

AN OVERVIEW OF LEGAL CONSTRAINTS
ON AQUACULTURE

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ABSTRACT

Although it is a growing industry, aquaculture production in the United States lags far behind nations such as China, Japan and the Soviet Union. While the development of aquaculture's nutritional and economic potential has also been hindered by economic and production factors, legal and regulatory constraints are commonly perceived as the most constraining influences.

Individual regulations may not be particularly oppressive and may indeed be viewed as beneficial to the industry, but our federal system of government has permitted the evolution of a system of fragmented and overlapping local, state and federal jurisdiction over a range of areas affecting the fish farming industry - even though not necessarily directed at it.

This study will outline the major areas of state and federal regulation affecting the aquaculture industry as well as efforts currently being made to reduce legal and regulatory constraints on aquaculture development.

INTRODUCTION

As sources of protein in the nation's diet, meat, poultry and dairy products rank much higher than fish. Nevertheless, fish landings in the United States have not increased at even the modest rate of fish consumption. Although it has been

estimated that as much as 20%¹ of the world's harvestable supply of fish can be found on the continental shelf areas adjacent to our coastlines and elsewhere in the fishery conservation zone established by the Magnuson Fisheries Conservation and Management Act² (FCMA), most of the fish eaten by Americans is imported. In 1976, 63% of edible fishery products were imported, creating a balance of trade deficit of nearly two billion dollars.³

While the FCMA and other laws⁴ were passed by Congress in an effort to increase the ability of the various segments of the U.S. fishing industry to capitalize on the potential for economic growth, the potential contribution of aquaculture seems to have been treated almost as an afterthought.

Aquaculture is based on an assumption that proper management of controlled systems, by permitting optimal use of input materials such as feed and energy, can provide greater yield than is possible in unmanaged natural systems.⁵ Fish culture has been practiced for thousands of years, and today aquaculture facilities provide nearly 10% of the world catch.⁶ Although it is a growing industry here, producing in excess of 90,000 metric tons of finfish and shellfish annually⁷, the United States produces a negligible fraction of this percentage.

Conceptually, aquaculture is to fishing as agriculture is

to hunting, but one authority estimates that U.S. aquaculture today is about where agriculture was three hundred years ago, "very low in technology, but very high in promise and opportunity".⁸

Like any commercial agricultural enterprise, the typical commercial aquaculture enterprise is confronted by an array of federal, state and local legal requirements. Agriculture, however, has been able over the years to develop relatively coordinated policies and programs administered by comparatively few government agencies. Furthermore, agricultural programs for the most part enjoy a significant level of political support. Aquaculture has not been so fortunate. It is a relative newcomer that does not fit neatly into existing agricultural programs and as a result is regulated at each level of government by a number of agencies, bureaus, departments and offices; each with traditional "turf" and a tendency to preserve the status quo. Federal agencies are involved in programs ranging from financial and technical assistance to regulation of health and sanitation and environmental protection. State agencies are also involved in these areas as well as water use and fish and wildlife management. Local governments usually regulate land use and construction. The majority of laws and regulations that specifically authorize permit or control aquaculture operations can be found at the state level, although generally all three levels of government are involved at each step of

aquaculture development and operation. It is thus very easy to find regulatory gaps, inconsistent policy, duplication of effort and overlapping jurisdiction in a maze which is in its totality the principle regulatory barrier to the potential aquaculture entrepreneur.

It should also be noted that "constraints" such as health and sanitation regulations and many others are indisputably beneficial to the industry. Few people would suggest that this type of regulation should be made less stringent.

On reflection then, it would appear that the source of the problems created by the legal and regulatory regime affecting aquaculture has been the absence of direction and coordination. Despite a number of well intended programs there has been lacking a coherent national policy.

The federal government has been involved in aquaculture programs for at least a hundred years⁹, but it was with passage of the National Aquaculture Act of 1980¹⁰ that Congress finally attempted to establish a national policy to promote the development of aquaculture.

THE NATIONAL AQUACULTURE ACT OF 1980

An examination of the legislative history¹¹ of the Act indicated that Congress recognized the potential of aquaculture in the U.S. as well as the problems which affect the industry -

including economic, production and legal factors which actually inhibit the development of aquaculture as a commercial enterprise. Legal and regulatory constraints were perceived as among the most constraining influences hindering such development.

The Act is notable in that it does not establish another licensing and regulatory framework, but rather establishes an interagency aquaculture coordinating group charged with an advisory role which includes the collection and dissemination of information as well as coordination of all federal activities affecting aquaculture. The Secretaries of Agriculture, Commerce and Interior are required to establish a National Aquaculture Development Plan¹² which includes " . . . programs to analyze, and formulate proposed resolutions of the legal or regulatory constraints that may affect aquaculture,"¹³ Furthermore, the Secretaries are required to make a continuing assessment of ". . . the economic, physical, legal, institutional and social constraints that inhibit the development of aquaculture in the U.S."¹⁴

Congress also ordered a study to be conducted of State and Federal regulatory restrictions to aquaculture development in the U.S.¹⁵ This study was to include a literature search and a descriptor list identifying the parameters of the issue; a list of relevant current and pending state and federal regulations;

and, case studies of a number of existing aquaculture operations to determine the practical effect of regulatory restrictions.

This latter congressional mandate resulted in an eighteen month research and writing effort and a six volume (unpublished) report¹⁶ that specifically identifies the enormous and complex body of state and federal laws and regulations which either directly or indirectly affect the development of commercial aquaculture operations in this country.

According to the report there are approximately 50 federal statutes (accompanied by implementing regulations) which have a direct impact on how, when, where, and with what the fish farmer does business and over 120 federal statutory programs identified as having a significant relationship to aquaculture.¹⁷ Furthermore, although researchers examined the official codes of only 32 of the 50 states, over 1200 state laws with varying degrees of impact on aquaculture development were identified.¹⁸

The National Aquaculture Development Plan required under §2803 of the Act is now in draft form and has been submitted to the Departments of Agriculture, Commerce and Interior for approval, and, according to the Aquaculture Coordinator at the Department of Agriculture, could be released within the next few months (depending on OMB review and Congressional appropriations).¹⁹

These developments at the federal level since passage of the National Aquaculture Act are encouraging, but changes in the regulatory climate are not likely to occur overnight.

OVERVIEW OF REGULATORY CONSTRAINTS

Despite the progress and potential for change created with passage of the National Aquaculture Act, it is very unlikely that any radical changes in the legal and regulatory system will occur quickly. The potential aquaculturist should therefore be aware of the general categories of direct and indirect restrictions which he is likely to encounter. Many of these restrictions would be faced by any small businessman; others by anyone seeking establishment of a water oriented enterprise; and still others are directed particularly at the aquaculture industry. The net effect of these regulations is the creation of a need for considerable expenditures of time and money and the consequential creation of an atmosphere which discourages investment in the industry.

The following general categories of regulation should be considered by the potential aquaculture entrepreneur: land regulation; water regulation; pollution; fish and fisheries management; facility/hatchery management; and, processing operations. Additionally, the areas of commercial/financial regulation and labor policy have been identified as legal constraints, but these areas are best treated from an economic and marketing

perspective. Obviously there is a good deal of overlap among these areas, and, particularly in the areas of land and water regulation, all three levels of government - federal, state and local - become involved in one degree or another.

Land Regulation

A. Zoning

In the eighteenth century, the elder Pitt declaimed that "the poorest man in his cottage could defy the King - storms may enter; the rain may enter - but the King of England cannot enter."²⁰ Following the American Revolution and well into the twentieth century, the only limitations placed on a person's use of private property were common law limitations such as those prohibiting uses construed to be public or private nuisances. The door was figuratively opened to the King in 1926, when the Supreme Court held that the sovereign power - the state - has the authority to restrict and regulate private property rights when such regulation is for the protection of the public health, safety, morals or general welfare.²¹ Zoning is now the most widely employed form of land use control. Commonly delegated by the state to county or local authorities, a zoning ordinance is valid to control the use of private land unless it is found to be unreasonable, arbitrary, discriminatory or confiscatory. The state retains oversight authority over ordinances passed by county and municipal authorities, and the private landowner is further protected by the 5th Amendment to the

federal constitution. That amendment prohibits the government (federal, state or local) from taking private land for public purposes without payment of just compensation. Such a taking is easy to find when the government wants the land to build a highway or a dam, but the question of takings is not so clear-cut where the government limits or prohibits a use of land.²²

Very often, the acquisition and use of land as an aquaculture facility is a new use; not contemplated by zoning authorities and not designated under guidelines of a local master plan. The aquaculture developer is then faced with obtaining a variance or an amendment to the zoning code - both time consuming and potentially costly endeavors. Development constraints may also occur where uncertainty persists as to whether aquaculture is an agricultural or an industrial use. Furthermore, the aquaculturist, like any other developer, must comply with permitting requirements of building codes and construction standards.

B. Coastal Zone Management

In 1972, after consideration of a national land use law, Congress passed the Coastal Zone Management Act (CZMA).²³ The CZMA established a system of federal grants as incentives for individual states to develop enforceable programs for land and water use planning in the coastal zone. The CZMA defines the coastal zone as ". . . the coastal waters and the adjacent

shorelands strongly influenced by each other and in proximity to the shorelines of the several coastal states and includes . . . transitional and intertidal areas, salt marshes, wetlands and beaches."²⁴

In order to obtain the federal grants, the state must establish an approved program which provides means to administer coastal zone land and water use regulations, control development, and provide for a system of conflict resolution among competing uses. Although participation in the federal program is voluntary, most states now have approved coastal zone management programs.²⁵ Since the CZMA encourages rational, mixed use in the coastal zone, it is not disadvantageous to the aquaculturist - water dependent uses are generally encouraged.

Most often, the coastal zone management programs are based on a "networking" of existing statutes. In New Jersey for example, the three principle regulatory laws by which the Department of Environmental Protection manages the coastal zone are the Waterfront Development Law²⁶, the Wetlands Act²⁷, and the Coastal Area Facility Review Act²⁸ (CAFRA).

Installation of a new dock, pier, bulkhead or mooring in a tidal water body will require a waterfront development permit. An application for such a permit must contain engineering drawings prepared by a licensed professional engineer²⁹ and a site

plan and survey depicting existing and proposed structures on the site, property lines and mean high and mean low water lines.

A wetlands permit is required for regulated activities on coastal wetlands. Such activities include excavation of small boat mooring slips, maintenance or repair of bridges, roads or highways, and construction of piers, catwalks, docks, landings and observation decks. In addition, a wetlands permit (Type B) is required for the installation of utilities, excavation for boat channels and mooring basins, construction of impoundments and sea walls, water diversion, and the use of pesticides.

CAFRA authorizes the Department of Environmental Protection to regulate and approve the location, design and construction of major facilities in an area which includes the bulk of the states's coastal zone. Among the facilities regulated by CAFRA and requiring a permit are all food and food by-product facilities.³⁰ A CAFRA permit application (and a Type B wetlands permit application as well) must contain an Environmental Impact Statement (EIS). State regulations require the EIS for a CAFRA permit to include: an inventory of existing environmental conditions at the project site and in the surrounding region which shall describe air quality, water quality, water supply, hydrology, geology, soils, topography, vegetation, wildlife, aquatic organisms, ecology, demography, land use, aesthetics, history and archaeology; a project description which shall specify what

is to be done and how it is to be done during construction and operation; a listing of all licenses, permits or other approvals as required by law and the status of each; an assessment of the probable impacts of the project; a listing of adverse environmental impacts which cannot be avoided; steps to be taken to minimize adverse environmental impacts during construction and operation, both at the project site and in the surrounding region; alternatives to all or any part of the project with reasons for their acceptability or unacceptability; and, a reference list of pertinent published information relating to the project, the project site, and surrounding region.³¹

Before becoming involved in the permitting process, the applicant should be aware that a valid tidelands instrument³² must be obtained prior to submitting an application for any of the three previously mentioned permits.

Tidelands are those lands which are now or were formerly flowed by the tides - the area between mean high water and mean low water. On flat, coastal plain areas (such as New Jersey) the amount of acreage can be enormous. Without a valid tidelands instrument a person occupying tidelands has the legal status of a trespasser; the state is entitled to obtain the fair market value of such land and the fair market rental value for the period during which it was illegally occupied.

In order to obtain a tidelands grant, lease or license the applicant must submit a current survey, prepared by a licensed surveyor, showing the upland property, the boundaries of the tidelands areas applied for, the location of the mean high water line, the depth of the waterway at mean low water, the names of adjoining property owners, a diagram of proposed or existing structures within the area; and, a certificate of title signed by an attorney or title company representative showing that the applicant owns the upland property or has the permission of the upland owner to apply for the conveyance.³³

There has been some movement towards streamlining the system. The Office of Cultural and Environmental Services coordinates the review of major development proposals likely to require more than one DEP-administered permit. The Office of Business Advocacy in the State Department of Commerce helps developers determine which state permits are needed. Pre-application conferences are encouraged and potential developers are advised at an early stage whether a proposal is likely to be approved or what modifications would enhance the likelihood of approval.

Water and Pollution Regulation

Although jurisdictional boundaries on land are easier to identify than water boundaries, it is not terribly difficult to clarify these jurisdictional lines. Inland waters - rivers, streams, lakes and groundwater normally are regulated by the

states subject to reserved rights of navigation and water quality preservation vested in the federal government.³⁴ That ocean area within three miles of a coastal state is known as the territorial sea and is also within state jurisdiction.³⁵ Seaward of the territorial sea out to 200 miles off the coast is administered by the federal government.³⁶ The high seas are governed by international law; both customary and treaty law.

In identifying the water resources necessary to an aquaculture operation and assuring a sufficient supply, it is necessary to determine the ownership or control of that water. In most circumstances water is considered a public resource and as such competition for that resource potentially involves shipping, waste disposal, commercial and recreational fishing, and boating interests. Here again, statutory silence about water use for aquaculture could be viewed as a legal constraint.

Riparian rights in most states include rights of access to and from the water, "wharfing out" rights, and preference in development of adjacent submerged land.³⁷

However, the law regarding issues of riparian and littoral water rights is complex. The aquaculturist must be aware of applicable state laws dealing with acquisition of such rights, and must insure that the aquaculture operation does not unduly infringe on the rights of other riparian owners.

Water pollution can be either a threat to stock or a by-product of aquaculture operations (or both). Furthermore, the potential fish farmer will find that siting options are limited; often due to illegal discharges and less than stringent enforcement of existing regulations. On the other hand, the aquaculturist will find that the discharge of effluents from ponds and raceways will normally require a permit.

Any discharge of a pollutant from a point source into U.S. waters is prohibited unless made pursuant to a National Pollutant Discharge Elimination System (NPDES) permit. These permits are issued under authority of the Clean Water Act³⁸ and implementing regulations³⁹ by the Environmental Protection Agency (EPA) or a state agency delegated permit program authority by the EPA.

According to the regulatory constraints report,⁴⁰ fish farmers argue that EPA regulations are unduly restrictive in that they fail to distinguish between biodegradable wastes produced by fish hatcheries, and chemical wastes produced by industry. They also complain that the beneficial effects of fish waste nutrients is not considered, nor the flushing effect of tidal waters in some locations.

In making a determination that an aquaculture facility is a "point source" requiring a NPDES permit, regulations require an on site inspection of the location and quality of receiving

waters, holding, feeding and production capacity of the facility, and, the quantity and nature of the pollutants reaching waters of the U.S.⁴¹ Aquaculture applicants must provide this information to the EPA and must report quantitative data on effluent characteristics of the same kind as manufacturing, commercial, mining and silvicultural discharges.

Section 404 of the Clean Water Act authorizes the U.S. Army Corps of Engineers to regulate the discharge of dredged or fill materials into waters of the U.S.⁴² Curiously, the guidelines for issuing these permits are Section 404 (b)(1) guidelines issued by EPA. Responsibility for the program is thus split between the Corps and EPA. Any construction of dams or dikes in navigable waters; any activities that alter the course, condition, location or capacity of navigable waters; and, all transportation of dredged materials for dumping into ocean waters require permits. A privately owned waterway might come within the legal definition of "navigable waters of the U.S."⁴³

In addition to the Corps and EPA, the Fish and Wildlife Service of the Department of the Interior and the National Marine Fisheries Service of the Department of Commerce may be given the opportunity to review and comment on dredge and fill applications where fish and wildlife resources could be affected.

Facility/Hatchery Management and Processing

Having obtained the necessary land use, siting, water use and pollution permits, and having complied with applicable federal, state and local business and tax regulations, the fish farmer must consider the spectrum of public health and sanitation regulations which affect the heart of an aquaculture operation. These regulations might present major obstacles arising from biological or chemical contamination of water, pharmaceutical residues from commercial feeds or water additives, and diseases in the fish.⁴⁴ Pesticides, herbicides and chemicals used for predator control in aquaculture operations are strictly regulated at each level of government. Even so, as a recent report of the NJDEP Office of Cancer and Toxic Substances⁴⁵ makes painfully evident, fish represent various risks to consumers since they directly reflect the character of the environment from which they originate.

An absolute need for quality aquaculture-raised fish products raises issues of fish disease control for the fish farmer. The Food, Drug and Cosmetic Act⁴⁵ (FDCA) requires that drugs or chemicals used on fish must be registered and approved by the Food and Drug Administration (FDA) of the Department of Health and Human Services. Approval of such chemicals and pharmaceuticals requires a rigid and highly specific FDA certification process; one which might cost years of research and millions of

dollars. Within the FDA, the Bureau of Veterinary Medicine, the Bureau of Foods and the Bureau of Toxicology review applications, and for aquaculture purposes the Fish and Wildlife Service would also become involved in the review process.

Because of the probable high cost in time and money involved in obtaining FDA certification, and because aquaculture operations present a relatively small market, private industry to date has not made the investment in research and development which would provide an adequate battery of pharmaceuticals and chemicals for the fish farmer.

Another facet of the FDA drug registration process which presents a constraint to the aquaculture industry is the fact that the process applies to the use of a drug, not to the drug itself. The current system requires separate studies and re-registration for use on separate species. A drug approved for use on trout would not automatically be approved for use on salmon. The constraining effect of this process is obvious, but the FDA has consistently rejected proposals that some drugs be given "blanket approval" for a variety of species and uses.

The net result presents a dilemma to the fish farmer: by not using unregistered chemicals, valuable fish stock will be lost to parasites and disease; by using unregistered chemicals with known therapeutic value, the aquaculturist risks being in violation of federal regulations.

Food additives must likewise be cleared for safety by the FDA before use in processing, packaging, transporting or holding fish products. Adulterating or misbranding any food or drug is illegal,⁴⁷ and for purposes of the FDCA a food is adulterated if it ". . . contains any poisonous or deleterious substance which may render it injurious to health."⁴⁸ Proving the safety of a given substance also requires extensive testing.

Finally, since an aquaculture facility is normally an integrated operation, the prospective aquaculturist should be aware that both state health agencies and the FDA specify design and construction requirements of processing plants as well as operational procedures to insure a safe and wholesome product.

Fish and Fisheries Management

The government agencies chiefly responsible for development and implementation of fisheries management programs are the National Marine Fisheries Service (NMFS) of the U.S. Department of Commerce, the Fish and Wildlife Service (FWS) of the U.S. Department of Interior, and the fifty corresponding state agencies. These agencies are responsible for the conservation and maintenance of healthy stocks of fish in health habitats for commercial and recreational fishing.

Congressman John F. Lacey of Iowa introduced the original Lacey Act of 1900⁴⁹ to assist individual states in protecting wildlife, chiefly bird and animal species, from illegal

interstate traffic. The Act provided for federal jurisdiction over such species, moved beyond originating state jurisdiction. The Black Bass Act of 1926,⁵⁰ based on the same philosophy, was ultimately expanded to cover all species of fish. The illegal movement of fish across state (and national) boundaries was identified by Congress as an increasing problem involving tremendous illegal profits,⁵¹ and the Lacey Act amendments of 1981 consolidated and strengthened the applicable laws.

The Lacey Act is aimed at the protection of wildlife, the restriction of importation of non-indigenous (potentially harmful) species, and the control of animal, bird and fish diseases and parasites. It is not aimed at constraining the aquaculture industry, although aquaculturists are subject to the law. The importation, exportation and transportation of wildlife is restricted, both by the federal Act and by applicable laws and regulations of the individual states. The term "fish or wildlife" means any ". . . fish, . . . whether or not bred, hatched, or born in captivity" which is normally found in a wild state, ". . . and including any part, product, egg or offspring thereof."⁵³ Anyone who knowingly receives, acquires or purchases any prohibited species is liable under the Act for a civil penalty of up to \$10,000⁵⁴ or criminal penalties of up to \$20,000 or five years in prison or both.⁵⁵

The potential aquaculturist must therefore make certain that

the necessary state permits; hatchery permits, stocking permits, etc., are obtained before acquiring eggs, fingerlings or brood stock which travels in interstate commerce.

CONCLUSIONS

It is not necessarily individual laws or regulations that constrain the aquaculture industry, it is the enormous weight of numbers of regulations. Movement toward a coordinated federal program is taking place, particularly since passage of the National Aquaculture Act of 1980. At the very least this Act has resulted in the identification and compilation of specific regulatory constraints.

A major and integral part of the federal aquaculture effort mandated by the National Aquaculture Act was the creation of a Sea Grant Aquaculture Plan.⁵⁶ By terms of a Memorandum of Understanding signed by representatives of the Departments of Agriculture, Commerce and Interior, the Commerce Department was assigned responsibility for aquaculture research and development on marine, estuarine, anadrymous and Great Lakes species. The Sea Grant Aquaculture Plan was written pursuant to this responsibility.

The Plan outlines the goal of the National Sea Grant Program to establish a sound scientific basis and to disseminate knowledge gained by 14 years of Sea Grant sponsored research to ensure development of a strong national aquaculture industry.

The Plan identifies the major problem areas addressed in this paper as public policy constraints and suggests an obvious need for additional research to develop workable approaches to removal or reduction of such constraints.⁵⁷

The greatest number of regulations exist at the state level however, and few states have even considered a coordinated approach to aquaculture regulation. There is some movement in that direction on the part of individual states,⁵⁸ but it is too early to accurately measure the success of such programs.

For these reasons, and for the indefinite future, the potential aquaculture entrepreneur is likely to be engaged in a frustrating, time consuming and expensive regulatory process.

NOTES

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1. U.S. Department of Commerce, U.S. Ocean Policy In The 1970's: Status And Issues, Washington, D.C., Government Printing Office, October 1978, III-18.
2. 16 U.S.C. 1801-1882, P.L. 94-265, as amended.
3. U.S. Department of Commerce, supra, n. 1 at II-2.
4. See, Saltonstall-Kennedy Act, 15 U.S.C. 713c-3.
5. Watson, A. Shaw, Aquaculture And Algae Culture: Process And Products, Noyes Data Corporation, Park Ridge, N.J., 1979, p.1.
6. U.S. Comptroller General, The U.S. Fishing Industry-Present Condition And Future Of Marine Fisheries, Washington, D.C., Government Printing Office, 1976, (107 pp.) p. ix.
7. National Fishery Law Symposium, Proceedings of First Annual Meeting: Advising The Fishing Industry, October 14-16, 1982, University of Washington School Of Law Foundation, p. A-26.
8. U.S. House of Representatives, Committee on Merchant Marine and Fisheries, Kent Price, Aquaculture Hearings before Subcommittees on Fisheries and Wildlife Conservation and the Environment and Oceanography, Washington, D.C., Government Printing Office, March 15, 1977.
9. Watson, A. Shaw, supra, n.5 at 2.
10. 16 U.S.C.A. §2801 et seq.
11. 1980 U.S. Code Cong. and Adm. News, p.2878.
12. 16 U.S.C.A. §2803.
13. 16 U.S.C.A. §2803(b)(5)
14. 16 U.S.C.A. §2803(e)(6)
15. 16 U.S.C.A. §2808(a)
16. U.S. Fish and Wildlife Service, "Aquaculture In The United States: Regulatory Constraints", Aspen Research And Information Center, Report No. 14-16-009-79-095.
17. U.S. Fish And Wildlife Service, supra, n.16 at III-3.

18. U.S. Fish And Wildlife Service, supra, n.16 at IV-1.
19. Telephone conversation with Bille Hougart, Aquaculture Coordinator, U.S. Department of Agriculture, January 5, 1983.
20. Haar, Charles, M., Land-Use Planning: A Casebook On The Use, Misuse, And Re-Use Of Urban Land, Little, Brown and Company, Boston-Toronto, 1976, xi.
21. Village Of Euclid v. Ambler Realty Co., 272 U.S. 365, 47S.ct. 114, 71L.Ed. 303 (1926).
22. The area of takings remains one of the most confused and confusing areas of land-use law. For an examination of taking issues see, e.g., Grad, Frank P., Rathjens, George W., Rosenthal, Albert J., Environmental Control: Priorities, Policies, And The Law, Columbia University Press, New York and London, 1971.
23. Coastal Zone Management Act, 16 U.S.C. 1451 et seq.
24. P.L. 92-583, Sec. 304(1).
25. As of September 30, 1982 the Office of Coastal Zone Management had approved 28 programs. U.S. Department of Commerce, Coastal Zone Management, NOAA, 3300 Whitehaven Rd., Washington, D.C. 20235.
26. Waterfront Development Law, N.J.S.A. 12:5-3.
27. Wetlands Act, N.J.S.A. 13:9A-1 et seq.
28. Coastal Area Facility Review Act, N.J.S.A. 13:19-1 et seq.
29. 16 copies including one reproducible transparency.
30. N.J.S.A. 13:19-3 (c)(2).
31. N.J.A.C. 7:7D-2.4.
32. N.J.S.A. 12:3.1 et seq. There are three kinds of tidelands instruments: a grant conveys full ownership; a lease conveys use of property for a fixed number of years (usually issued for projects involving solid fill; and, a license also allows use of property for a fixed number of years (normally 10 or less for residential docks and piers).
33. N.J.S.A. 12:3-23.

34. See e.g., The Port and Waterways Safety Act, 33 U.S.C. §1221 et seq.; 46 U.S.C. §391a.; The Rivers and Harbors Act of 1899, 33 U.S.C. §§401,403,407.
35. Submerged Lands Act, 43 U.S.C. 1301-1343, Subchapter II.
36. Outer Continental Shelf Lands Act, 43 U.S.C. 1301-1343, Subchapter III.
37. E.g. N.J.S.A. 12:3-23.
38. The Clean Water Act, 33 U.S.C. §1321.
39. 40 C.F.R. 122 (Appendix C.)
40. U.S. Fish and Wildlife Service, n.16 at II-6.
41. 40 C.F.R. 122.55(c).
42. 33 U.S.C. §1344.
43. U.S. v. Kaiser Aetna, 408 F. Supp. 42 (D. Hawaii 1976).
44. Watson, A. Shaw, n.5 at 297.
45. NJDEP, PCB's In Fish: A Comprehensive Survey, Office of Cancer and Toxic Substance Research, November, 1982.
46. Food, Drug and Cosmetic Act, 21 U.S.C. 346a.
47. 21 U.S.C. §3316.
48. 21 U.S.C. §342a.
49. Lacey Act, 16 U.S.C. 667e.
50. Black Bass Act, 16 U.S.C. 851.
51. U.S. Congress, House, Lacey Act Amendments of 1981, House Report 97-276 to accompany H.R. 1638, 97th Congress, 1st sess., 1981.
52. P.L. 97-79, 16 U.S.C. §3371 et. seq.
53. 16 U.S.C. §3371(a).
54. 16 U.S.C. §3373(a).
55. 16 U.S.C. §3373(d).

56. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Sea Grant, Sea Grant Aquaculture Plan: 1983-1987, TAMU-SG-82-114, July 1982.
57. Department of Commerce, n.56 at 9.
58. See e.g., California Aquaculture Development Act, S.1917.