, 210 Cal. 308, 291 P. 825 (1930); accord, Lewallen v. Davenport, 255 S.W.2d 16 (Ky. App. 1953).
186. Higgins v. Spear, 283 S.W. 584 (Tex Civ. App. 1926), aff'd 118 Tex. 310, 15 S.W.2d 1010 (1929).
187. Trespass: Brumley v. Dorner, 78 Fla. 495, 83 So. 913 (1919); Negligence: Missouri, P.R. Co. v. Holman, 204 Ark. 11, 160 S.W.2d 499 (1942).
188. See Fla. Stat. § 95.11 (1979).
189. 102 So.2d 143 (Fla. 1958).
190. Miami Springs v. Lawrence, 102 So.2d 143, 145 (Fla. 1958); accord, Barker v. Fort Worth, 146 Tex. 600, 210 S.W.2d 564 (1948); Southern R. Co. v. Watts, 134 Va. 503, 114 S.E. 736 (1922); Heath v. Texas & P. R. Co., 37 La. Ann. 738 (1885).

191. E.g., Wheeler v. Sanitary Dist., 270 Ill. 461, 11 N.E. 605 (1915); Dugan v. Long, 234 Ky. 511, 28 S.W.2d 765 (1930); Annot., 5 A.L.R.2d 302, 314 (1949).
192. Gabbett v. Atlanta. 137 Ga. 180, 73 S.E. 372 (1911); Gibbs v. Mills, 198 N.C. 417, 151 S.E. 864 (1930).
193. International Paper Co. v. Maddox, 203 F.2d 88 (5th Cir. 1953); City of Clanton v. Johnson, 245 Ala. 470, 17 So.2d 660 (1944).
194. Miami Springs v. Lawrence, 102 So.2d 143, 146 (Fla. 1958); Smith v. Central of Ga. R. Co., 22 Ga. App. 572, 96 S.E. 570 (1918).
195. See, e.g., Voorhies v. Pratt, 200 Mich. 91, 166 N.W. 844 (1918); Naporra v. Weckwerth, 178 Minn. 203, 226 N.W. 569 (1929); Roberts v. Von Briesen, 107 Wis. 486, 83 N.W. 755 (1900).
196. See, e.g., McCracken v. MacNeal, 169 Mich. 414, 135 N.W. 461 (1912) (tile); Naporra v. Weckwerth, 178 Minn. 203, 226 N.W. 569 (1929) (ditch).
197. See, e.g., Peacock v. Stinchcomb, 189 Mich. 301, 155 N.W. 349 (1915).
198. See, e.g., Crumbaugh v. Mobile & O.R. Co., 105 Miss. 485, 62 So. 233 (1913).

199. See, e.g., Darr v. Carolina Aluminum Co., 214 N.C. 768, 3 S.E.2d 434 (1939).
200. Hunt Land Holding Co. v. Schramm, 121 So.2d 697 (2d D.C.A. Fla. 1960); see also 2 American Law of Property § 8.52 (Casner ed. 1952).
201. Hunt Land Holding Co. v. Schramm, 121 So.2d 697 (2d D.C.A. Fla. 1960).
202. Fla. Stat. § 95.12 (1979).
203. Fla. Stat. § 95.11(3)(g) (1979).
204. See Bliss v. Hall, 4 Bing, N.C. 183, 132 Eng. Rep. (1838).
205. East St. Johns Shingle Co. v. Portland, 195 Ore. 505, 246 P.2d 554 (1952); Powell v. Superior Portland Cement, Inc., 15 Wash. 2d 14, 129 P.2d 536 (1942); Barth v. Christian Psychopathic Hospital Ass'n, 196 Mich. 642, 646, 163 N.W. 62, 63 (1917) (dictum).
206. E.g., Martin Bldg. Co. v. Imperial Laundry Co., 220 Ala. 90, 124 So. 82 (1929); McIntosh v. Brimmer, 68 Cal. App. 770, 777, 230 P. 203, 204 (1924) (dictum).
207. 81 So.2d 632 (Fla. 1955); Comment, 9 U. Fla. L. Rev. 228 (1956).

208. E.g., Cain v. Roggero, 28 Del. Ch. 131, 38 A.2d 735 (1944); Susquehanna Fertilizer Co. v. Malone, 73 Md. 268, 20 A. 900 (1890); Forbes v. City of Durant, 209 Miss. 246, 46 So.2d 551 (1950).
209. Campbell v. Seaman, 63 N.Y. 568, 584, 20 Am. Rep. 567, 582 (1875).
210. Walsh, Equity 170-74 (1930).
211. See Georgia R.R. & Banking Co. v. Maddox, 116 Ga. 64, 42 S.E. 315 (1902) (dictum); Sooy v. Giacomucci, 31 Del. Co. 345 (Pa. 1942); Sturges v. Bridgman, 11 Ch. D. 852 (1879).
212. Thornburg v. Port of Portland, 376 P.2d 100 (Ore. 1962).
213. Mandelker, Inverse Condemnation: The Constitutional Limits of Public Responsibility, 1966 Wis. L. Rev. 3, 4.
214. D. Hagman, Urban Planning and Land Development Control Law § 181 (1971).
215. B Amusement Co. v. United States, 180 F. Supp. 386 (Ct. Cl. (1960).
216. Mandelker, Inverse Condemnation: The Constitutional Limits of Public Responsibility, 1966 Wis. L. Rev. 3, 9-10, 21-22.

217. E.g. Portsmouth Harbor Land & Hotel Co. v. United States, 260 U.S. 327 (1922); McNeil v. City of Montague, 268 P.2d 497 (Cal. 1954).
218. Patterson v. Horsefly Irr. Dist., 69 P.2d 282, 70 P.2d 36 (Ore. 1937).
219. Yazel v. United States, 93 F. Supp. 1000 (Ct. Cl. 1950); Braswell v. State Highway & Pub. Works Comm'n, 108 S.E. 2d 912 (N.C. 1959).
220. 13 Cal. 3d 710, 119 Cal. Rptr. 625, 532 P.2d 489 (1975).
221. Id. at 493.
222. 19 Wash. App. 220, 577 P.2d 583 (1978).
232. 48 Ohio St. 2d 334, 358 N.E.2d 596 (Ohio 1976).
224. Poe v. State Road Dept., 127 So.2d 898 (1st D.C.A. Fla. 1961).
225. 109 So.2d 591 (Fla. 1959).
226. Id. at 593.
227. 213 So.2d 23 (4th D.C.A. Fla. 1968).
228. Id. at 26-7.
229. Id. at 27. See also Elliott v. Hernando County, 281 So.2d 395 (3d D.C.A. Fla. 1973); Thompson v. Nassau County, 343 So.2d 965 (1st D.C.A. Fla. 1977).

230. Fla. Stat. § 170.01 (1979).
231. Fla. Stat. § 170.03 (1979).
232. Fla. Stat. § 166.411(1)(5)(6)(8) (1977). All municipalities must notify DER or the governing board of a water management district prior to exercising that power. Id. at § 373.023(3) (1979).
233. Fla. Stat. § 166.021(1) (1977).
234. See Juergensmeyer & Wadley, I Florida Land Use Restrictions §§ 13.01-13.09 for a detailed discussion of municipal flood plain zoning, including an examination of the taking issue in this regard. See also Maloney & Dambley, The National Flood Insurance Program, 16 Nat. Res. J. 665 (1976).
235. Fla. Const. Art. viii, § 1 (g) (1968).
236. Fla. Const. Art. viii, § 1 (f) (1968).
237. Fla. Stat. § 125 .01 (j) (1979).
238. An extensive list of Florida local government ordinances related to surface water runoff control has been compiled in (analysis of) Laws Relating to Florida Coastal Zone Management, a publication of the Center Governmental Responsibility University of Florida, Holland Law Center (1976).
239. E.g., Melbourne Village, Florida, Article viii,

§ 18-73 (adoption date unknown); Neptune Beach, Florida, Ordinance #20-21 (adoption date unknown); Port Charlotte, Florida, Ordinance #17-31 (adoption date unknown).

240. E.g., Citrus County, Florida, Plat Requirements, Amended December 21, 1976.
241. E.g., City of Archer, Florida, Ordinance #11-34 (adoption date unknown).
242. Id.
243. E.g., Escambia County, Florida, Ordinance #73-10 (adopted May 10, 1973); Okaloosa County, Florida, Ordinance #74-3 (adopted March 7, 1974); Pensacola, Florida, Ordinance #11-75, (adopted March 27, 1975; Boca Raton, Florida, Ordinance #2351 (adopted March 22, 1977)).
244. Id. See also, Leon County, Florida, Ordinance #73-10 (adopted 1973). However, Leon County has drafted a new ordinance to supercede 73-10, entitled "Storm-water Management." If enacted, the new ordinance will control water quality as well as quantity. Recommendations in the draft proposal include use of natural and structural storage and detention areas; use of vegetation belts at construction sites; and implementing primary and secondary systems for control of surface water runoff.

245. E.g., Gainesville, Florida Code, Chapter 30 (1973).

246. 42 U.S.C. §§ 4001 et seq. (Supp. 1977).

Congress has passed an amendment to the Flood Disaster Protection Act of 1973 that greatly reduces the incentives for a community to enter the NFIP. The amendment is a part of the Housing and Community Development Act of 1977 (Act of October 12, 1977, Pub. L. No. 95-128, 91 Stat. 1111) and would allow private lending institutions [banks, savings and loan associations, etc.] to make mortgage loans in communities that had not entered the program as long as they notified the purchaser that he was building in a flood plain. However, if a community chose to enter the program so that its residents could obtain flood insurance, the community would still have to adopt a flood plain ordinance complying with the federal regulations.

247. "Management of Stormwater as a Non-Point Source in Urban and Urbanizing Areas", at VI-9, in Legal and Institutional Approaches to Water Quality Management Planning and Implementation, EPA Publication pursuant to contract No. 68-01-3564 (March, 1977).

248. E.g., Escambia County, Florida, Ordinance #73-10 (adopted May 10, 1973); Okaloosa County, Florida, Ordinance #74-3 (adopted March 7, 1974).

249. E.g., Pensacola, Florida, Ordinance #11-75 (adopted March 27, 1975); Boca Raton, Florida, Ordinance #2370 (adopted May 10, 1977).
250. E.g., Escambia County, Florida, Ordinance #74-6 (adopted May 30, 1974).
251. E.g., Tampa, Florida, Code, Chapter 35, §§ 35-59, 35-71, 35-75, 35-88.
252. E.g., Melbourne Village, Florida Code, Chapter 18, § 18-73; Tampa, Florida, Code, Chapter 35, § 35-59.
253. E.g., North Point, Florida, Code, Chapter 17, § 17-31; Tampa, Florida, Code, Chapter 35 § 35-59.
254. E.g., North Point, Florida Code, Chapter 17, § 17-31; Neptune Beach, Florida Code, Chapter 20, § 20-21; Melbourne Village Code, Chapter 18, § 18-73; Tampa, Florida Code, Chapter 35, § 35-39. Suggested techniques include vegetation belts or silt retention barriers (Pensacola, Florida, Ordinance #11-75 § 3 (A)) for structures exempted from drainage plans; also, permanent vegetative cover on all man-made retention surfaces (Leon County, Florida, draft Ordinance § 12 (C)(3) (1977)).
255. E.g., Tampa, Florida Code, Chapter 35, § 35-88.
256. E.g., Tampa, Florida Code, Chapter 35, § 35-59; North Point, Florida Code, Chapter 17, § 17-31.

CHAPTER VI

SUBMERGED LANDS AND WATER BOUNDARIES

A. Introduction

An eminent water law authority made the following statement at the beginning of this century:

Of all the difficult questions which have arisen in the application of the law involving water rights, there is none which has produced more uncertainty, caused greater conflict of opinion or produced more diverse results than that relating to the title to the land under the waters. 1

The truth of this quotation is nowhere more apparent than in Florida where the already confused common law is further complicated by old Spanish law, numerous statutes, and the activities of various administrative agencies. The result is a body of law which requires lengthy explanation and, even then, defies any real degree of certainty.

B. Basic Considerations

1. General Historical Development

Florida was proclaimed a territory of Spain in the year 1513, after Juan Ponce de Leon landed near what is now known as St. Augustine.² Subsequently, Spanish settlements grew up and the civil law of Spain became the recognized law, except as modified by local ordinance.

For the brief period, 1763 to 1783, the Floridas, as the territory was then known, were under the dominion of Great Britain. By English royal proclamation, the territory east of the Apalachicola River was called East Florida and the territory west of that river was called West Florida. After Florida reverted to Spain under the Treaty of Paris of 1783, these

designations were retained.³

The Spanish dominion over the territory continued until 1821 when Spain ceded all Florida lands it then owned to the United States. After the withdrawal of the Spanish authority, the sovereignty of the United States extended to all lands in the ceded areas, whether owned by the United States or by individuals. The rights of the Indians occupying the territory at that time were settled through treaties between the United States and the chiefs of the Indian tribes, such rights being tribal rather than individual.⁵ Finally, in 1845 the State of Florida was formed by Act of Congress, with all consequent rights of sovereignty of a state in the Federal Union.⁶

2. Sources of Titles to Submerged Lands in Florida

In view of the diverse sovereignty Florida was subject to, it should not be surprising that the sources of land titles in Florida, including titles to submerged lands, are also diverse. In general, titles in Florida are predicated upon one or more of the following sources:⁷ (1) Spanish grants to individuals made prior to January 24, 1818, when negotiations between Spain and the United States were commenced, and recognized or confirmed by the United States pursuant to the Treaty of Cession of 1821; (2) grants or patents from the United States to the Territory of Florida or to the State of Florida or to private owners, of lands ceded by Spain to the United States; (3) grants or conveyances from the State to individuals of lands granted, patented, or approved to the State by the United States under

various acts of Congress; and (4) grants of lands under bodies of navigable water (tidal and nontidal) belonging to the state by virtue of its being admitted into the Union on an equal footing with the original thirteen states.⁸ Because of these various sources of title to land in Florida, including submerged lands, it is necessary to examine prior law to ascertain the status of titles to submerged lands today. However, before developing the historical perspectives of submerged land ownership in Florida, a few introductory comments may serve to clarify the detailed discussion that will follow.

First, it is important to recognize that the issue of ownership of submerged lands often involves the question of whether certain water bottoms are susceptible to private ownership or whether they are imbued with a public entitlement, specifically administered by the state in the interests of all its citizens.⁹ As discussed below, the public ownership of submerged lands under both the civil and common law systems has been dependent generally on the navigability of the waterbody under which the lands are situated. The concept of "navigability," therefore, is inextricably related to the question of who owns particular submerged lands.

A second point to note is that the concept of navigability is used for two other distinct legal purposes other than for determining title to submerged lands. Navigability is also the basic criterion for determining locational admiralty jurisdiction and for asserting regulatory controls over use of certain

waters and adjacent uplands. The existence of distinctive tests for navigability makes it possible for a waterbody to be both legally navigable under one test and nonnavigable under another. Such a situation has occurred with Utah's Great Salt Lake. The Lake was declared navigable in 1971 under the federal navigability test for title purposes¹⁰ and declared nonnavigable three years later under the federal regulatory test of navigability.¹¹

Much confusion of these issues has often been generated by the unfortunate practice of loosely defining public ownership and navigability in terms of the other. Thus, "public waters" are defined as those which are navigable and "navigable waters" are defined as those upon which public ownership and use may be asserted - definitions that chase their own tails. As if the situation was not complicated enough, many states have formulated their own legal definitions of navigability in addition to the federal definitions.

Once the correct navigability test is selected and its application to a specific body of water results in a finding of navigability and the resultant public ownership of the submerged bed, another related legal concept arises - the public trust doctrine. This doctrine, most simply, sets forth the rights and responsibilities which flow from public ownership of submerged lands.

3. Spanish Grants - Title to Water Bottoms Under the Civil Law

When Spain acquired territory in the Floridas, the civil

law was Spain's recognized law. With respect to its possession however, the Crown could and often did exercise its own discretion. In addition, ordinances and edicts that had the force of law were promulgated to be observed in the Spanish provinces in America. Thus, the civil law in force in Spain was applicable in the Spanish possessions only if and to the extent that local ordinances and edicts did not vary it.¹²

The Indians residing in the Floridas at that time had title to the lands they occupied, such title being predicated on Crown recognition.¹³ But they had no greater title to lands below high-water mark in navigable waters or to tidelands than was possible in Spain where the title to such lands was held by the Crown for the benefit of the public.¹⁴

a. The Navigability Concept Under Civil Law

The Spanish concept of navigability can be traced to the Roman origins of the civil law. The first known codification of what may be called "water law" was in the great Roman legal work, Corpus Juris Civilis compiled under the auspices of Emperor Justinian in the Sixth Century A.D.¹⁵ Although the Roman Law on navigability was not absolutely clear, a few passages from the Digest, a 50-volume codification of legal writings and one of the four main components of Corpus Juris Civilis,¹⁶ suggests that navigability was determined by a river's capacity to support commercial traffic, including rafts.¹⁷ As discussed later, this test is strikingly similar to the present federal navigability test for title purposes.¹⁸

b. Public Water Rights Under Civil Law

i. Seas and Bays

The civil law applicable to the Floridas provided that the navigable waters of seas and tidal bays and the lands thereunder were held by the Crown for public common use. Correspondingly, sales and grants of the beds of tidal waters, the ribera del mar, and ports, the puerto, by the Indians or the Crown to individuals were contrary to the general laws and customs of the realm.¹⁹ Unless an ordinance or edict provided otherwise, a conveyance of land under the navigable waters of the sea or bays to private ownership could be consummated only by a clear showing of express sovereign intent,²⁰ such conveyances being strictly construed against the grantee for the protection of the public.²¹ Moreover, a grant of land under such navigable waters would not exclude the public use of the lands and waters and the natural products thereof, except and until the lands were reclaimed and improved for other useful purposes.

ii. Public Rivers

With respect to beds of public fresh-water rivers, however, the general Spanish law did not deem it inconsistent for them to be privately owned. Still, the public retained the right to traverse such rivers, and they were free to moor their boats or vessels to the privately owned shores. Furthermore, landowners were forbidden to remove trees or posts customarily used by the public for this purpose.²²

iii. Lakes

In the case of public lakes, ownership was generally retain

by the sovereign or was vested in a community, or pueblo.²³ In either case, all members of the public, including strangers to the pueblo, were entitled to use the lake for boating. If ownership was in a pueblo, it had the right to control fishing in the lake.²⁴ Lakes not continuously fed by running water were susceptible of private ownership and could be conveyed in the same manner as other types of private property; but if they had water the year round, they were subject to a servitude of navigation and the public was entitled to use them for boating.²⁵ If the waterbody dried up completely during the dry season, it was not technically classified as a lake and no public rights of use inhered in it.²⁶

It seems clear, then, that Spanish law did not consider it inconsistent for the bottoms of certain lakes to be held in private ownership while members of the public retained the right to use the waters. A royal proclamation of 1541 applicable to the Floridas provided that "all ... waters in the provinces of the Indies, [shall] be common to all the inhabitants thereof, present and to come, and that they may freely enjoy the use of them...."²⁷ Again, this proclamation was apparently not thought to be inconsistent with the conveyance of the bottoms of many Florida lakes to private individuals as parts of land grants from the sovereign.

c. Status of Spanish Grants Today

When Spain ceded the Floridas to the United States, the Treaty of Cession expressly provided that all grants of land made before January 24, 1818, by lawful Spanish authorities "shall be ratified and confirmed to the persons in possession of the

lands, to the same extent that the same grants would be valid if the territories had remained under the dominion of his Catholic Majesty."²⁸ This provision in the Treaty has been interpreted by Florida courts as recognizing prima facie validity of all prior Spanish grants.²⁹ Accordingly, it is important to ascertain the status of the civil law as it applied to the Floridas, since only the title and rights to which private landowners were entitled under the civil law were accorded to landowners deriving their ownership through confirmed Spanish grants.³⁰

Thus, an 1817 grant of waterfront property and land under Pensacola Bay by a Spanish official for the purpose of constructing wharves and bathhouses was held invalid in Sullivan v. Richardson.³¹ In interpreting the grant, the Supreme Court of Florida examined the civil law in effect in West Florida at the time of the grant which provided that the waters of the sea and the shore were subject to common use by the general public and could not be owned privately unless expressly authorized by the King of Spain.³² Although the grant was viewed as prima facie valid, the court concluded that it granted only the right of use for the stated purposes because the Spanish official was not authorized to convey land into private ownership below the mean high water mark.³³ The grantee, therefore, could not exclude the public from fishing, drawing and drying nets, navigation and other rights which they might enjoy.³⁴ This interpretation accords with the rights held by a title holder to submerged lands of

a bay under the civil law as it was applied to the Floridas before the Treaty of Cession.³⁵

In another case involving the title to submerged lands under navigable waters of a bay of the Gulf of Mexico, the Supreme Court of Florida found that only possessory rights were conveyed when property occupied by Indians was ceded to a private individual by the Indians and confirmed by the Spanish Crown.³⁶ Under the laws of Spain in effect in the Floridas at the time of the 1811 Indian-Spanish grant, the Indians had only possessory rights in land³⁷ and the navigable waters and bays were held by Spain for public common uses of navigation, fishing, bathing or similar other public uses.³⁸ Applying the civil law of the Floridas prior to the Treaty of Cession, the court determined that the Indians conveyed merely a possessory right to uplands and not a right of private ownership, despite language in the grant purporting to vest full title.³⁹

Although the Treaty of Cession appeared to require actual physical possession of the land which was the subject of a Spanish grant for confirmation of its validity, subsequent decisions of the United States Supreme Court established that the requirement of physical possession only applied to a particular class of Spanish land grants. There were three classes of land grants that were applicable to the Floridas: absolute grants for services already performed; grants for services yet to be performed; and gratuitous grants, of moderate size, for the purposes of actual occupation and cultivation.⁴⁰ The grants for services were held not to require physical possession to be validated under the Treaty of Cession.⁴¹ Spanish land grants for occupatio

and cultivation, however, were invalid in the absence of physical occupation, since physical occupancy was a condition precedent to obtaining fee simple ownership under Spanish law as applied to the Floridas.⁴²

4. Sovereignty Lands - State Acquisition of Title from the Federal Government

After the Treaty of Cession was ratified in 1821, the United States acquired the ownership of all lands in the Floridas from Spain, including high lands, swamps and overflowed lands, submerged lands and tidelands, that had not been conveyed or granted to private ownership prior to January 24, 1818.⁴³ When examining the law of submerged land ownership, it is important to distinguish what are commonly referred to as swamp and overflowed lands.

Lands under navigable waters were granted to the state of Florida upon admission into the Union in 1845 under the equal footing doctrine.⁴⁴ Florida's swamp and overflowed lands, however, remained in United States ownership until 1850 when all such lands which had not been previously conveyed were granted to the state by the Swamp and Overflowed Lands Act which was enacted to facilitate the drainage and reclamation of these lands, primarily for cultivation.⁴⁵ Swamp and overflowed lands within the meaning of the Act did not include any lands below navigable waters or tidelands.⁴⁶ Because of Florida's unique topography, the state became the owner of more than 20 million acres of swamp and overflowed lands pursuant to the act.⁴⁷ Under state law, title to these lands was vested in the Trustees of the Internal Improvement Fund composed of the Governor and members of his Cabinet and

could be conveyed into private ownership subject to only a few minor conditions.⁴⁸

C. Navigability Under Federal Law

1. Common Law Roots

English common law is the predominant heritage of the American legal system and this holds true in regard to the concept of navigability. Early American jurists, however, frequently misconstrued the water law of England.⁴⁹ Thus, it was often stated by American courts in the early nineteenth century that navigability under the common law and thus, Crown ownership of the bed, was synonymous with tidal waters.⁵⁰ In fact, many nontidal streams in England were and still are navigable in fact and were recognized as such.⁵¹ Interference with nontidal navigable waters by weirs or other obstructions was prohibited⁵² and certain nontidal rivers were declared navigable by statute.⁵³

The confusion of American jurists can be at least partly excused by the English fragmentation of water law among several branches of law and the failure of English cases to clearly distinguish the related issues of public ownership and use.⁵⁴ Ironically, the English common law of navigability was interpreted and adopted by the American courts long before it had actually been settled in England. By 1868, English law declared that the tidal nature of a waterbody constituted a prima facie case for sovereign ownership of the underlying bed while public use was tied to navigability in fact.⁵⁵

2. The Development of The Concept of Navigability in America

During the early nineteenth century, when the state courts were attempting to develop their own law of navigability for purposes of determining title to submerged lands, the federal courts were silent on the issue. Some states, following what was believed to be the common law, at first adopted a test of navigability for ownership and regulation based on whether the tide ebbed and flowed in a particular watercourse.⁵⁶ Eventually most states rejected the so-called ebb-and-flow test for regulatory purposes in favor of navigability in fact.⁵⁷ It often remains unclear, however, which test of navigability is applied by these states for purposes of determining title to submerged lands.⁵⁸ In some jurisdictions state ownership extends to all lands subject to the tide, while in others such rights depend upon the actual navigability of a watercourse. In some of these latter states, however, a finding of tidal effect raises a presumption of navigability and state ownership.⁵⁹

In 1842, the United States Supreme Court began to establish federal law on the subject of submerged bed ownership in Martin v. Waddell,⁶⁰ a case involving mudflats in the Raritan River in New Jersey. There, it was held that ownership of lands below navigable waters was derived from Crown sovereignty under the English common law⁶¹ and that upon becoming free of English rule, the original thirteen states succeeded to the ownership of such lands.⁶² Moreover, the title to such lands was not ceded to the United States government upon formation of the

Union in 1776.⁶³

Three years later in Pollard's Lessee v. Hagan,⁶⁴ it was held that the other states were admitted to the Union on an "equal footing" with the original thirteen states and therefore took title to submerged lands below navigable waters upon admission - the so-called "equal footing doctrine."⁶⁵ Although both Martin and Pollard's Lessee involved tidal waters, the equal footing doctrine was soon applied by the United States Supreme Court to inland navigable waters and their submerged lands as well.⁶⁶ Despite the fact that navigability was thus established as a key element in the designation of sovereignty submerged lands, the concept of navigability for title purpose had been left undefined by these two landmark cases.

At the time that the decision in Pollard's Lessee was rendered, the United States Supreme Court had only taken the first tentative steps towards establishing the concept of navigability for locational admiralty jurisdiction and federal regulatory jurisdiction under the commerce clause. The definition of navigable waters in these contexts was still quite uncertain. In fact, the only specific elaboration of the federal navigability concept up to this time was that navigability was not confined to tidal waters but could include inland non-tidal waters as well.⁶⁷

All of the Supreme Court cases that have dealt directly with the question of navigability for title purposes, of which there are only a few,⁶⁸ were decided much later than Martin and Pollard's Lessee and the cases addressing navigability in

other contexts. The definition of "navigability for title" consequently was drawn heavily from earlier decisions that had dealt with navigability as a component of admiralty and federal regulatory jurisdiction, most notably The Daniel Ball.⁶⁹ Thus while The Daniel Ball was an admiralty case, its definition of navigability was consistently adopted as the test for determining which submerged lands passed to the states upon their entering the Union.⁷⁰

The Daniel Ball involved an action by the United States against the owner of a transport steamer for failure to obtain a license required of all commercial vessels operating on "the bays, lakes, rivers, or other navigable waters of the United States."⁷¹ The owner alleged that the Grand River in Michigan was not a navigable water of the United States and thus the question of navigability was squarely before the Court. Speaking for the Court, Justice Field stated:⁷²

Those rivers must be regarded as public navigable rivers in law which are navigable in fact. And they are navigable in fact when they are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water.

The "navigable in fact" standard thus had its origin.

3. Navigability In Fact

The navigable in fact standard described in The Daniel Ball was clarified and specifically applied as the federal law of submerged land titles in United States v. Holt State Bank.⁷³ The case involved title to the bed of Mud Lake in Minnesota which the defendants claimed had passed to the state because Mud Lake was navigable. The United States, however, claimed

that Mud Lake was never navigable and that the bed title had remained in the United States.⁷⁴ The lower courts reviewing the case had found the lake navigable under Minnesota law and had thus ruled in favor of the defendants.

After first rejecting the proposition that the application of local law rather than federal law was appropriate,⁷⁵ Justice Van Devanter attempted to explain how the Supreme Court interpreted the phrase "navigability in fact." Streams or lakes are navigable in fact, stated Van Devanter,⁷⁶

when they are used, or are susceptible of being used, in their natural and ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade or travel on water; and further that navigability does not depend on the particular mode in which such use is or may be had - whether by steamboats, sailing vessels or flatboats-nor on an absence of occasional difficulties in navigation, but on the fact, if it be a fact, that the stream in its natural and ordinary condition affords a channel for useful commerce.⁷⁷

The latter part of this definition afforded the Court its basis for finding Mud Lake navigable despite intermittent difficulty in its use for trade or travel.

In seasons of great drought there was difficulty in getting boats up the river and through the lake, but this was exceptional Sand bars in some parts of the lake prevented boats from moving readily all over it, but the bars could be avoided by keeping the boats in the deeper parts or channels.⁷⁸

The concept of navigability-in-fact as it was first articulated in The Daniel Ball and later expanded in Holt State Bank and other Supreme Court decisions involves five factual elements required to prove title navigability. First, the waterbody must be "susceptible of being used" for navigation. It is capacity use, then, that must be shown and not actual use. Second, the susceptibility must involve navigation "for commerce." Third,

a navigable waterbody must be susceptible to navigation for commerce under natural conditions. "Occasional difficulties in navigation," however, will not preclude a finding of navigability. The fourth required factual element is that the commercial navigation be by "customary modes of trade and travel on water." The fifth and final element of navigability-in-fact is the requirement that the other four factual elements be applied to the waterbody as of the date of statehood.⁷⁹

When the title question arises some years after statehood and changes in the natural physical characteristics of the waterbody have occurred - an almost certain likelihood - obvious difficulties are faced in meeting the evidentiary requirements of the title navigability test. This difficulty is somewhat alleviated by the Court's willingness to accept evidence of navigability at other times as sufficient to show a susceptibility for navigation on the date of statehood.⁸⁰

The commercial use required to prove title navigability need not involve interstate trade as is required for the exercise of commerce clause regulatory authority over activities on a waterbody.⁸¹ Thus, the Great Salt Lake in Utah was found navigable for title purposes⁸² but non-navigable under the federal regulatory test because its waterborne traffic was not engaged in interstate commercial activity.⁸³ The Supreme Court has also indicated that suitability for commercial navigation can be proven by the personal or private use of boats upon the water. In Utah v. United States,⁸⁴ it was urged that a rancher's transport of cattle and sheep between the mainland and an island in the Great Salt Lake for grazing was not the carrying of waterborne freight contemplated in the navigability

for title test.⁸⁵ The Court disagreed, however, labeling the distinction "an irrelevant detail."⁸⁶ The "gist of the federal test" was simply whether the waterbody in question was a highway - used to get from one point to another.⁸⁷

There is another aspect of the federal navigability for title test that distinguishes it from the test for regulatory jurisdiction in addition to the latter's requirement that interstate trade be proven. It involves the effect upon navigability brought about by the existence of artificial improvements such as channelization or the construction of a dam. In the determination of a waterbody's navigability for the purpose of designating bed title ownership, the artificial improvement of the waterbody must be discounted.⁸⁸ In other words, a waterbody that is navigable only because artificial (man-made) improvements caused it to be navigable and would otherwise have been non-navigable under natural conditions, is non-navigable under the federal title test.⁸⁹

D. The Choice of Law Issue

Before any federal decision was rendered which suggested that the test of navigability to determine whether a waterbody passed to the state upon entering the Union was a question of federal law, state courts were confidently creating their own definitions of navigability for purposes of designating who held title to the beds of lakes and rivers in their own jurisdiction. As a consequence, several different state tests came into existence.⁹⁰ Minnesota⁹¹ and North Dakota,⁹² for example, adopted a test for navigability that included use by pleasure boats. In the 1899 Iowa decision, title to lake beds was held to be in the

state regardless of factual navigability.⁹³ There were also states whose courts had rejected the early federal concept of navigability restricted to tidal waters and had recognized certain non-tidal waters to be navigable as well.⁹⁴ In other states, a definition of navigability was adopted which was quite similar to the federal test but there was no apparent recognition of the relationship between the two.⁹⁵

This situation was not unexplainable, since the state courts would not be expected to cede state law jurisdiction unless the United States Supreme Court made it clearly necessary. In fact, the Supreme Court was doing the opposite. Early decisions of the Court appeared to recognize some exclusive state prerogative in certain cases dealing with the title to submerged beds.⁹⁶ Nevertheless, a series of cases from the Supreme Court beginning in 1922 stated in no uncertain language that the definition of navigability, to be used for the purpose of determining which submerged lands passed into state ownership at the time of statehood, must be ascertained by reference to federal law only.⁹⁷

In United States v. Holt State Bank,⁹⁸ the federal government had brought suit to quiet title in itself to the bottom of Mud Lake in Minnesota, which had been drained dry subsequent to Minnesota's entry into the Union. Defendants claimed to have succeeded to the rights of the state by virtue of state law which gave title to navigable lake bottoms to the surrounding riparian owners. Thus a controlling issue was whether title to

the lake bed had passed from the federal government to Minnesota upon the grant of statehood, an issue which of course turned on the navigability of the lake at the time of statehood. The Court said:

Both courts below found that the lake was navigable. But they treated the question of navigability as one of local law to be determined by applying the rule adopted in Minnesota. We think they applied a wrong standard. Navigability, when asserted as the basis of a right arising under the Constitution of the United States, is necessarily a question of federal law to be determined according to the general rule recognized and applied in the federal courts.⁹⁹

The basis for the rule stated above was explained in another of the cases in this series of federal decisions on the proper choice of law.¹⁰⁰

Since the effect upon the title to such lands is the result of federal action in admitting a state to the Union, the question, whether the waters within the State under which the lands lie are navigable or non-navigable, is a federal, not a local one.

Following these Supreme Court decisions, the state courts began to conform substantially with the federal cases on title navigability.¹⁰¹ In a title dispute between a grantee of the federal government and the State of Minnesota with respect to a lake bottom, the Minnesota Supreme Court carefully noted that the issue was the navigability of the lake at the time of statehood, and as such presented a federal question governed by the federal standards of navigability.¹⁰² The court expressly refused to apply its own test which had made the state one of the most forthright proponents of a recreational-use test of navigability.¹⁰³ It also refused to reconcile the two standards,

since the court found them irreconcilable.¹⁰⁴ In a subsequent case, State v. Adams,¹⁰⁵ in which Minnesota claimed title by virtue of the statehood grant, the Minnesota court reaffirmed its application of the federal rule to such issues over the strenuous argument of the Attorney General on rehearing.

Few state court decisions leave any remaining doubt about their recognition that the federal test of title navigability is controlling.¹⁰⁶ An exceptional case from the South Dakota Supreme Court,¹⁰⁷ however, used a pleasure boat test to find a lake navigable and owned by the state despite the fact that the lake was commonly dry and had never been used for commerce.

No federal case has yet articulated the proper roles of the federal and state tests for title navigability when they are inconsistent with one another. The federal courts have only made it clear that the federal test will determine which submerged lands passed to the states under the public trust doctrine. Exclusive use of the federal test of navigability to identify such lands appears both logical and necessary. A contrary doctrine would permit a state to divest the United States involuntarily of submerged lands which it had not intended to hold in trust for the state.¹⁰⁸

However, state laws concerning title to submerged lands and associated property rights in the use of navigable waters may still play a proper role even when they differ from federal law. In the case of United States v. Oregon,¹⁰⁹ in which the Supreme Court reaffirmed the rule that federal

law will control what submerged lands pass to the state upon statehood, the Court had also noted:

In construing a conveyance by the United States of land within a State, the settled and reasonable rule of construction of the State affords an obvious guide in determining what impliedly passes to the grantee as an incident to land expressly granted.¹¹⁰

Although the Court held in this case that the waterbody in question was non-navigable and its bed was therefore not granted upon statehood, the Court recognized that state law would be applicable after the state had properly received title to a waterbody found navigable under federal law. A similar holding was recently reached in Oregon v. Corvallis Sand and Gravel Co.,¹¹¹ which involved the roles of federal and state law concerning the title boundaries of navigable waterbodies. There, the Supreme Court said:

Once the equal footing doctrine had vested title to the riverbed in [the state] as of the time of its admission to the Union, the force of that doctrine was spent; it did not operate after that date to determine what effect on titles the movement of the river might have.¹¹²

The result is that a state with a navigability test that is narrower than the federal test could declare certain waterbodies non-navigable despite the fact that they were acquired at statehood by the state because they were navigable under federal law.¹¹³ If the state bed title test was broader than the federal test, certain submerged lands below non-navigable waters that were patented to the state by the United States could arguably be classified as navigable water bottoms by the state. Swamp and overflowed land patents from the United State

to the states could include lands which the broader state test would identify as navigable for bed title purposes. While the federal government may not have held these lands in trust for the future state, the new state, upon acquisition of the lands by the swamp and overflowed lands grant, might use its own test to hold such lands in the same trust capacity.¹¹⁴ Thereafter, grants of swamp and overflowed lands out of the state to private individuals may be subject to the state's bed title test which would act to carve out its navigable waters from the swamp and overflowed lands grant.¹¹⁵

It would even be possible for a state to declare certain waters navigable though their beds were in private ownership as a mechanism for allocating usufructuary water rights between the general public and the private bed owner.¹¹⁶ The public may thus retain a right to swim, fish and boat upon waters whose bottom is privately owned because the waters were classified by the state to permit limited public use. Whether the term "navigable waters" is used as a label for this classification would not be important. The same criteria could be applied under a classification labelled "public interest waters" or "state special use waters" or by any number of designations.

E. Navigability Under Florida Law

1. Development of the Florida Bed Title Test

The issue of navigability was first considered by the Florida Supreme Court in Bucki v. Cone,¹¹⁷ an 1889 decision involving the Suwannee River. The court noted that all rivers in Florida are regarded as navigable,

as far as they may be conveniently used at all seasons of the year with vessels, boats, barges, or other water craft, for purposes of commerce [W]hat constitutes a navigable river, free to the public, is a question of fact, to be determined by the natural conditions in each case. A stream of sufficient capacity and volume of water to float to market the products of the country will answer the conditions of navigability ... whatever the character of the product, or the kind of floatage suited to their conditions [I]t is not essential ... that the stream should be continuously, at all seasons of the year, in a state suited to such floatage.¹¹⁸

In Bucki, the Suwannee River was found to be navigable largely because of its ability to float logs, a product of the area it traversed.¹¹⁹ The case did not directly involve title to any portion of the submerged bed of the Suwannee River, but rather, concerned the question of an alleged unreasonable use of the waters. However, as will be discussed shortly the navigability criteria for public use and those for determined bed title may be identical in Florida, as public use has been made to depend upon state ownership of the underlying bed.

Later, in 1909, the Supreme Court of Florida decided Broward v. Mabry,¹²⁰ a case involving title to the bed of Lake Jackson in Leon County. During ordinary water levels

most of the lake could be navigated only by flat-bottomed boats drawing no more than six inches of water. Large portions of the lake bottom were dried out for such long periods of time that crops were planted and harvested there. Nevertheless, the court held Lake Jackson to be navigable. The fact that the lake went dry at times did not strip it of navigability since it was still considered navigable in its ordinary condition for uses common to the community.¹²¹ Broward v. Mabry also established that Florida's test of title navigability was to be based on potential use for commerce rather than commercial history:

Whether the lake has been used for commercial purposes or not is immaterial, if it may be made useful for any considerable navigation or commercial intercourse between the people of a large area.¹²²

Present capability for use does not include an artificially created capability under Florida law. In Clement v. Watson,¹²³ the plaintiff brought a tort action against the defendant landowner for excluding him from fishing in certain tidal waters off the coast of Dade County. The area in question was a cove surrounded by the defendant's upland property on three sides. A sandbar ran across the mouth of the cove and was exposed at low tide but covered at high tide. The previous owner, however, had dredged a channel through the sandbar and a small basin for his yacht to lay in at low tide. The plaintiff argued for the English rule that all waters subject to the ebb and flow of the tide were navigable but the Court rejected this approach in favor of

the navigable-in-fact test.¹²⁴ The court added that title navigability did not extend to lands "such as mud flats, shallow inlets, and low lands covered more or less by water permanently or at intervals, where the waters are not in their ordinary state useful for public navigation."¹²⁵ It concluded that the waters in the cove were not navigable in their ordinary state although they may have been made so by dredging the channel through the sandbar. Consequently, the defendant was justified in excluding the plaintiff from fishing in the cove.

Language from a number of Florida cases seems to indicate that a non-commercial use of a waterbody could establish title navigability. For example, in Clement v. Watson, supra, and Baker v. State,¹²⁶ the Florida Supreme Court defined navigability in terms of "useful purposes," implying a willingness to include something other than commercial boating in the bed title test. A dissenting opinion by Justice Ervin in Silver Blue Lake Apts. v. Silver Blue Lake Homeowner's Assoc., Inc.,¹²⁷ suggested that a recreational use test would be appropriate and concluded that general recreational use of a lake was sufficient to bring into question the lower court's finding that the lake in question was non-navigable.¹²⁸ The majority of the court did not reach this issue because a restrictive clause in the defendant's deed was considered determinative of the parties' legal rights in regard to the use of the lake.

Despite Justice Ervin's belief that a recreational use

test was the "forward trend of the law" in Florida and elsewhere, a more recent decision of the Florida Supreme Court would indicate otherwise. In Odum v. Deltona Corp.,¹²⁹ the high court adopted the lower court opinion which had stated in part:

Some dicta would suggest that not merely commerce or travel must be an actual or adaptable use but that general recreational capacities may constitute a body as navigable. However, a closer study of the cases does not reveal an inconsistency with the federal title test, but rather the references to recreational uses are that such uses may be made in bodies of water which are in fact navigable for commercial or travel purposes.

* * * * *

A suggestion was made in Justice Ervin's dissent in Silver Blue Lake ... that a recreational test may be the more enlightened rule and that a recreation oriented state like Florida might well be so persuaded. However, this opinion did recognize that Florida had not yet adopted such a test.¹³⁰

The opinion of the supreme court in Odum made no specific reference to these statements but did assert that "Florida's test for navigability is similar, if not identical, to the federal title test."¹³¹

Although there are a few Florida decisions that de-emphasize the commercial use criterion, there is a greater number of cases that describe commercial use as a necessary element of Florida's bed title test, including the recent Odum decision. Thus, Florida has not allowed recreational uses, standing alone without evidence of commercial capacity, to establish title navigability, despite the fact that some

courts and commentators have suggested that a recreational use test would be appropriate.¹³²

Regardless of the Florida's apparent allegiance to the commercial use criterion for determining title navigability, the focus of both the federal and state courts upon susceptability for commercial use rather than actual commercial use considerably broadens the concept of navigability and eliminates the evidentiary burden of proving that a waterbody was utilized for commercial trade on the date of statehood. For example, in Lopez v. Smith,¹³³ where the court was presented with the question of who held title to the Little Manatee River in Hillsborough County, evidence of pleasure boating was accepted as sufficient to establish navigability of the river for public title.¹³⁴ The decision in Lopez was consistent with the United States Supreme Court treatment of the commercial capacity criterion.¹³⁵

The effect of basing the bed title test on commercial capacity is that a waterbody is arguably navigable so long as it can be shown to meet the minimum standard of title navigability as established in any earlier decision. A quite liberal federal standard was set by the decision in United States v. Holt State Bank.¹³⁶ Under Florida law, the minimum standard was undoubtedly established in Broward v. Mabry,¹³⁷ where despite the quite restricted usefulness of a lake that intermittently went entirely dry,¹³⁸ the Florida supreme court found:

The products of the community at least in

some considerable measure may be transported upon the waters if so desired, and the waters are admittedly of considerable area and useful for general navigation in small boats containing persons engaged in pursuits either of business or pleasure. Whether the lake has been used for commercial purposes or not is immaterial, if it may be useful for any considerable navigation or commercial intercourse between the people of a large area.¹³⁹

In addition, once a watercourse is determined to be navigable, it will remain so as far as title is concerned.¹⁴⁰

2. Relationship of the Federal and Florida Bed Title Tests

The choice of law issue has already been discussed in part in section D above. There it was concluded that federal law would govern the determination of which submerged lands passed to a state on the date of statehood. Beyond this rule, however, it was suggested that a different state test may still have an important role. At this point, the possible differences between the federal and Florida bed title tests will be explored.

No Florida court has ever identified a difference between the federal and Florida bed title tests. In Odum v. Deltona Corp.,¹⁴¹ the Supreme Court of Florida declared, "We find that Florida's test for navigability is similar if not identical, to the federal title test."¹⁴² Are the two tests identical? Perhaps the difference, if any, concerns the treatment of sawlog flotage as an indicator of title navigability.

In examining sawlog flotage as a criterion of federal title navigability, some commentators have found it to carry nearly the same evidentiary weight as pleasure boating:

The federal test of title navigability requires that the river in its natural and ordinary condition be susceptible for useful commerce. Proof of log flotation that is profitable and unaided by splash dams or extensive aid from men or animals on the bank or in the water is relevant in navigability litigation. By itself, however, this evidence is not sufficient to sustain a finding of title navigability.¹⁴⁷

A review of the federal cases bears out the accuracy of this proposition. While sawlogs have been recognized as probative in a few commerce clause cases,¹⁴⁸ no federal case has used sawlog flotage, standing alone, to establish title navigability.

In contrast to the federal position regarding sawlogs, the Florida Supreme Court decision in Bucki v. Cone¹⁴⁹ relied primarily upon sawlog flotage to find a portion of the Suwannee River navigable.¹⁵⁰ Admittedly, Bucki did not use the term "title" anywhere in the opinion and the main question before the court were said to be "whether the Suwannee River . . . was a navigable river, and, if it was, what were the relative rights of those entitled to its use" ¹⁵¹ Nevertheless, as will be discussed below, Florida has not separated the concepts of navigability as a criterion for allowing public use of a waterbody and navigability as a basis for determining who holds title to the submerged bed. If a waterbody is navigable in Florida, its bed is owned by the state and its waters may be used by the general public. If a waterbody is non-navigable

it may be privately owned and its use restricted to the owners of the bed and their invitees.¹⁵² Therefore, when the court in Bucki found the Swanee River to be navigable, that status allowed not only for public use of its waters but also for state title to the bed. Taking this logic one step further, one can say that because Bucki allowed sawlog flotage to establish navigability for public use, it also allowed sawlog flotage to establish state title to the submerged bed.¹⁵³

No other Florida decision was found that discusses sawlog flotage as sufficient to prove navigability for title purposes nor cites Bucki on that question. The Bucki case thus appears to be the only Florida decision upon which could be based the proposition that the Florida bed title test differs from the federal test by allowing evidence of sawlog flotage, by itself, to establish navigability for title purposes.^{153a}

3. Public Use vs Public Title

The determination of navigability for identifying sovereignty submerged lands that passed to the states is concerned with a state's relationship to the United States and is thus a federal question.¹⁵⁴ The law which governs the use of property by citizens of a state, however, is largely a matter of state law.¹⁵⁵ For usufructuary purposes, a state test may differ from the federal bed title test.¹⁵⁶

Several states use a navigability test to allocate public,

riparian and private use rights in addition to a test to control title.¹⁵⁷ Patterns in the application of public use tests, however, are difficult to find. As one commentator noted:

The cases on the public right of use of waters where the beds are privately owned show a remarkable diversity of rule as well as theory. There are probably few areas of the law in which similar problems have arisen in the several states where the courts have split so widely, or based their decisions on such diverse theories. Furthermore, there is often little, if any reference by the courts of one state to the decisions on similar issues in other states.¹⁵⁸

Most early cases, and many more recent ones, lump together the issues of bed title and public use rights. Thus, the courts are apt to say that if the state owns the bed of a waterbody, the public has a right of use and that, conversely, the public has no right to use the waters above privately owned beds. It has only been in the last fifty years that some state courts have begun to separate the two issues of title and public use.

The state courts that have developed a broad definition of navigability to allocate public rights in waterbodies frequently require only that the waterbody be capable of floating a canoe or a sawlog.¹⁵⁹ Oregon provides a good example of the judicial distinction between a bed title test and a broader public use test. In Luscher v. Reynolds,¹⁶⁰ the Supreme Court of Oregon was required to determine the title to a small waterbody called Blue Lake. The court found,

Clearly, under the federal test for the determination of the navigability of streams, this small inland lake, which is only one mile long and one-eighth mile wide, cannot be regarded as a navigable body of water in the sense that the title to the bed of the lake would pass to the state by virtue of its admission to the Union.¹⁶¹

Nevertheless, the court held that Blue Lake was navigable when measured by a pleasure boat test, affording public use rights to its waters.

While we have held that Blue Lake is not a navigable body of water in the sense that title to the bed thereof would pass to the state upon admission to the Union, it is navigable in a qualified or limited sense.

* * * * *

We think Blue Lake comes within the ... classification where title to the bed is in the adjacent owners, subject however to the superior right of the public to use the water for the purposes of commerce and transportation. "Commerce" has a broad and comprehensive meaning. It is not limited to navigation for pecuniary profit. A boat used for transportation of pleasure seeking passengers is, in a legal sense, as much engaged in commerce as is a vessel transporting a shipment of lumber. There are hundreds of similar beautiful, small inland lakes in this state well adapted for recreational purposes, but which will never be used as highways of commerce in the ordinary acceptance of such terms.¹⁶²

Some states have yet to develop a public use test to allocate public rights in non-navigable waters despite the apparent trend to do so that has occurred since 1926.¹⁶³

In Osceola County v. Triple E Development Co.,¹⁶⁴ the Florida supreme court held that a county has no right to condemn land to gain access to a solely-owned non-navigable

lake. Two years later in Duval v. Thomas,¹⁶⁵ it was declared that an owner of a portion of the bed of a non-navigable lake cannot restrict or curtail the reasonable enjoyment of the overlying waters by the other owners of the bed. A later decision of the same district court, Florio v. State,¹⁶⁶ upheld the right of owners of a non-navigable waterbody to invite the public to use the waters and to even charge a fee for such use.¹⁶⁷

These cases, taken together, indicate there is no general public right to use non-navigable waters in Florida. Use of such waters is restricted to owners of the bed and their invitees. Thus, the law in Florida requires that waterbodies be navigable and in state ownership in order that the general public may use them without invitation.

F. Fresh Water Boundaries - The Ordinary High Water Line

In Florida and in most states and the federal system the ordinary high water line¹⁶⁸ (OHWL) is the boundary between privately-owned riparian uplands and publicly-owned sovereignty lands beneath non-tidal navigable waters.¹⁶⁹ Therefore, it would seem that the method for establishing the OHWL would be more than well-settled in the law. Ironically, the determination of the OHWL is as confused as it is important.

The most significant aspect of the OHWL is its operation as a boundary for purposes of title. It delineates the riparian upland with its concomitant entitlement to certain rights not available to the public generally¹⁷⁰ from the submerged bed owned by the sovereign¹⁷¹ and usually held in trust for public use, enjoyment and protection.¹⁷² Additionally, the title to lands below the OHWL is held subject to the paramount power of Congress to regulate commerce and navigation.¹⁷³

The OHWL is not the only standard used to separate public and private interests in navigable water bodies. A number of states¹⁷⁴ have chosen the line of ordinary low water¹⁷⁵ to accomplish this purpose. The low water line allows the riparian owner a greater property interest and, where seasonal influences cause significant fluctuation in water elevation, would include title to the exposed shore as well. In states recognizing the OHWL, any such exposed area between the OHWL and the actual water level at the moment is part of the public domain and the public may be allowed to travel along it or even recreate there.¹

It should also be noted that there are lands within Florida that were acquired from Spain and which included submerged lands under navigable waters previously conveyed to private ownership. The general rule is that the foreign law in force at the time of the grant will govern the area, nature and extent of such conveyances.¹⁷⁷ In other words, a valid grant of title to submerged lands into private ownership before such lands were ceded to the United States would be preserved, thereby preventing the acquisition of title by the state through operation of the equal footing doctrine which granted to new states the same "right, sovereignty, and jurisdiction ... as the original states possess within their respective borders,"¹⁷⁸ including title to lands under navigable waters.

The OHWL should be clearly distinguished from the mean high tide line of waters subject to tidal influence.¹⁷⁹ The primary distinction is that the latter is determined through a statistical averaging technique while the former is generally ascertained by reference to the physical characteristics of the banks and bed of the waterbody.¹⁸⁰

The source of the modern definition of the OHWL is the United States Supreme Court's opinion in Howard v. Ingersoll.¹⁸¹ At issue was the meaning of a call in a deed conveying land from Georgia to the United States, which land later became part of the State of Alabama. The boundary was described as running up the western bank of the Chattahoochee River.¹⁸² Three opinions were rendered in the case but the concurring

opinion of Mr. Justice Curtis has been the one most frequently cited and appears in Florida's leading case on the determination of boundaries of lands bordering navigable inland waters.¹⁸³

Mr. Justice Curtis emphasized the importance of a line which would "promote the convenience and advantage of the parties" rather than any fixed line on the bank. To this end he defined the line by reference to several ascertainable physical characteristics of the bank.¹⁸⁴

[The] line is to be found by examining the bed and banks, and ascertaining where the presence and action of water are so common and usual and so long continued in all ordinary years, as to mark upon the soil of the bed a character distinct from that of the banks, in respect to vegetation, as well as in respect to the nature of the soil itself. Whether this line ... will be found above or below, or at a middle stage of water, must depend upon the character of the stream.¹⁸⁵

Although the opinion speaks mainly of differences in the soil, and the manner in which vegetation relates to this difference, later cases have given other related factors more distinct treatment.¹⁸⁶

The OHWL refers to an observable physical mark caused by the action of water upon the banks. The OHWL represents the point at which the water prevents the growth of terrestrial vegetation. The Curtis opinion pointed out that this test does not require the absence of all vegetation, but only of terrestrial vegetation.¹⁸⁷ Obviously, a vegetation line may mark the division between land-based and aquatic plant species. Another aspect of the vegetation test emphasized by Justice

Wayne is that it should exclude from the bed land which is fit for agricultural purposes.¹⁸⁸ Probably more useful than the vegetation test in many areas is the soil test.¹⁸⁹ The OHWL represents the point at which the character of the soil of the bank differs from that of the upland. This includes surface markings, such as erosion, shelving and litter,¹⁹⁰ as well as sub-surface geological characteristics.

It would be impractical and unrealistic to strictly apply the OHWL definition where the situation calls for some departure. Certainly the presence or absence of vegetation is not always conclusive. The Iowa Supreme Court stated in State v. Sorenson,¹⁹¹ for example, that large trees may sometimes continue to grow although covered with water at their bottoms for some period. The court relied on the testimony of a botany expert that trees of the size and character involved could easily have gained a foothold and grown below the OHWL notwithstanding the fact that small vegetation could not grow there.¹⁹² This and other cases¹⁹³ imply the converse as well. That is, even where aquatic vegetation is found some distance inland, in marshland or other poorly drained areas, for example, the finding of a realistic OHWL should not be upset.

Although several Florida cases have held the OHWL to be the boundary of navigable inland waters,¹⁹⁴ only one expressly defines it. In Tilden v. Smith,¹⁹⁵ appellants whose lands bordered on a navigable lake, sought to enjoin the removal of water by the owner of a country club also bordering the

lake.¹⁹⁶ The presence of the water, which had inundated normally dry lands surrounding the lake as a result of unusually heavy rainfall, was beneficial to the appellants because it provided greater frost protection for their crops. However, the court viewed the flooding as the type of unusual occurrence that should not be considered in locating the OHWL.

Language in a Minnesota case¹⁹⁷ was cited for the applicable OHWL definition:

"[The] high-water mark, as a line between riparian owner and the public, is to be determined by examining the bed and banks and ascertaining where the presence and action of the waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil of the bed a character distinct from that of the banks, in respect to vegetation, as well as in respect to the nature of the soil itself. "High-water-mark" means what its language imports - a water mark"¹⁹⁸

It would have been more appropriate for the Florida court to have cited Howard v. Ingersoll, since that case was the actual source of the language used in the Minnesota opinion. Tilden elaborated further upon the meaning of ordinary high water line:

"It is the point up to which the presence and action of the water is so continuous as to destroy the value of the land for agricultural purposes by preventing the growth of vegetation, constituting what may be an ordinary agricultural crop [It] is not the highest point to which the stream rises in times of freshets...."¹⁹⁹

Because the flooding of appellee's golf course was the result of an abnormal increase in water level, the Tilden court

ruled that removal of the water by the appellee could not be enjoined. Only where the normal level of the lake was lowered by the appellees would such an action lie.

Locating the OHWL in Florida will require special consideration of the extremely flat topography that is common in the state and the absence, in many instances, of discernable river banks. As stated by the Florida Supreme Court in Martin v. Busch:²⁰⁰

In flat territory or because of peculiar conditions, there may be little if any shore to navigable waters, or the elevation may be slight and the water at the outer edges may be shallow and affected by vegetable growth or other conditions, and the line of ordinary high-water mark be difficult of accurate ascertainment"201

Because of the unique factors which are common to Florida's lakes and streams, the emphasis made in out-of-state decisions as to OHWL determinations must be examined to ascertain whether and to what extent the reasoning of the court is relevant to Florida waters.

G. Tidal Boundaries

1. Tides

Coastal boundaries are generally defined by vertical datums, which are planes of reference for elevations based on the average rise and fall of the tide. Mean high water and mean low water are examples of such vertical datums. The coastal boundary is the intersection of this elevation with the shore and varies as the physical shape of the shore changes. Since observations of the tide provide the information necessary to establish these datums, an understanding of coastal boundaries requires a knowledge of tides and the forces that produce them.

The tide is defined, as: "The periodic rising and falling of the water that results from the gravitational attraction of the moon and sun acting upon the rotating earth."²⁰² This indicates the strong relationship between the sun and the moon and the tides.²⁰³ The individual tide-producing forces vary over the face of the earth in a regular manner, but the different combinations of these forces produce totally different tides. Moreover, the response of various bodies of water to these forces varies because of differing hydrographic features of each basin.²⁰⁴

The variations in the major tide-producing forces are a result of changes in the moon's phases, declination to the

earth, distance from the earth and regression of the moon's nodes.²⁰⁵ The variations which occur because of this latter factor will go through one complete cycle in approximately 18.6 years. The other changes have cycles varying from 27 1/3 days (moon's declination) to 27 1/2 days (moon's distance) to 29 1/2 days (moon's phases).²⁰⁶ These cycles differ in magnitude, and their effect on the tide varies from place to place around the earth. The various combinations of all these changes also result in the daily variations in the tide at a given location.

The forces related to the changes in the moon's phases are strongest twice each month at new and full moon and the tides occurring at approximately these times are known as spring tides. These forces are weakest at the time of the first or third quarter of the moon and the tides occurring then are called neap tides. However, at most places there is a lag of a day or two between the occurrence of the appropriate phase of the moon and corresponding spring or neap tide.²⁰⁷ The cycle relating to the moon's declination is strongest twice each month when the moon is at the tropics and it is weakest when the moon is over the equator. The tides associated with these changes are called tropic and equatorial tides when they are the strongest and weakest. The tides occurring when the moon is nearest the earth are

called perigean tides and those occurring when the moon is farthest from the earth are called apogean tides.²⁰⁸ A lag of a day or two is also found between the declination and the distance of the moon and the corresponding state of the tide.²⁰⁹

There are three characteristic features of the tide at a given place - the time, range, and type of tide. The time of the tide is related to, and can be specified by, the moon's meridian passage.²¹⁰ The range of the tide refers to the magnitude of the rise and fall of the tide, and varies from day to day at a given place depending on the relation of the tide-producing forces. The type of tide denotes the characteristic form of the daily rise and fall of the tide. The tide is semidiurnal when two highs and two lows occur each day; it is diurnal when only one high and one low occur each day; and it is mixed when two high and two low waters occur in a day with marked differences between the two high or the two low waters.²¹¹

These tidal characteristics vary from one location to another as a result of variations in the tide-producing forces and in hydrographic features.²¹² While some generalizations about tidal characteristics can be made, it must be recognized that tidal characteristics are a local phenomenon and the description of the tide in one area may be inapplicable to another area.

The tide observations required for the determination of a tidal datum must be as accurate as possible because the

location of the boundary determined from the datum may involve very valuable lands.

After the vertical elevation of a tidal datum is established it must be translated into a line on the ground - the intersection of the datum plane with the shore. An error of only tenths of an inch in the tidal datum may result in the line of intersection moving a considerable distance landward or seaward if the shore has a flat slope. Therefore, the accuracy of coastal boundaries has a direct relation with the accuracy of the original tide observations.

The specific tidal datums that define the coastal boundaries provide the elevation of a stage of the tide on an average basis. For instance, mean high water is an average of the high waters. Because the magnitude of the rise and fall of the tide varies from day to day, tidal characteristics derived from daily observations may differ considerably from the average or mean values over a long period of time. Therefore, the average must be based on long-term observations before it can be considered an accurate value for the tidal datum. When only short-term observations are available, they may be corrected to long-term mean values by comparison with simultaneous observations taken at some nearby location for which mean values have been determined from long-term observations.

Observations over a period of nineteen years are generally used to determine tidal datums because all the cycles related

to the phases, declinations and distance of the moon occur within this period. In addition, the seasonal fluctuations of water level will be complete within a year, and the effects of these non-tidal forces can be balanced. When long-term observations are used to determine tidal datums, the datums will be applicable in future years unless the factors producing the tidal character have changed. The primary factor which might change and cause a variance in the datum will be the hydrographic features of the area.

2. The Mean High Water Line

The Roman jurists regarded the sea and the foreshores as res communes, property which could be used by all, but which was incapable of private ownership.²¹³ At common law, however, the sovereign owned the sea and the seabed,²¹⁴ as well as the foreshore, by right of his prerogative as universal occupant,²¹⁵ although much of the foreshore was appropriated by private landowners prior to the sixteenth century.²¹⁶ Shortly after the accession of Queen Elizabeth, I, however, Thomas Digges, a lawyer, surveyor and engineer, advanced a new theory of royal ownership of the foreshore in his book, Proofs of the Queen's Interest in Lands Left by the Sea and the Salt Shores Thereof.²¹⁷ According to Digges, lands beneath tidal waters as well as the foreshore itself were a separate category of property which could be acquired only through express grant from the sovereign.²¹⁸ Apparently the Crown's claims were not at first accepted by the courts.² In the following century, Sir Matthew Hale, in his treatise, De Jure Maris, revived the Digges theory.²²⁰

Lord Hale distinguished between fresh water streams, the seabed and tidal waters.²²¹ According to Hale, the beds of fresh waters normally belonged to the riparian owner,²²² while the seabed belonged to the sovereign and was incapable of private ownership.²²³ Tidal waters included arms and

creeks of the sea as far as the ebb and flow of the tide,²²⁴ as well as the foreshore "between the high-water mark and the low-water mark."²²⁵ While Lord Hale admitted that the King could, and often did, make grants in tidal waters to his subjects,²²⁶ he maintained that both the foreshore and the soil beneath arms of the sea "prima facie" belonged to the King.²²⁷ "It is admitted that de jure communi between the high water mark doth prima facie belong to the King Although it is true, that such shore may be, and commonly is parcel of the manor adjacent, and so may be belonging to a subject, as shall be shown, yet prima facie it is in the King's."²²⁸

To support his theory of royal ownership, Lord Hale relied on Philpott's Case,²²⁹ decided in 1632. This decision, however, was not reported, and Johnson v. Barret,²³⁰ decided more than a decade later, appeared to follow the older rule. The first reported case to reflect Hale's position was Bulstrode v. Hall²³¹ in 1662. The new doctrine, however, became firmly established by the end of the seventeenth century²³² and, since then, the ordinary high water mark has been considered the usual boundary between public and privately owned property in England.²³³ At the present time, one who asserts a claim to land below the high water mark has the burden of proof and must establish his title by prescription or express grant from the King.²³⁴

The English rule was accepted by most American jurisdictions is now followed in Alabama,²³⁶ Alaska,²³⁷ California,

Conneticut,²³⁹ Maryland,²⁴¹ Mississippi,²⁴² New Jersey,²⁴³ New York,²⁴⁴ North Carolina,²⁴⁵ Oregon,²⁴⁶ Rhode Island,²⁴⁷ South Carolina,²⁴⁸ and Washington.²⁴⁹ Some states, however, have departed from the common law position. Massachusetts²⁵⁰ and Maine,²⁵¹ for example, recognize the low water line in accordance with a colonial ordinance. Delaware,²⁵² New Hampshire,²⁵³ Pennsylvania²⁵⁴ and Virginia²⁵⁵ also use the low water line. Texas recognizes the English position with respect to common law grants,²⁵⁶ but uses the line of higher high tide when Spanish or Mexican grants are involved.²⁵⁷ Louisiana has adopted the civil law boundary of the line highest winter tide.²⁵⁸ And in Hawaii, the upland owner has title to the upper reaches of the wash of the waves.²⁵⁹

Borax Consolidated Ltd. v. City of Los Angeles²⁶⁰ is the leading American decision on the methodology of coastal boundary determination. The case involved the boundary between the upland and the foreshore of Mormon Island in San Pedro Harbor. The upland property was owned by the Borax Company under a patent from the federal government while the foreshore and adjacent submerged lands belonged to the City of Los Angeles under a grant from the State of California.²⁶¹ The City's suit to quiet title was dismissed by the district court on the ground that the limits of the federal grant could not be determined in such a proceeding.²⁶² On appeal, the court of appeals reversed, and construed the "ordinary high water mark" as the "mean high-tide line," rejecting the

neap tide standard proposed by the Borax Company.²⁶³

This decision was affirmed on appeal by the United States Supreme Court.²⁶⁴

The Supreme Court emphasized that the term "ordinary high water mark" meant the intersection of a tidal plane with the shore, and had no particular relation to a physical mark or vegetation line: "The tideland extends to the high water mark.... This does not mean, as petitioners contend, a physical mark made upon the ground by the water; it means the line of high water as determined by the course of the tides."²⁶⁵

After reviewing Lord Hale's definition of the foreshore and the language of Attorney General v. Chambers,²⁶⁶ an old English case in which the "ordinary high water mark" was declared to be "the line of the medium high tide between the springs and the neaps,"²⁶⁷ the Supreme Court declared: "in determining the limit of the federal grant, we perceived no justification for taking neap high tides, or the mean of those tides, as the boundary between upland and tideland, and for thus excluding from the shore the land which is actually covered by the tide most of the time."²⁶⁸ Instead the Court adopted the mean high tide line standard and the survey methodology described in such Coast Survey publications as Marmer's Tidal Datum Planes:²⁶⁹

In view of the definition of the mean high tide, as given by the United States Coast and Geodetic Survey that 'mean high water at any place is the average height of all the high waters at that place over a considerable period of time,' and the further

observation that 'from theoretical considerations of an astronomical character' there should be 'a periodic variation in the rise of water above sea level having a period of 18.6 years,' the Court of Appeals directed that in order to ascertain the mean high tideline with requisite certainty in fixing the boundary of valuable tidelands, such as those here in question appear to be, 'an average of 18.6 years should be determined as near as possible.' We find no error in that instruction.

While the question before the Supreme Court in the Borax case was the interpretation of the phrase "line of mean high tide" as used in a statutory grant to the City, the Supreme Court equated "mean" with "ordinary" and clearly considered the term "mean high water line" equivalent to the common-law "ordinary high-water mark," as defined by the court in Chambers. This approach is justified because the spring tides occur with the same frequency as the neap tides, and since one is as much above a medium plane as the other is below it, these tides cancel each other. Moreover, it is considerably easier from a technical point of view to determine a plane of mean high water which includes all tides than to calculate a plane that excludes spring and neap tides.²⁷⁰ Because Borax was a progressive decision which incorporated the most accurate methodology for determining tidal boundaries, it has been followed by a number of state courts.²⁷¹

The first Florida case to examine the question directly was Miller v. Bay-to-Gulf, Inc.,²⁷² decided in 1940. In Miller the plaintiffs brought suit to restrain the defendants from destroying a bulkhead and to quiet title to the land on

which the bulkhead was located. It was conceded that the original conveyance to the plaintiffs did not extend to the water's edge. However, the plaintiffs argued that they had become vested with title to the strip of land between their property and the Gulf of Mexico due to the gradual erosion of the beach and that the "ordinary high water mark" of the Gulf reached a point eastwards of their westerly boundary.²⁷³ Deciding in favor of the defendants, the Florida Supreme Court attempted to define the term "ordinary high water mark" as follows:

The term "ordinary high tide" does not refer to the limit which the monthly spring tides reach. The limit of the spring tides is in one sense, the usual high-water mark, for as often as those tides occur, to that limit the flow extends; however, it is not the limit to which we refer when we speak of "ordinary high water mark" or "ordinary high tide." By the latter terms or phrases is meant the limit reached by the daily ebb and flow of the tide, the usual tide, or the neap tide that happens between the full and change of the moon.²⁷⁴

In reaching this conclusion the Florida Court relied on Teschmacher v. Thompson,²⁷⁵ an early California case in which the Court defined the "ordinary high water mark" as "the limit reached by the neap tides; that is, those tides which happen between the full and change of the moon, twice in every twenty-four hours."²⁷⁶ Apparently, the Teschmacher court mistakenly considered that all tides were either spring tides or neap tides, and that spring tides occurred once a month, while all other tides were neap tides. The court erroneously believed that neap tides, unlike spring tides,

did not vary much in range and were thus usual or ordinary in nature.²⁷⁷ It was not until much later that the term "neap tide" was given a technically correct definition in California.²⁷⁸

It is clear, however, neither the Teschmacher nor the Miller courts had this technical definition of neap tide in mind when they equated it with the "usual," "ordinary" or "daily" tide. Since true neap tides do not occur daily, but only during the first and third quarters of the moon, the "everyday ebb and flow" of the "usual or neap tide" referred to in Miller²⁷⁹ was manifestly not a true neap tide.

It appears that the only subsequent case to reexamine the Miller definition of the "ordinary high water mark" is Trustees of the Internal Improvement Fund v. Ocean Hotels, Inc.,²⁸⁰ which is discussed in greater detail later in regard to ambulatory boundaries. Although the state strongly urged the trial court in Ocean Hotels to adopt the Borax mean high water line formulation, the court's response was that "while an appellate court may yet find the state's arguments compelling..., this court is bound by the holding of the Florida Supreme Court in Miller."²⁸¹ Unfortunately, an out-of-court settlement foreclosed the opportunity for appellate review of the Ocean Hotels decision.

Notwithstanding the Miller and Ocean Hotels decisions, the concept of a mean or average high water line has been recognized both legislatively and judicially in Florida. Thus, the term "mean high water line" appears in Article X,

section 11 of the Florida Constitution,²⁸² in state coastal construction set-back line legislation,²⁸³ and in coastal mapping legislation.²⁸⁴ The Florida Coastal Mapping Act of 1974²⁸⁵ is especially significant in this regard. In that Act it is expressly declared that the Florida Legislature "recognizes the desirability of confirmation of the mean high-water line, as recognized in the State Constitution and defined in section 177.27(15) as the boundary between state sovereignty land and uplands subject to private ownership...."²⁸⁶ Section 177.27(15) defines "mean high water" as:

"the average height of the high waters over a 19-year period. For shorter periods of observation, "mean high water" means the average height of the high waters after corrections are applied to eliminate known variations and to recude the result to the equivalent of a mean 19-year value."

The term has been employed by Florida courts in Trustees of the Internal Improvement Fund v. Wetstone (1969),²⁸⁷ City of Daytona Beach v. Tona-Rama, Inc. (1974),²⁸⁸ St. Jude Harbors Inc. v. Keegan (1974),²⁸⁹ Trustees of the Internal Improvement Trust Fund v. Wakulla Silver Springs Co.,²⁹⁰ and St. Joseph Paper Co. v. Trustees of the Internal Improvement Trust Fund.²⁹¹ These recent decisions and the statutory provisions mentioned above indicate that the mean high water line is now well-established as the legal boundary between private uplands and state owned submerged lands in tidal waters of the state.

H. Ambulatory Boundaries

Accretion, Reliction, and Avulsion

Many of the boundary and title problems which beset lands bordering waters are caused by changing shorelines. Shoreline changes may occur in three ways: (1) deposit of sand, soil, and other material along a shoreline, (2) removal of such matter from the shoreline, and (3) change in the level of the body of water. The legal rules governing the effect of such changes on land titles may vary depending on whether they were brought about by artificial or natural forces and whether the changes took place gradually or suddenly. A specialized vocabulary has developed in order to categorize these factors. Although courts often interchange the terms, a knowledge of them is necessary for a meaningful understanding of the law of this area.

Accretions or accreted lands consist of additions of sand, sediment, or other material to increase an area of realty above the water line basically resulting from the gradual actions of the water. They result in dry lands which were formerly covered by water. This term applies to lands produced along both navigable and non-navigable waters.²⁹² Alluvion is that increase of earth on a shore or bank of a waterbody, by the force of the water, as by current or by waves, which is so gradual that no one can judge how much is added at each moment of time.²⁹³ The term "alluvion" is applied to the deposit itself, **while** accretion denotes the act,²⁹⁴ but the terms are frequently used

synonymously.²⁹⁵ Erosion is the gradual and imperceptible wearing away of land bordering on a body of water by the natural action of the elements; it is thus the reverse of accretion.²⁹⁶

Reliction refers to the process by which land formerly covered by water has become dry land by the imperceptible recession of the water.²⁹⁷ Although there is a distinction between accretion and reliction, one being the gradual building of the land, and the other the gradual recession of water, the terms are often used interchangeably. The term "accretion" in particular is often used to cover both process and generally the law relating to both is the same.

Avulsion is either the sudden and perceptible change of the channel of a stream forming a boundary where the channel abandons its old bed for a new one, or the removal of a substantial quantity of earth from the land of one owner and its subsequent deposit on that of another by the sudden and perceptible action of water.²⁹⁸ The basic distinction between avulsion and accretion is that of a difference between an imperceptible and perceptible change in the land.

1. Accretion

Accretion, as noted earlier, involves gradual, imperceptible additions of soil to the shore. Florida follows the common law rule which vests title to soil formed by accretion along navigable waters in the owners of abutting lands.²⁹⁹

Florida courts have recognized three reasons for the general rule regarding accretions.³⁰⁰ (1) de minimis non curat lex;

(2) he who sustains the burden of losses and of repairs imposed by the contiguity of waters ought to receive whatever benefits they may bring by accretion; (3) it is in the interest of the community that all land should have an owner, and it is most convenient that insensible additions to the shores should follow the title to the shore itself. A fourth reason for the rule, listed by other jurisdictions, is the necessity or desirability of preserving the riparian rights of access to the water.³⁰¹

There is a distinction between the processes of accretion and reliction that was noted earlier, but the common law rule vesting title to soil formed along waters by accretion in owners of abutting lands also applied to land uncovered by the process of reliction, and this rule if followed in Florida.³⁰² It is important to note that the law of natural accretion applies regardless of who owns the bed of the waterbody.³⁰³

In the Florida Circuit Court case of Sidener v. Pensacola the court by way of dictum distinguished accretions which begin from out in the water and then move toward the mainland eventually joining the shore from those that move outward from the shore.³⁰⁴ The court indicated that the title to the former does not vest in the upland owner. The logic of this statement becomes clearer when it is pointed out that any accretions beginning out in the water would form an island. At this point title is typically in the state. There is no reason to divest the state of its title merely because the

island subsequently is connected to the mainland. The property thus formed is divided at the point where the two bodies of land meet.

Generally, a riparian owner can claim only the alluvion which accrues immediately in front of his land, and not that which forms in front of another's land.³⁰⁵ The rationale for this general rule is that the adjoining landowner should not be deprived of his access to the water upon which his land originally fronted since such access is a fundamental riparian right and a principle factor in the land's value.³⁰⁶ However, in Ford v. Turner³⁰⁷ a Florida court distinguished between lateral accretions to tideland and accretions to land bordering rivers and streams. In the Ford case the plaintiff was seeking to quiet title to an alluvial peninsula in the Gulf of Mexico which extended laterally along the shoreline in front of defendant's land. A comparison of the area as it existed in 1900 and as it existed in 1958 showed that if the accretion continued it would soon encircle the defendant's land. Defendant claimed he held title rather than plaintiff based on the general rule that accretion can only extend frontward, not laterally. The court distinguished between alluvion which forms on land bordering rivers and streams and that on tidal lands holding that there is no restriction on lateral accretion to tidal lands.³⁰⁸

2. Artificial Accretion

Most man-made additions to land are accomplished by filling and are not true accretions since they are neither

gradual nor imperceptible.³⁰⁹ However, some additions to land are caused by the erection of dikes and groins or by dumping fill upstream and allowing it to be deposited on the downstream owner. These deposits are true accretions since they are usually gradual and imperceptible. Early cases ignored the artificial-natural distinction and based their holdings solely on whether the additions were perceptible or imperceptible. However, recent cases have been fairly uniform in distinguishing between artificial accretions caused by third parties and those caused by the claimant.

a. Artificial Accretion Caused by the Upland Owner

Artificial structures such as dikes or groins can cause accretions to one's own property by changing the flow of water so that alluvion is deposited on the shore. Generally the owner cannot claim title to such alluvion where he himself created the conditions causing the accretion.³¹⁰ This position is supported by the proposition that to allow such action would permit a riparian owner to extend his land at will, thus taking property which belongs to the state.

b. Artificial Accretion Caused by Third Parties

Generally, where the claimant had no part in the erection of an obstruction causing accretion, the fact that the accretion was initiated or otherwise influenced by an artificial process will not impair his claim of title to the land thereby formed.³¹¹ In the leading case of County of St. Clair v. Lovington, involving accretion in the Mississipp

River, the United States Supreme Court affirmed this rule and stated: "Whether it is the effect of natural causes or artificial causes makes no difference.... If there can be a gradual loss, [the owner] must bear it; if a gradual gain it is his."³¹²

In upholding a claim of title by the upland owner, an Iowa Court in Solomon v. Sioux City³¹³ said: "...accretion due to artificial means over which a claiming riparian owner has no control belongs to the riparian owner in the same manner as naturally accreted land."³¹⁴ The reasoning supporting this rule becomes apparent when the equitable rights of the riparian owner are examined. Arguably, it would be unjust to allow one to lose his riparian rights merely because a nearby owner erected a groin or dike. This argument ignores the possibility of collusion between adjoining owners. For example, if a groin erected below a riparian owner's land would cause accretion to his land, the riparian owner could pay the owner below his to erect a groin and thus claim all alluvial deposits. Had the riparian owner erected the groin himself, he would have been unable to claim the alluvion.

Apparently, the only Florida case that has dealt with the problem directly is Trustees of the Internal Improvement Trust Fund v. Madeira Beach Nominee, Inc.³¹⁵ The question before the court was: "Does a strip of accreted land become the property of the upland riparian owner even where the accretion is the result of a lawful exercise of the police

power by a municipality to prevent beach erosion?"³¹⁶ The City of Madeira Beach, in cooperation with the Department of Natural Resources, had installed a total of 37 wooden groins below the mean high water line as part of a public erosion control and beach nourishment program. Concrete slabs were later substituted for the wooden structures. It was estimated that 115 feet of accreted land had been added to the beach as a result of the program. The action before the court was brought by the Board of Trustees of the Internal Improvement Trust Fund to enjoin the appellee from constructing a seawall upon the accreted land in front of the appellee's property.

The basis of the state's suit was its allegation that the accreted lands belonged to the state because they were created by a public project carried out in the exercise of the police power.³¹⁷ In other words, the state was urging the court to recongize a new rule of law constituting an exception to the common law of accretion.. The Madeira court refused to adopt the exception on the ground that to do so would usurp legislative authority in violation of the separation of powers provision of the Florida Constitution.³¹⁸

The state also urged that Florida Statutes, section 161.051, which purported to vest title in the state to coastal accretions created by public works,³¹⁹ be applied retroactively. The court denied retroactive application of the statute and even indicated that the provision might be unconstitutional as prospectively applied.³²⁰ The court

evidently considered it at least arguable that the vesting of title to such lands in the state instead of the riparian owners of the uplands to which the alluvion became attached would constitute a taking of property rights without compensation in violation of the State and United States Constitutions. The lower court's ruling that the state had no interest in the accreted lands was affirmed in Madeira and title was quieted in the appellee. It seems that no subsequent case has arisen in which the constitutionality of section 161.051 has been challenged.

3. Erosion Control by Upland Owner

The circuit court case of Trustees of the Internal Improvement Fund v. Ocean Hotels, Inc.³²¹ involved the attempt of an upland owner to prevent the natural erosion of a stretch of beach, approximately 100 feet of which was created when the freighter Amaryllis ran aground just to the south of the property which was the subject of the suit. The freighter's presence in the waters offshore from 1965 to 1968 caused alluvion to be deposited and the beach to be artificially widened.³²² When the Amaryllis was finally removed in 1968, the beach quickly began to erode.

In order to prevent further erosion and to protect its hotel,³²³ the upland owner constructed a cofferdam seawall in front of the most seaward wing of the building. The seawall obstructed passage along the shore for most of the year. The hotel applied to the Department of Natural Resources for a coastal construction permit to erect a permanent seawall. The

permit was denied and the temporary seawall was ordered removed. The upland hotel owner sued to enjoin the order and the state initiated a separate action to prevent maintenance of the seawall in what was claimed to be sovereign land. The two actions were consolidated in Ocean Hotels.

After examining the federal definition of "mean high water line" as formulated in Borax³²⁴ and Florida's "ordinary high water mark" as defined in Miller v. Bay-to-Gulf,³²⁵ the trial court adopted the latter for application in Ocean Hotels.³²⁶ However, because the high water line in the area regularly shifted 90 feet between its most landward extension in the winter and its most seaward recession in the summer, the circuit court declared that there were actually two high water lines, requiring a novel determination of the boundary between the private upland and the public tidelands.³²⁷

The possible solutions, as the court saw them, were to accept either the seaward mean high water line (summer line), the landward mean high water line (winter line), or the mean of the two. The mean of the summer and winter line was rejected as too costly to determine and an invasion of the public trust concept for at least a part of the year. The summer line would likewise be violative of the public trust.³²⁸ Consequently, the trial court accepted the winter line as the boundary. This solution was found to satisfy the state's interest in allowing the public the use of the beach.³²⁹

The Ocean Hotels case was not heard on appeal because a stipulated settlement was reached between the successor in

interest to Ocean Hotels, Inc. and the Department of Natural Resources. In a sense, the settlement was unfortunate because persuasive arguments could have been made for the reversal of the trial court decision.³³⁰ First, the court's adoption of the Miller definition of "ordinary high water mark" as synonymous with "mean high water line" perpetuates the confusion Miller created in formulating a practical methodology for determining tidal boundaries along the coast of Florida. The definition of the trial court, to the extent that it requires the use of tidal datums based on the average of the neap tides is technically unsound and unsuitable for use by surveyors and engineers.

In addition, the failure to adopt NOS standards for determining the mean high water line by averaging all of the high tides could result in serious losses of sovereignty tidelands by the state through the application of the rationale in the Wetstone case. In Trustees of the Internal Improvement Fund v. Wetstone,³³¹ the Supreme Court of Florida held that where the actual mean high water line circumscribing plaintiff's island could not be accurately located, the meander line established by an original government survey constituted the boundary line between swamplands and sovereignty lands. Therefore, it is in the public interest to insure the continued existence of a practical and accurate seaward boundary test and to discard a neap tide standard so as to avoid the uncertainty and potential loss of valuable wetlands that such a standard would engender.

Finally, the Ocean Hotels decision is inconsistent with the provisions of the Florida Constitution and the public trust doctrine. Article X, section 11 of the 1968 Constitution provides that:

The title to lands under navigable waters, within the boundaries of the state, which have not been alienated, including beaches below mean high water lines, is held by the state, by virtue of its sovereignty, in trust for all the people. Sale of such lands may be authorized by law, but only when in the public interest. Private uses of portions of such lands may be authorized by law, but only when not contrary to the public interest. (Emphasis added).

The use of the term "mean high water line" in the above quoted constitutional provision is a departure in language from the older common law standard of "ordinary high water mark" and indicates a conscious choice of this terminology. It follows that the universally accepted definition of this term as the average of all of the tides should be judicially adopted in Florida. The alternative "neap tide" formulation in Ocean Hotels could result in the loss of sovereignty submerged lands between the true mean high water line determined from averaging all of the high tides and the line resulting from averaging only the neap tides and would be contrary to the public trust in which those lands are held as codified in the Florida Constitution.

FOOTNOTES

1. 1 Farnham, Waters & Water Rights §36 (1904).
2. See generally Vol. III, Fla. Stat. 1941, Whitfield's Notes, p. 215.
3. Mitchell v. United States, 34 U.S. (9 Pet.) 711, 761 (1835).
4. State ex rel. Ellis v. Gerbing, 56 Fla. 603, 47 So. 353 (1908).
5. Apalachicola Land & Dev. Co. v. McRae, 86 Fla. 393, 98 So. 505 (1923). See also United States v. Seminole Indian 35 U.S.L.W. 2738 (Ct. Cl. June 9, 1967).
6. Shively v. Bowlby, 152 U.S. 1 (1894).
7. Adapted from Whitfield's Notes, supra note 2, at 230.
8. Pollard's Lessee v. Hagan, 44 U.S. 212 (1845); Barney v. Keokuk, 94 U.S. 324 (1876).
9. "The division of waters into navigable and non-navigable is but a way of dividing them into public and private waters, - a classification which, in some form, every civilized nation has recognized; the line of division being largely determined by its conditions and habits." Lambrey v. Metcalf, 53 N.W. 1139, 1143 (Minn. 1893).
10. Utah v. United States, 403 U.S. 9, 11-12 (1971).
11. Hardy Salt Co. v. Southern Pac. Transp. Co., 501 F. 2d 1156, 1166-69 (10th Cir. 1974).
12. Apalachicola Land & Dev. Co. v. McRae, 86 Fla. 393, 98 So. 505 (1923).
13. Id.
14. There appears to have been no material difference between the rights recognized as vested in the Indians, under British dominion and under Spanish dominion, concerning lands owned by the Indians and their rights to cede such possessory rights with the consent of the dominant sovereign. Mitchel v. United States, 34 U.S. (9 Pet.) 711, 745 (1835).
15. A. Von Mehren, The Civil Law System 5 (1957). See also MacGrady, The Navigability Concept in the Civil and Common Law: Historical Development, Current Importance and Some Doctrines That Don't Hold Water, 3 F.S.U. L. Rev. 511 (1975).

16. The other three parts were the Institutes, a text for law students having the force of law; the Code of imperial enactments; and the Novels, legislation enacted after promulgation of the Code. MacGrady, supra note 15, at 518.
17. Id. at 530.
18. United States v. Holt State Bank, 270 U.S. 49 (1926).
19. See 3 Dominiguez, Ilustracion y Continuacion a la Curia Filipica Ch. 1, §§112, 115, 117 (ribera del mar), 120-22 (puerto) (1740).
20. See Jover y Castas v. Insular Government of the Philippine Islands, 221 U.S. 623 (1911).
21. "Certainly, if a grant by the Indians covers submerged lands under navigable waters of the sea or bays, it must specifically so state, or otherwise plainly indicate such an intent, so as to apprise the Spanish authorities of the nature of the grant desired to be confirmed; otherwise the grant made and confirmed will be held to cover only uplands, or such lands as were usually occupied by the Indians, and as to which concessions made by the Indians would be confirmed by the Spanish sovereignty." Apalachicola Land & Dev. Co. v. McRae, 86 Fla. 393, 436, 98 So. 505, 519 (1923).
22. 2 White, A New Collection of Laws, Charters, and Local Ordinances of Great Britian, France, and Spain 76 (Philadelphia & Johnson ed. 1839).
23. "Pueblo" is Spanish for "municipality." The pueblo water right is the right of an American city, as successor of a Spanish or Mexican pueblo, to use the water naturally occurring within the old pueblo limits for the inhabitants of the city. Hutchins, The California Law of Water Rights 256 (1956).
24. 3 Dominguez, supra note 19, §131.
25. Id. at §132.
26. The temporary waterbody is referred to as an estanque; it is differentiated from the lake, or lago. Id. at §133.
27. 2 Balbas, Recopilación de Leyes de los Reynos de las Indias, Book IV, title 17 (1756).
28. Whitfield's Notes, supra note 2 at 103.
29. Apalachicola Land & Dev. Co. v. McRae, 86 Fla. 393, 98 So. 505 (1923); see also, Sullivan v. Richardson, 33 Fla. 1, 14 So. 692 (1894); United States v. Arredondo, 31 U.S. (6 Pet.) 691 (1832).

30. Apalachicola Land & Dev. Co. v. McRae, 86 Fla. 393, 98 So. 505 (1923).
31. 33 Fla. 1, 14 So. 692 (1894).
32. Id. at 116-17, 14 So. at 709. See also Apalachicola Land & Dev. Co. v. McRae, 86 Fla. 393, 432-35, 98 So. 505, 518 (1923); Brickell v. Trammell, 77 Fla. 544, 562-67, 82 So. 221, 228-29 (1919). cf. Blood v. Hunt, 97 Fla. 551, 560-61 121 So. 886, 891 (1929).
33. Sullivan v. Richardson, 33 Fla. 1, at 119, 14 So. 692, 710 (1894).
34. Id. at 117, 155-59, 14 So. at 709, 721-23.
35. Id. at 117, 14 So. at 709. See text accompanying notes 19-21, supra.
36. Apalachicola Land & Dev. Co. v. McRae, 86 Fla. 393, 98 So. 505 (1923), appeal dismissed, 269 U.S. 531 (1925).
37. Id. at 436, 98 So. 519. See also Whitfield's Notes, supra note 2.
38. Id.
39. 98 So. 505, at 526.
40. United States v. Wiggins, 39 U.S. (14 Pet.) 334, 340, 10 L.Ed. 481, 484-85 (1840); Doe v. Latimer, 2 Fla. 71 (1848).
41. United States v. Arrendondo 31 U.S. (6 Pet.) 691, 8 L.Ed. 547 (1832). In the case of grants for future services, performance had to have taken place before cession. United States v. Wiggins, 39 U.S. (14 Pet.) 334 (1840).
42. United States v. Wiggins, 39 U.S. (14 Pet.) 334 (1840).
43. Whitfield's Notes, supra note 2, at 230.
44. Broward v. Mabry, 58 Fla. 398, 50 So. 826 (1909); see also Shively v. Bowlby, 152 U.S. 1 (1894).
45. 43 U.S.C. §864 (1970). Note, Florida's Sovereignty Submerged Lands: What Are They, Who Owns Them and Where is the Boundary?, 1 Fla. St. U.L. Rev. 596, 613, n. 49 (1973).
46. State ex. rel. Ellis v. Gerbing, 56 Fla. 603, 615-16, 47 So. 353, 357 (1908).
47. In Everglades Sugar & Land Co. v. Bryan, 81 Fla. 75, 93, 87 So. 68, 73 (1921), the figure of 20,413,237.14 was stated. The 1936 Land and Field Note Division report of the Commissioner of Agriculture, Nathan Mayo, used the figure of 20,438,252 acres. Ballinger, What Has Happened to State Lands?, 53 Fla.B.J. 442, 446 (1979).

48. See e.g., Fla. Cum. Stat., Title VII (1925).
49. See generally the excellent historical work by MacGrady, supra note 15; 1 Farnham, The Law of Waters and Water Rights §23 (1904).
50. E.g., "In England, undoubtedly the writers ... and ... courts of admiralty, always speak of the jurisdiction as confined to tidewater. And this definition in England was a sound and reasonable one, because there was no navigable stream in the country beyond the ebb and flow of the tide In England, therefore, tidewater and navigable water are synonymous terms" Justice Taney in The Propeller Genessee Chief v. Fitzhugh, 53 U.S. (12 How.) 443, 454 (1851); "The Hudson at Stillwater is a fresh river, not navigable in the common law sense of the term, for the tide does not ebb and flow at that place." Justice Kent in Palmer v. Mulligan, 3 Cai R. 307, 318 (N.Y. S. Ct. 1805). See MacGrady, supra note 15, at 569-87.
51. T. William, River Navigation in England: 1600-1750 (1936).
52. T. Pluncknett, A Concise History of the Common Law 256-57 (5th ed. 1956).
53. H. Woolrych, A Treatise of the Law of Waters 40 (2d ed. 185
54. 1 Clark, Waters and Water Rights 179 (1967).
55. Murphy v. Ryan, 2 Ir.R.C.L. 143 (1868). See MacGrady, supra note 15 at 585-87.
56. E.g., Palmer v. Mulligan, 3 Cai. R. 307 (N.Y. Ct. App. 1805) Farnham indicated in his 1904 treatise that the following states adopted the common law tidality "rule": Connecticut, Delaware, Georgia, Illinois, Kentucky, Maine, Maryland, Massachusetts, Michigan, Mississippi, New Hampshire, New Jersey, New York, Ohio, South Carolina, Wisconsin and probably Utah. 1 H. Farnham, The Law of Waters and Water Rights §51 (1904).
57. Young v. Harrison, 6 Ga. 130 (1849); Spring v. Russell, 7 Ne. 273 (1831); Wilson v. Forbes, 13 N.C. 30 (1830) (per curiam); Carson v. Balzer, 2 Binn. 475 (Pa. 1810).
58. See Leighty, The Source and Scope of Public and Private Rights in Navigable Waters, 5 Land & Water L. Rev. 391, 392-393 (1970); Johnson & Austin, Recreational Rights and Title to Beds on Western Lakes and Streams, 7 Nat. Res. J. 1, 4 (1967).
59. Use of the ebb-and-flow test by Louisiana, Maryland, New Jersey, New York and Texas is discussed in Maloney & Ausnes The Use and Legal Significance of the Mean High Water Line

In Coastal Boundary Mapping, 53 N.C.L. Rev. 185, 209-12 (1975).

60. 41 U.S. 234, 16 Pet. 367 (1842).
61. Id. at 263, 16 Pet. at 411.
62. Id. at 262-63, 16 Pet. at 410.
63. Id.
64. 44 U.S. (3 How.) 212 (1845).
65. Id. at 223.
66. Goodtitle v. Kibbe, 50 U.S. (9 How.) 471 (1850); Smith v. Maryland, 59 U.S. (18 How.) 71 (1855); Weber v. Bd. of State Harbor Cmmrs., 85 U.S. (18 Wall.) 57 (1873); City & County of San Francisco v. LeRoy, 138 U.S. 656 (1891); United States v. Oregon, 295 U.S. 1 (1935); See generally Laurent, Judicial Criteria of Navigability in Federal Cases, 1953 Wisc. L. Rev. 8, 32, 36.
67. The Genessee Chief v. Ritzhugh, 53 U.S. (12 How.) 443 (1851) (admiralty jurisdiction extends to non-tidal waters); Gilman v. Philadelphia, 70 U.S. (3 Wall.) 713 (1865) (regulatory jurisdiction extends to non-tidal waters).
68. Utah v. United States, 403 U.S. 9 (1971); United States v. Oregon, 295 U.S. 1 (1935); United States v. Utah, 283 U.S. 64 (1931); United States v. Holt State Bank, 270 U.S. 49 (1926); Brewer-Elliott Oil & Gas Co. v. United States, 260 U.S. 77 (1922); Oklahoma v. Texas, 258 U.S. 574 (1922); Packer v. Bird, 137 U.S. 661 (1891).
69. 77 U.S. (10 Wall.) 557 (1870).
70. Note 68 supra.
71. 77 U.S. at 558.
72. Id. at 563.
73. 270 U.S. 49 (1926).
74. Id. at 54.
75. Id. at 55-56.
76. Id. at 56.
77. Citing The Montello, 87 U.S. (20 Wall.) 430, 439 (1874); United States v. Cress, 243 U.S. 316, 323 (1917); Economy Light & Power Co. v. United States, 256 U.S. 113, 121 (1921); Oklahoma v. Texas, 258 U.S. 574, 586 (1922); Brewer-Elliott Oil & Gas Co. v. United States, 260 U.S. 77, 86 (1922).

78. 270 U.S. at 57.
79. Utah v. United States, 403 U.S. 9 (1971).
80. Id.; United States v. Utah, 283 U.S. 64, 82 (1931).
81. Utah v. United States, 403 U.S. 9 (1971); United States v. Oregon, 295 U.S. 1, 14 (1935); United States v. Utah, 283 U.S. 64, 75 (1931).
82. Utah v. United States, 403 U.S. 9 (1971).
83. Hardy Salt Co. v. Southern Pac. Transp. Co., 501 F.2d 1156, 1166-69 (10th Cir. 1974).
84. 403 U.S. 9 (1971).
85. "The hauling apparently was done by the owners of the livestock, not by a carrier for the purpose of making money. Hence it is suggested that this was not the use of the lake as a navigable highway in the customary sense of the word. That is to say, the business of the boats was ranching and not carrying water-borne freight." Utah v. United States, Id., at 11.
86. Id.
87. Id.
88. 1 Benedict on Admiralty §141 (7th ed. 1974).
89. See generally Bartke, The Navigation Servitude and Just Compensation - Struggle for a Doctrine, 48 Ore. L. Rev. 1 (1968); Hanks, Federal-State Rights and Relations in 2 Waters and Water Rights §100.1 (R. Clark ed. 1967). Utah v. United States, 403 U.S. 9 (1971). The United States Supreme Court in United States v. Appalachian Elec. Power Co., 311 U.S. 277 (1940), considered a non-navigable watercourse to be navigable-in-fact for regulatory purposes if it could be made navigable by reasonable improvements. H. Ellis, J. Beuscher, C. Howard & J. DeBaal, Water-Use Law and Administration In Wisconsin 61 (1970). See United States v. Ladley, 42 F.2d 474 (D. Idaho 1930); State v. Adams, 251 Minn. 521, 537-38, 89 N. 2d 661, 673 (1957), cert. denied, 358 U.S. 826 (1958). One writer has suggested that the "reasonable improvement" concept to bed title situations "has not been precluded from being applied in the future." Davis, State Ownership of Beds of Inland Waters - A Summary and Reexamination, 57 Neb. L. Rev. 665, 670 (1978).
90. For an analysis of the western states in this regard see Johnson and Austin, Recreational Rights and Titles to Beds on Western Lakes and Streams, 7 Nat. Res. J. 1 (1967).
91. Lamprey v. Metcalf, 53 N.W. 1139, 1143 (Minn. 1893).

92. Roberts v. Taylor, 181 N.W. 622, 626 (N.D. 1921).
93. Rood v. Wallace 79 N.W. 449 (1899), appeal dismissed, 187 U.S. 87 (1902).
94. St. Louis I.M. & S. Ry. v. Ramsey, 13 S.W. 931 (1890); Welder v. State, 196 S.W. 868 (Tex. Civ. App. 1917); Griggith v. Holman, 63 Pac. 239 (1900).
95. Clark v. Cambridge & Arapahoe Irr. & Improvement Co., 64 N.W. 239 (1895); Northern Pacific Ry. v. Hirzel, 161 Pac. 854 (1916); Gibson v. Kelley, 39 Pac. 517 (1895).
96. Barney v. Keokuk, 94 U.S. 324, 384 (1876). See also Hardin v. Jordan, 140 U.S. 371 (1891); Kean v. Calumet Canal Co., 190 U.S. 452 (1903); Hardin v. Shedd, 190 U.S. 508 (1903). But see the dissenting opinion of Justice White in both Calumet and Hardin v. Shedd. E.g., "In our judgment the grants of the [federal] government for lands bounded on streams and other waters, without any reservation or restriction of terms, are to be construed as to their effect according to the law of the State in which the lands lie."
97. Brewer-Elliott Oil & Gas Co. v. United States, 260 U.S. 77 (1922); United States v. Holt State Bank, 270 U.S. 49 (1926); United States v. Utah, 283 U.S. 64 (1931); United States v. Oregon, 295 U.S. 1 (1935).
98. 270 U.S. 49 (1926).
99. Id. at 55-56.
100. United States v. Oregon, 295 U.S. 1, 14 (1935).
101. Ozark-Mahoning Co. v. State, 37 N.W. 2d 488 (1949); State v. Sweet Lake Land & Oil Co., 113 So. 833 (1927); Aladdin Petroleum Corp. v. State, 191 P.2d 224 (1948); Luscher v. Reynolds, 56 P.2d 1158 (1936); Smith v. State, 50 P.2d 32 (1935). Few state courts, however, admitted to having applied an inconsistent test previously. See generally Johnson and Austin, supra note 90.
102. State v. Bollenbach, 63 N.W. 2d 278 (1954).
103. Lamprey v. State, 53 N.W. 1139 (1893).
104. 63 N.W. at 288.
105. 89 N.W. 2d 661 (1957).
106. See Johnson and Austin, supra note 90 at 30-33.

107. Hillebrand v. Knapp, 274 N.W. 821 (1937).
108. This was the argument made by Justice White in his dissenting opinion in Kean v. Calumet Canal & Improvement Co., 190 U.S. 452, 502 (1903) and Hardin v. Shedd, 190 U.S. 508, 520 (1903).
109. 295 U.S. 1 (1935).
110. Id. at 28. See also Barney v. Keokuk, 94 U.S. 324, 334 (1876); Wilcox v. Jackson, 38 U.S. (13 Pet.) 266, 276 (1839).
111. 429 U.S. 363 (1977).
112. Id., at 371.
113. Barney v. Keokuk, 94 U.S. 324, 334 (1876); Fox River Paper Co. v. Railroad Comm'n., 274 U.S. 651, 655 (1927). "[T]here is no theoretical objection to a state adopting a more restrictive definition if for some reason it is desired to retain title to some of the beds it received but to grant others to private persons. If this was done, then the test of navigability would be a question of state law rather than federal in deciding what beds had been granted by the state to private persons." Waite, Pleasure Boating in a Federal Union, 10 Buff. L. Rev. 427, 432 (1961). There is a split of authority, however, as to whether sovereignty lands can be alienated.
114. See Comment, The Public Trust Doctrine and Ownership of Florida's Navigable Lakes, 29 U.Fla.L.Rev. 730, 738 (1977).
115. This follows from the fact that many of the state tests were developed largely independently of the federal test and were created specifically to carry out the states' interest in controlling these waterbodies. The fact that the federal government considered certain lands to be swamp and overflowed lands would not necessarily detract from a state's intent, indicated in its own bed title test, to hold these lands in trust for its citizens.
116. The navigability test and its relationship to usufructuary rights is ably set out in MacGrady, The Navigability Concept in the Civil and Common Law: Historical Development, Current Importance, and Some Doctrines That Don't Hold Water, 3 F.S.U. L. Rev. 513, 604 (1975). See also Johnson and Austin, Recreation Rights and Titles to Beds on Western Lakes and Streams, 7 Nat. Res. J. 1, 33 (1967).

117. 25 Fla. 1, 6 So. 160 (1889).
118. Id., at 161-62.
119. Id., at 162. The fact that the river had been meandered by federal surveyors was also cited by the court as evidence of navigability. Id.
120. 58 Fla. 398, 50 So. 826 (1909).
121. 50 So. at 828-29.
122. Id., at 831. Navigability cannot be judicially noticed. Nielson v. Carney Groves, Inc., 159 So. 2d 489, 491 (Fla. 2d D.C.A. 1964).
123. 63 Fla. 109, 58 So. 25 (1912).
124. 58 So. at 26.
125. Id.
126. 87 So. 2d 497 (Fla. 1956). See also, Broward v. Mabry, 58 Fla. 398, 50 So. 826, 831 (1909).
127. 245 So. 2d 609 (Fla. 1971).
128. "In the present case, although the lake was artificially created, there is evidence in the record suggesting a finding of navigability from the standpoint of the lake's suitability for recreational and boating activities. Thus absent overriding considerations springing from its artificial origin, it seems to me this Court might be hard pressed in face of the forward trend of the law in this State and other jurisdictions in a test case requiring a direct adjudication concerning the public or private character of the lake, to approve the trial court's determination in this case that the lake is non-navigable." Id., at 617. It should be noted, however, that Justice Ervin's opinion did not distinguish clearly between the concepts of public use and public title. Perhaps he was only advocating the public's right to use privately-owned waterbodies that are capable of supporting extensive water recreation. Such a rule, nonetheless, would require a change in current Florida law which makes public use dependent upon public title. But see Odum v. Deltona Corp., 341 So.2d 977, 985 (Fla. 1977), in which Justice Ervin's opinion in Silver Blue Lake is taken to advocate a recreation use test for title purposes.
129. 341 So. 2d 977 (Fla. 1977).

130. Id., at 986.
131. Id., at 988.
132. See e.g., Waite, Pleasure Boating in a Federal Union, 10 Buff. L. Rev. 427, 434 (1961).
133. 145 So. 2d 509 (Fla. 2d D.C.A. 1962).
134. Id., at 514. See also, McDowell v. Trustees of the Internal Improvement Fund, 90 So. 2d 715 (Fla. 1956). Broward v. Mabry, 58 Fla. 398, 50 So. 826 (1909).
135. United States v. Utah, 283 U.S. 64 (1931). "The Government insists that the uses of the rivers have been more of a private nature than a public, commercial sort. But, assuming this to be the fact, it cannot be regarded as controlling when the rivers are shown to be capable of commercial use. The extent of existing commerce is not the test. Id., at 82.
136. 270 U.S. 49 (1926). See the description of Mud Lake and Mud River in Minnēsōta at 270 U.S. 56-57.
137. 58 Fla. 398, 50 So. 826 (1909).
138. "At mean water it will average not over two feet in depth, except in a few basins where the water may be eight or ten feet deep.

* * * * *

The water, except in these basins, is thick with water grasses, and cattle from adjoining plantations graze all over it from hoof to belly deep.

* * * * *

The lake can only be navigated at ordinary stage with flat-bottomed boats drawing from three to six inches of water, except in the basins mentioned; and in fact the only navigation is in boats, or bateaux of the character mentioned, in fishing and shooting water fowl. There are one or more subterranean outlets or sinks, through which the waters of the lake at times escape, leaving the entire bed, except in a few of the basins mentioned, entirely dry, and at such times persons can walk dry shod over the whole bed of the lake.

* * * * *

The principal, and almost the only, use of the waters of the lake are put to is for the grazing of cattle, and fishing and fowling."

Id., at 828-29.

139. Id., at 831.
140. See 78 Am. Jur. 2d Waters §64 (1971).
141. 341 So. 2d 977 (Fla. 1977).
142. Id., at 988, citing Baker v. State, 87 So. 2d 497, 498 (Fla. 1956).
143. See text accompanying notes 126-132.
144. E.g., Lopez v. Smith, 145 So. 2d 509 (Fla. 2d D.C.A. 1962).
145. Odum v. Deltona Corp., 341 So. 2d 977, 986 (Fla. 1977).
146. E.g., United States v. Holt State Bank, 270 U.S. 49, 56 (1926), and other federal cases define title navigability in terms of capacity for commercial use; but United States v. Utah, 283 U.S. 64, 82 (1931), allows commercial capacity to be demonstrated by non-commercial activities.
147. Comment, Log Flotation as Evidence of Title Navigability 56 Ore. L. Rev. 107, 123 (1977).

"Log floating is one of the uses of a river or lake that can be accomplished with less water, and in more turbulent water, than many other commercial activities; however, none of the [U.S. Supreme Court] title navigability cases has yet faced or even discussed the log floating question. Three commerce clause cases, The Montello [87 U.S. 430 (1874)], Rio Grande [174 U.S. 690 (1899)], and Appalachian [311 U.S. 377 (1941)], all touch on the question, although their comments are too brief to be much help. In The Montello, the Court seemed to suggest that if there were enough water to float log rafts, then the waters were "navigable." A few years later in Rio Grande the Court qualified this earlier statement by saying that "the mere fact that logs, poles and rafts floated downstream occasionally and in times of high water does not make a navigable river." In Appalachian, the Court again touched on the question, saying, "[T]he uses to which the

streams may be put vary from the carriage of ocean liners to the floating of logs.... The tests of navigability must take these variations into consideration." Needless to say, these brief statements do not provide definite answers.

Johnson & Austin, Recreational Rights and Titles to Beds on Western Lakes and Streams, 7 Nat. Res. J. 1, 20-21 (1967).

148. E.g., Connecticut Light & Power Co. v. Federal Power Comm., 557 F.2d 349 (1977).
149. 25 Fla. 1, 6 So. 160 (1899).
150. "Though it may not be adapted to the use of vessels, and only fit for floating logs or rafts, yet if required for use, and there is sufficient business, present or prospective, to render the easement a matter of public concern, it will be regarded as a public stream for that purpose...." 6 So. at 162.
151. Id., at 161.
152. Osceola County v. Triple E. Development Co., 90 So. 2d 600 (Fla. 1956); Duval v. Thomas, 107 So. 2d 148 (Fla. 2d D.C.A. 1958), cert. dismissed with opinion, 114 So. 2d 791 (Fla. 1959); Florio v. State, 119 So. 2d 305 (Fla. 2d D.C.A. 1960).
153. While this proposition seems to follow, it must be noted that Bucki was decided in 1899, a time when few states had even ventured their first attempt to define navigability in any context. It is highly unlikely that the Florida supreme court, when deciding Bucki, had contemplated the distinct ways in which the navigability concept could be applied.
- 153a. At least one commentator implicitly disagrees with the proposition that Bucki is a sawlog title navigability case, since he noted that only Nevada has held log flotation to be sufficient for title purposes. Comment, supra note 147 at 119. The Nevada case was sharply criticized as incorrectly based on commerce clause navigability criteria which allowed for artificial improvement of the stream. Id., at 120. See also Davis, State Ownership of Beds of Inland Waters—A Summary and Reexamination, 57 Neb. L. Rev. 665, 680 (1978), which treats the Florida and federal bed title tests as identical.
154. Brewer-Elliott Oil & Gas Co. v. United States, 260 U.S. 77 (1922); United States v. Oregon, 295 U.S. 1, 14 (1935).
155. Fox River Paper Co. v. Railroad Comm., 274 U.S. 651 (1927); Barney v. Keokuk, 94 U.S. 324 (1876).

156. Davis, State Ownership of Beds of Inland Waters - A Summary and Reexamination, 57 Neb. L. Rev. 665, 680 (1978) Comment, Log Flotation as Evidence of Title Navigability, 56 Ore. L. Rev. 107, 113 (1977); MacGrady, The Navigability Concept in The Civil and Common Law: Historical Development, Current Importance, and Some Doctrines That Don't Hold Water, 3 Fla. S. U. L. Rev. 511, 604 (1975).
157. See generally, Johnson & Austin, supra note 147; Waite, Pleasure Boating in a Federal Union, 10 Buff. L. Rev. 427 (1961).
158. Johnson & Austin, supra note 147, at 34.
159. E.g., Collins v. Gerhardt, 11 N.W. 2d 193 (Mich. 1942); Johnson v. Seifert, 100 N.W. 2d 689 (Minn. 1960); Luscher v. Reynolds, 56 P.2d 1158 (Ore. 1936).
160. 56 P.2d 1158 (Ore. 1936).
161. Id., at 1161.
162. Id., at 1162.
163. See, Johnson & Austin, supra note 147, at 36-40.
164. 90 So. 2d 600 (Fla. 1956).
165. 107 So. 2d 148 (Fla. 2d D.C.A. 1958), cert. dismissed with opinion, 114 So. 2d 791 (Fla. 1959).
166. 119 So. 2d 305 (Fla. 2d D.C.A. 1960).
167. Id. at 310.
168. Most cases defining ordinary high water line or ordinary high water mark use the two terms interchangeably. Even though the word "mark" seems to describe a point on the bank rather than a continuous line, most cases clearly recognize that "mark" or even "point" means "line" in this context. See, e.g., Tilden v. Smith, 113 So. 708, 712 (Fla. 1927). At least one case has stated that the terms are "synonymous." City of Manhattan Beach v. Cortelyou, 10 Cal. 2d 653, 76 P. 2d 483, 487 (1938). For the purposes of consistency, the term ordinary high water line (OHWL) will be used as inclusive of all other variants to wording. See generally, Maloney, The Ordinary High Water Mark: Attempts at Settling an Unsettled Boundary Line, 13 Land & Water L. Rev. 465 (1978).

169. It is important to understand at the outset the scope of applicability of the OHWL definition. It applies to non-tidal, navigable waterbodies, generally inland from the coast. It does not apply to inland non-navigable, and therefore privately-owned waterbodies, although it may have some relevance in that context where the extent of surface usage of riparian owners must be defined. Cf, Diana Shooting Club v. Husting, 145 N.W. 816 (Wis. 1914); Duval v. Thomas, 114 So.2d 791 (Fla. 1959); Publix Super Market, Inc., v. Pearson, 315 So.2d 98 (Fla. 2d D.C.A. 1975).
170. See, Trelease, Water Law: Resource Use and Environmental Protection 238-456 (2d ed. 1974).
171. The interests of the state in ownership and control of the bed, e.g., navigation, recreation, conservation, are quite different from the traditional property interests of the individual upland owner. The distinction has taken on added significance since the case of Bonelli Cattle Co. v. Arizona, 414 U.S. 313 (1973), which suggests that the nature and extent of sovereign ownership and control may be limited according to the interests which the public actually has in maintaining title to the bed. In some situations, for example, sovereign ownership may be limited where the value of the bed is restricted to particularized public uses such as navigation and recreation.
172. Illinois Central R.R. v. Illinois, 146 U.S. 387 (1892); Broward v. Mabry, 50 So. 826 (1909). These lands may, however, be sold or leased by the state when such action is "in the public interest." See Fla. Stat. §§253.12(2), 253.45 (1979); State ex rel. Buford v. Tampa, 102 So. 336, 340 (1924).
173. Oklahoma v. Texas, 258 U.S. 574 (1922), appeal denied, 260 U.S. 711 (1922); The Abby Dodge, 223 U.S. 166 (1912); Gibbons v. Ogden, 22 U.S. (9 Wheat.) 1 (1824).
174. Including Alabama, Delaware, Illinois, Indiana, Louisiana, Massachusetts, Minnesota, Missouri, Montana, North Carolina, Pennsylvania, South Dakota, Tennessee, Virginia and West Virginia. See 78 Am. Jur. 2d Water 386 (1975) for a compilation with case citations.
175. The ordinary low water mark may be defined to be the usual and common or ordinary stage of the river, when the volume of water is not increased by rains or freshets nor diminished below such usual stage or volume by long continued drought, to extreme low water mark. Nance v. Womack, 2 Shannon's Cases 202 (Tenn. 1877).
176. Some Jurisdictions, however, have denied public use of

the shore on the theory that it interfered with the riparian owner's "exclusive privileges." See e.g., Doeml v. Jantz, 180 Wis. 225, 193 N.W. 393 (1923), criticized in Waite, Public Rights to Use and Have Access to Navigable Waters, 1958 Wis. L. Rev. 335, 371-74.

177. Knight v. United Land Ass'n., 142 U.S. 161 (1891); State v. Grubstake Inv. Ass'n., 117 Tex. 53 297 S.W. 202 (1927); Apalachicola Land & Dev. Co. v. McRae, 86 Fla. 393, 98 So. 505 (1923).
178. Mumford v. Wardwell, 73 U.S. (6 Wall.) 423, 436 (1867); Pollard's Lessee v. Hagan, 44 U.S. (3 How.) 212 (1845).
179. See text accompanying notes 213-91.
180. Willis v. United States, 50 F. Supp. 99 (S.D. W. Va. 1943); Kelly's Creek & Northwestern R.R. Co. v. United States, 100 Ct. Cl. 396 (1943).
181. 54 U.S. 381 (1851).
182. Id., at 397.
183. Tilden v. Smith, 113 So. 708 (Fla. 1927).
184. Id., at 427. It should be noted that Justice Curtis was here also referring to the legal rule for interpretation of the language of the deed in the absence of the clear intent of the parties.
185. Id.
186. Beyond their apparent legal significance, these factors have a great deal of importance with regard to the surveying effort. The convenience and accuracy of surveys of the OHWL should be kept in mind in order to appreciate the utility, or lack thereof, of the various factors.
187. 54 U.S. 381, 428.
188. Id., at 415-416.
189. See Borough of Ford City v. United States, 345 F.2d 645, 648 (3d Cir. 1965), cert. denied, 382 U.S. 902. "The vegetation test is useful where there is no clear, natural line impressed on the bank. If there is a clear line, as shown by erosion, and other easily recognized characteristics such as shelving, change in the character of the soil, destruction of terrestrial vegetation, and litter, it determines the line of ordinary high water

These are not really two separate tests but must, of necessity, complement each other."

190. Id.
191. 271 N.W. 237 (Iowa 1927).
192. Id. at 236-37.
193. See e.g., Hayes v. State, 496 S.W. 2d 372 (Ark. 1973).
194. See e.g., State v. Florida National Properties, 338 So. 2d 13 (Fla. 1976); Broward v. Mabry, 50 So. 826 (Fla. 1909); Ferry Cass A. & S. Ass'n. v. Whites River A. & S. Ass'n., 48 So. 643 (Fla. 1909).
195. 113 So. 708 (Fla. 1927).
196. Id. at 710.
197. Carpenter v. Hennepin County, 56 Minn. 513, 58 N.W. 295, 297 (1894). Tilden cites the case as "Minnetonka Improvement."
198. 113 So. at 712 (emphasis in original).
199. For this proposition, the court cited Dow v. Electric Co., 69 N.W. 798, 45 A. 350 (1899).
200. 112 So. 224 (Fla. 1927).
201. Id., at 283.
202. P. Schureman, Tide & Current Glossary 36 (U.S. Coast & Geodetic Survey Spec. Pub. No. 228, rev. ed. 1949).
203. The tide-producing power of the sun is somewhat less than one half of the tide-producing power of the moon. H. Marmer, Tidal Datum Planes 2 (U.S. Coast & Geodetic Survey Spec. Pub. No. 135, rev. ed. 1951).
204. Id.
205. Roberts, The Luttet Case - Locating the Boundary of the Seashore, 12 Baylor L. Rev. 141, 149 (1960).
206. H. Marmer, supra note 203, at 6.
207. Roberts, supra note 205, at 149.
208. H. Marmer, supra note 203, at 5.
209. Id. at 5-6.

210. Id. at 3.
211. Id. at 4.
212. Roberts, supra note 205, at 150; Comment, Fluctuating Shorelines and Tidal Boundaries: An Unresolved Problem, 6 San Diego L. Rev. 447, 450-51 (1969).
213. Institutes 2.1.1; Digest 1.8.2; W. Buckland, A Text-Book of Roman Law 184, 186 (1921). Several of the medieval English commentators also adhered to this view. 89 Selden Society, Fleta 2-3 (H. Richardson & G. Sayles ed. 1972).
214. England claims "dominion over portions of the North Sea, the Bay of Biscay, and the Atlantic from Cape Finisterre, Spain to Stadland, in Norway." E. Bartley, The Tidelands Oil Controversy 8 (1953). See also The King v. Hampden, 3 How. State Trials 825, 1023 (Ex. 1637); Constable's Case, 74 Eng. Rep. 549 (K.B. 1578); S. Moore, A History of the Foreshore 376-83 (1888); J. Selden, Mare Clausum 363-75, 382-93 (1663); 7 Shelden Society, Mirror of Justices 8 (W. Whittaker ed. 1895). In the controversy over freedom of the seas in the early seventeenth century, English legal commentators maintained that the Crown had property as well as jurisdictional rights to sea, insisting that title to both the sea and the fundus maris or bed of the sea, tam aquae quam soli, was in the King. See, J. Gould, A Treatise on the Laws of Waters §21 (3d ed. 1900).
215. "The King by our law is universal occupant, and all property is presumed to have been originally in the crown." 8 M. Bacon, Abridgement of the Law (J. Bouvier ed. 1876); 2 W. Blackstone, Commentaries 51.
216. See generally, S. Moore, supra note 214, at 1-168.
217. Fraser, Title to the Soil Under Public Waters - A Question of Fact (pts. 1-2), 2 Minn. L. Rev. 313, 317 (1918).
218. 1 H. Farnham, The Law of Water and Water Rights §39a (1904).
219. Viner's Abridgement mentions the unreported case of Digges v. Hammond in which the Court of the Exchequer, around the year 1575, held that title in a salt marsh around Sandwich was in the upland owner rather than in the Queen. 16 C. Viner, A General Agridgement of Law and Equity 575 (2d ed. 1793).
220. The treatise was apparently written about 1666. It was

discovered at Hale's death in 1676 but was not published until 1787. Note, Lord Hale and Business Affected with a Public Interest, 43 Harv. L. Rev. 759 (1930).

221. The second part of Hale's treatise, entitled *De Jure Portibus*, dealt with public and private rights with respect to harbors and ports. Comment, The Public Trust in Tidal Areas: A Sometime Submerged Traditional Doctrine, 79 Yale L. J. 762, 782 (1970).
222. S. Moore, supra note 214, at 370-72; see *Carter v. Murcot*, 98 Eng. Rep. 127 (K.B. 1786); *The King v. Wharton*, 88 Eng. Rep. 1483 (K.B. 1702); *Murphy v. Ryan*, 2 Ir.R.C.L. 143 (1868).
223. S. Moore, supra note 214, at 376.
224. "For the second; that is called an arm of the sea where the sea flows and reflows; and so far only as the sea flows and reflows." Id. at 378.
225. Id.
226. Although the King hath prima facie this right in the arms and creeks of the sea communi jure, and in common presumption, yet a subject may have such a right. And this he may have two ways. 1st. By the King's charter or grant; and this is without question ... 2d. The second right is that which is acquired or acquirable to a subject by custom or prescription; and I think it very clear, that the subject may by custom and usage or prescription have the true propriety and interest of many of these several maritime interests, which we have before stated to be prima facie belonging to the King. Id. at 384-85.
227. Id. at 10-25.
228. Id. at 12-13.
229. 1.8 Car. 1, f. 66 (1632). The *Philpott* case was discussed in *Attorney-General v. Chamberlaine*, 70 Eng. Rep. 122, 123 (V. Ch. 1858); *Attorney-General v. Richards*, 145 Eng. Rep. 980 (Ex. 1795). See also 16 C. Viner, supra note 219, at 576. But see 1 H. Farnham, supra note 218, at §39b. The decree is reprinted in S. Moore, supra note 214, at 895-907.
230. 82 Eng. Rep. 887 (K.B. 1646).
231. 82 Eng. Rep. 1024 (K.B. 1662). "Et in cest case fuit

soven foits affirme & nient deny que le soil de tous rivers cy haut que la est fluxum & refluxum maris est in le Roy & nemy in les siegneurs des manors & c. sans prescription." (It was frequently affirmed and never denied that the soil to all rivers as high as the tide ebbs and flows in the King, and never in the lords of the manors without grant or prescription.)
Id.

232. Earl of Salisbury v. Joyn, 84 Eng. Rep. 992 (K.B. 1676); Whitaker v. Wife, 84 Eng. Rep. 479 (K.B. 1670); Kirby v. Gibs, 84 Eng. Rep. 183 (K.B. 1666).
233. Duke of Beaufort v. Mayor of Swansea, 154 Eng. Rep. 905 (Ex. 1849); Attorney-General v. Burr ridge, 147 Eng. Rep. 335, 342 (Ex. 1822); Rex v. Smith, 99 Eng. Rep. 283 (K.B. 1780); Warren v. Matthews, 91 Eng. Rep. 312 (K.B. 1704); Le Strange v. Rowe, 176 Eng. Rep. 903 (N.P. 1866).
234. However, it can be argued that this was a rule of evidence rather than a principle of substantive law. See Fraser, supra note 217, at 321-22.
235. Trustees of Internal Improvement Fund v. Wetstone, 222 So. 2d 10, 14 (Fla. 1969); Miller v. Bay-to-Gulf, Inc., 141 Fla. 452, 458, 193 So. 425, 427 (1940); White v. Hughes, 139 Fla. 54, 61, 190 So. 446, 449 (1939); Fla. Const. art. X, §11.
236. Mobile Transp. Co. v. City of Mobile, 153 Ala. 409, 44 So. 976 (1907); City of Mobile v. Eslava, 9 Port. 577 (Ala. 1839), aff'd, 41 U.S. 234 (1842).
237. Demmert v. City of Klawock, 199 F.2d 32, 33 (9th Cir. 1952); Alaska Stat. §38.05.320 (1962).
238. People v. William Kent Estate Co., 242 Cal. App. 2d 156, 51 Cal Rptr. 215, 218 (1st Dist. Ct. App. 1966); Katenkamp v. Union Realty Co., 11 Cal. App. 2d 63, 53 P.2d 390 (3d Dist. Ct. App. 1935), rev'd on other grounds, 6 Cal. 2d 765, 59 P.2d 473 (1936); Cal. Civ. Code §670 (West 1954).
239. Hotchkiss Grove Ass'n v. State Water Resources Comm'n, 161 Conn. 50, 282 A.2d 890 (1971); Bloom v. State Water Resources Comm'n, 157 Conn. 582, 254 A.2d 884 (1969); State v. Knowles - Lombard Co., 122 Conn. 263, 188 A. 275 (1936).
240. State v. Ashmore, 236 6a. 401, 224 S.E. 2d 334 (1976).
241. Van Ruymbeke v. Patapsco Indus. Park, 261 Md. 470, 475,

- 276 A.2d 61, 64 (1971); Troy v. Atlantic Gulf & Pac. Co., 176 Md. 197, 206, 4 A.2d 757, 762 (1939).
242. Treuting v. City of Bilxi, 199 So. 2d 627 (Miss. 1967); Harrison County v. Guice, 244 Miss. 94, 140 So. 2d 838 (1962); State ex rel. Rice v. Stewart, 184 Miss. 202, 228-31, 184 So. 44, 49-50 (1938), aff'd on rehearing 184 Miss. 204, 185 So. 247 (1939); Rouse v. Saucier's Heirs, 166 Miss. 704, 712-13, 146 So. 291-92 (1933); Money v. Wood, 152 Miss. 17, 28-30, 118 So. 357, 359-60 (1928).
243. O'Neil v. State Highway Dep't, 40 N.J. 307, 235 A.2d 1 (1967); Baily v. Driscoll, 19 N.J. 363, 367, 117 A.2d 265, 267 (1955).
244. Tiffany v. Oyster Bay, 209 N.Y. 1, 102 N.E. 585 (1913); In re Site for Hunts Point Sewage Treatment Works, 281 App. Div. 315, 119 N.Y.S.2d 391, 404 (1953); Gucker v. Town of Huntington, 254 App. Div. 10, 3 N.Y.S.2d 788, 790-91 (1938).
245. Carolina Beach Fishing Pier, Inc. v. Town of Carolina Beach, 277 N.C. 297, 177 S.E.2d 513 (1970).
246. Winston Bros. Co. v. State Tax Comm'n, 156 Ore. 505, 51 62 P.2d 7, 9 (1936); Hume v. Rogue River Packing Co., 51 Ore. 237, 243, 92 P. 1065, 1068 (1907); Port of Neww v. Haydon, 4 Ore. App. 237, 478 P.2d 445 ().
247. Attorney General ex rel. Jackvony v. Powel, 67 R.I. 218 21 A.2d 554 (1941); Allen v. Allen, 19 R.I. 114, 32 A. 166 (1895).
248. State v. Hardee, 193 S.E.2d 497 (S.C. 1972); Cape Romai Land & Improvement Co. v. Georgia-Carolina Canning Co., 148 S.C. 428, 146 S.E. 434 (1928).
249. Hughes v. State, 67 Wash.2d 799, 410 P.2d 20 (1966), rev'd. on other grounds, 389 U.S. 290; Harkins v. Del Pozzi, 50 Wash. 2d 237, 310 P.2d 532 (1957); Wilson v. Howard, 5 Wash. App. 169, 486 P.2d 1172 (1971).
250. Michaelson v. Silver Beach Improvement Ass'n, Inc., 342 Mass. 251, 253, 173 N.E.2d 273, 275 (1961); Iris v. Town of Hingham, 303 Mass. 401, 403, 22 N.E.2d 13, 15 (1939). The ordinance of 1647 provides that the low water mark shall be used if it does not extend more than one hundred rods, about 1650 feet, beyond the high water mark.
251. In re Hadlock, 142 Me. 116, 119, 48 A.2d 620, 630 (1946) Sinford v. Watts, 123 Me. 230, 232, 122 A. 573, 574

- (1923); *Snow v. Mt. Desert Island Real Estate Co.*, 84 Me. 14, 17, 24 A. 429, 430 (1891).
252. *State ex rel. Buckson v. Pennsylvania R. Co.*, 267 A.2d 455 (Del. 1967).
253. *Nudd v. Hobbs*, 17 N.H. 524 (1845).
254. *Commonwealth ex rel. Hansel v. Y.M.C.A.*, 169 Pa. 24, 38, 32 A. 121, 127 (1895); *Wall v. Pittsburgh Harbor Co.*, 152 Pa. 427, 25 A. 467 (1893); *Matthews v. Bagnik*, 157 Pa. Super. 115, 119, 41 A.2d 875, 877 (1945).
255. *Whealton & Wisherd v. Doughty*, 116 Va. 566, 572, 82 S.E. 94, 96 (1914); *Groner v. Foster*, 94 Va. 650, 657, 27 S.E. 493, 496 (1897); Va. Code Ann. §§62.1 - .2 (1973)
256. *Rudder v. Ponder*, 156 Tex. 185, 193, 293 S.W. 2d 736, 741 (1956); *DeMerit v. Robinson*, 102 Tex. 358, 361, 116 S.W. 796, 797 (1909).
257. *Luttet v. Texas*, 159 Tex. 500, 324 S.W. 2d 167 (1958). The line of mean higher high tide is the higher of the daily high tides at a particular locality over a nineteen year period. Where there are two high tides per day, the line of mean higher high tide will be above the line of mean high tide, but where there is only one high tide per day the lines will be identical. See generally *City of San Francisco v. Le Roy*, 138 U.S. 656 (1891); *United States v. Pacheco*, 69 U.S. (2 Wall.) 587 (1864); *Apalachicola Land & Dev. Co. v. McRea*, 86 Fla. 393, 98 So. 505 (1923); *Brickell v. Trammell*, 77 Fla. 544, 82 So. 221 (1919).
258. 3 La. Civ. Code Ann. art. 451 (West 1952). In the case of a Spanish land grant, however, the mean high water line is used. *New Orleans Land Co. v. Board of Levee Comm'rs*, 171 La. 718, 132 So. 121 (1930).
259. *Application of Ashford*, 50 Hawaii 314, 316-17, 440 P.2d 76, 77-78 (1968).
260. 296 U.S. 10, 56 S. Ct. 23, 80 L.Ed 9 (1935).
261. Ch. 115, [1917] Cal. Laws 159; ch. 656, [1911] Cal. Laws 1256.
262. *City of Los Angeles v. Borax Consol. Ltd.*, 5 F. Supp. 281 (S.D. Cal. 1933).
263. 74 F.2d 901 (9th Cir. 1935).
264. 296 U.S. 10 (1935).

265. Id. at 22. But see Udall v. Oelschlaeger, 389 F.2d 974 (D.C. Cir.), cert. denied, 392 U.S. 909 (1968).
266. 43 Eng. Rep. 486 (K.B. 1854).
267. Id. at 488. In his treatise De Jure Maris, Lord Hale described three varieties of tides: (1) the high spring tides which occur at the two equinotical periods; (2) the spring tides which occur twice a month at the full and change of the moon; and (3) ordinary tides or neap tides, which happen between the full and change of the moon. Only the last category of tides, according to Hale, should be used to determine the high water mark. S. Moore, supra note 214, at 393.
268. 296 U.S. at 26, 27.
269. H. Marmer, Tidal Datum Planes 2 (U.S. Coast & Geodetic Survey Spec. Pub. No. 135, rev. ed. 1951).
270. 1 A. Shalowitz, Shore and Sea Boundaries 89 (1962).
271. E.g., O'Neil v. State Highway Dep't, 50 N.J. 307, 323-24, 235 A.2d 1, 9-10 (1967); Carolina Beach Fishing Pier, Inc. v. Town of Carolina Beach, 277 N.C. 297, 303, 177 S.E.2d 514, 516 (1970); Wilson v. Howard, 5 Wash. App. 169, 486 P.2d 1172 (1971).
272. 193 So. 425 (Fla. 1940).
273. Id. at 427.
274. Id. at 428.
275. 18 Call. 11. (1861).
276. Id. at 21-22. See also Otey v. Carmel Sanitary District 219 Cal. 310, 313 (1933).
277. 1 A. Shalowitz, supra note 270, at 96.
278. People v. William Kent Estate Co., 51 Cal. Rptr. 215, 242 Cal. App. 2d 156 (1st Dist. 1966). "Neap tides are those occurring when the moon is in its first and third quarters, and the high neap tides are somewhat lower than the high spring tides occurring at times of the new and full moon." 51 Cal. Rptr. at 219. This definition substantially accords with the scientifically recognized definition of the neap tides as "tides of decreased range ... occurring semi-monthly as the result of the moon being in quadrature." Tide and Current Glossary (U.S. Coast & Geodetic Survey Spec. Pub. No. 228, at 25, rev. ed. 1949).

279. 193 So. at 428.
280. 40 Fla. Supp. 26 (Cir. Ct. 1974).
281. Id., at 31.
282. "The title to lands under navigable waters, within the boundaries of the state, which have not been alienated, including beaches below mean high water lines, is held by the state, by virtue of its sovereignty, in trust for all the people."
283. Fla. Stat. §§ 161.052(1), 161.061 (1979).
284. Fla. Stat. Chapter 177, Part II (1979).
285. Fla. Laws 1974, Ch. 74-56, codified in Fla. Stat. Chapter 177, Part II (1979).
286. Fla. Stat. §177.26 (1979).
287. 222 So. 2d 10, 13-14 (Fla. 1969).
288. 294 So. 2d 73, 78 (Fla. 1974).
289. 295 So. 2d 141, 142 (Fla. 2d D.C.A. 1974).
290. 362 So. 2d 706, 711 (Fla. 3d D.C.A. 1978).
291. 365 So. 2d 1084, 1087 (Fla. 1st D.C.A. 1979).
292. 3 American Law of Property §15.26 (Casner ed. 1952); see Smith v. Whitney, 105 Mont. 523, 74 P.2d 450, 453 (1937).
293. St. Clair v. Lovington, 90 U.S. (23 Wall.) 46, 66 (1874); Humble Oil & Ref. Co. v. Sun Oil Co., 190 F.2d 191, 196 (5th Cir. 1951), cert. denied, 342 U.S. 920 (1952).
294. Katy v. Patterson, 135 Ore. 449, 296 P. 54 (1931).
295. Id. at 453, 296 P. at 55.
296. 3 American Law of Property, supra note 292; see United States v. 461.42 Acres of Land, 222 F. Supp. 55, 56 (N.D. Ohio 1963).
297. Martin v. Busch, 93 Fla. 535, 574, 112 So. 274, 287 (1927); McClure v. Couch, 182 Tenn. 563, 572, 188 S.E.2d 550, 553 (1945); Note, Avulsion and Accretion - Emphasis Oregon, 3 Willamette L.J. 345, 346 (1965).
298. State v. Bonelli Cattle Co., 107 Ariz. 465, 489 P.2d

- 699 sup. cf. 108 Ariz. 258, 495 P.2d 1312, rev'd on other grounds 414 U.S. 313 94 S. Ct. 517, 38 L. Ed. 2d 526 (1973); State v. Hohnson, 278 N.C. 126, 179 S.E. 2d 371 (1971).
299. Trustees of the Internal Improvement Fund v. Sutton, 206 So.2d 272 (Fla. 3d D.C.A. 1968(1 Municipal Liquidators, Inc. v. Trench, 153 So.2d 728 (Fla. 2d D.C.A. 1963); Ford v. Turner, 142 So.2d 335 (Fla. 2d D.C.A. 1962); Paxson v. Collins, 100 So.2d 672 (Fla. 3d D.C.A. 1958); Mexico Beach Corp. v. St. Joe Paper Co., 97 So.2d 708 (Fla. 1st D.C.A. 1957).
300. Bd. of Trustees of the Internal Improvement Trust Fund v. Medeira Bch. Nominee, Inc., 272 So.2d 209, 212 (Fla. 2d D.C.A. 1973); Mexico Beach Corp. v. St. Joe Paper Co., 97 So.2d 708, 710 (Fla. 1st D.C.A. 1957).
301. 56 Am. Jur. Waters §478 (1947).
302. Mexico Beach Corp., v. St. Joe Paper Co., 97 So.2d 708 (Fla. 1st D.C.A. 1957).
303. Lundquist, Artificial Additions to Riparian Land: Extending the Doctrine of Accretion, 14 Ariz. L. Rev. 315, 322 (1972).
304. Sidener v. Pensacola, 13 Fla. Supp. 120, 128-29 (Cir. Ct. Escambia County, Fla. 1958).
305. 3 Farnham, Waters & Water Rights §845 (1904).
306. Hudson House, Inc. v. Rozman, 82 Wash. 2d 178, 509 P.2d 992 (1973); Steinem v. Romney, 233 Md. 16, 194 A.2d 774 (1963). See also Lamprey v. Metcalf, 52 Minn. 181, 53 N.W. 1139 (1893).
307. 142 So.2d 335 (Fla. 2d D.C.A. 1962).
308. Id. at 341.
309. Adams v. Frothingham, 3 Mass. 352 (1807); County of St. Clair v. Lovington, 90 U.S. (23 Wall.) 46 (1874).
310. E.g., Brundage v. Knox, 279 Ill. 450, 117 N.E. 123, 127 (1917); State v. Sause, 217 Ore. 52, 342 P.2d 803 (1959). Contra, Roberts v. Brooks, 78 F. 411 (2d Cir. 1888); Grant v. Fletcher, 283 F. 243, 269-70 (E.D. Mich. 1922).
311. E.g., Bonelli Cattle Co. v. Arizona, 414 U.S. 313, 945 S. Ct. 517, 38 L. Ed. 2d 526 (1973). County of St. Clair v. Lovington, 90 U.S. 46, 23 L. Ed. 59

- (1874); State v. Sause, 217 Ore. 42, 342 P.2d 803 (1959).
312. 90 U.S. (23 Wall.) 46 (1874).
313. 243 Iowa 634, 51 N.W. 2d 472 (1952).
314. 51 N.W. 2d 472, at 476.
315. 272 So.2d 209 (Fla. 2d D.C.A. 1973).
316. Id. at 211.
317. Id. at 212.
318. Id. at
319. Fla. Stat. §161.051 (1979). "Where any person, firm, corporation, county, municipality, township, special district, or any public agency shall construct and install projects when permits have been properly issued, such works and improvements shall be the property of said person, firm, corporation, county, municipality, township, special district or any public agency where located, and shall thereafter be maintained by and at the expense of said person, firm, corporation, county, municipality, township, special district, or other public agency. No grant under this section shall affect title of the state to any lands below the mean high water mark, and any additions or accretions to the upland caused by erection of such works or improvements shall remain the property of the state if not previously conveyed." (Emphasis added.)
320. "Even if the Statute is Constitutional with respect to riparian owners we are not convinced that a legislative intent that the statute be applied retroactively has been shown." (Emphasis added.) 272 So. 2d at 214.
321. 40 Fla. Supp. 26 (15th Cir. Ct. 1974).
322. Id. at 28.
323. The circuit court pointed out that the company's problem was self-created in that the hotel had not been constructed on pilings which would have obviated the necessity of the seawall. Id.
324. Borax Consolidated Ltd. v. City of Los Angeles, 296 U.S. 10 (1935).
325. Miller v. Bay-to-Gulf, Inc., 193 So. 425 (Fla. 1940).
326. "[I]n the case subjudice, this court specifically ador

the [Miller v. Bay-to-Gulf] definition of "ordinary high water mark: as the "mean high water line." 40 Fla. Supp. at 31.

327. "this unique combination of circumstances places the case at hand in the category of one of first impression." Id.
328. Id. at 32-33.
329. Id. at 33.
330. The discussion which follows is adapted largely from the amicus curiae brief of two of the authors, Dean Frank E. Maloney and Richard C. Ausness, which was filed with the Fourth District Court of Appeal in anticipation of that Court's review of the Ocean Hotel decision. Case No. 74-255 (1974).
331. 222 So. 2d 10 (Fla. 1969).

