

MARICULTURE IN THE COASTAL ZONE :

SOME LEGAL CONSTRAINTS

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I. INTRODUCTION

Mariculture seems to make sense. If we can raise poultry and cattle for slaughter, why not fish? If the land can be farmed methodically, why not coastal waters?

This reasoning does not apply to most industrialized nations where mariculture has not made much economic sense. Economic problems are interrelated with problems of science and technology and with problems of law and administration. Advances in science and technology may improve the economic picture but unless they are accompanied by changes in the legal framework, they are hardly effective.

This paper will focus on the legal aspects of mariculture in the United States coastal zone. Mariculture is a relatively new ocean use and as such state nor federal laws were intended to regulate it. Unfortunately, this situation does not promote mariculture; instead a number of legal constraints exist, seriously deterring the development of mariculture in U.S. coastal waters.

Because mariculture operations deal with the use of land and water, the discharge of effluents and the production of food, the analysis of legal constraints will be based on these aspects. As such, this paper will examine the use of land and water in and beyond the coastal zone, environmental regulations, and public health and safety standards as they relate to mariculture.

II. THE USE OF LAND AND WATER

1. The Upland Area

Many mariculture activities are located within the upland area of the coastal zone¹. In this area, the mariculture entrepreneur may own the land used for his operations. In many instances, however, the land may be occupied only by lease.²

If the land is privately owned, it is subject to zoning. Zoning authority is commonly delegated by the state to county or municipal governing bodies. All zoning ordinances, unless considered unreasonable, arbitrary, discriminatory or confiscatory³, are valid to control the use of private land.

Zoning designations are often made under the guidelines of a local master plan which, in most instances, is influenced to a large extent by aesthetic values or by a need to broaden the tax base⁴. Potential new uses—such as mariculture—are seldom considered and as a result discouraging difficulties may be encountered when trying to fit new uses into existing plans and categories of use.

The use of coastal land is also affected by federal incentives such as the Coastal Zone Management Act and legislation that is aimed at curbing pollution.

The Coastal Zone Management Act affects mariculture by providing incentive to states to take more comprehensive looks at their zoning laws.

Specifically, coastal states are required to draw up a specific zone use plan, including an inventory and an identification of the means the state will use to control land and water⁵. In addition, the state must demonstrate that it has the authority to administer land and water use regulations, to control development and to resolve conflicts among competing uses⁶. The state may establish criteria and standards for local implementation or it may directly assume state land and water planning regulation⁷.

The federal lever under CMZA is funding: if the state wants to qualify for federal funds, it has to comply with these guidelines.

The guidelines set forth in the Act may seem advantageous to mariculture as they encourage rational, shared use and flexibility with regard to changing conditions and new uses in the coastal zone. Some conflict with local land planning mechanisms is apparent. Despite CMZA's efforts to deemphasize traditional land uses, local regulations are likely to continue dominating the use of land and water in the upland area of the coastal zone. Priorities in the United States are such that coastal lands are more likely to be used for public use or private use that broadens the tax base.

In addition to zoning, certain common law restrictions can apply to the use of land. Some of these restrictions may arise from doctrines prohibiting use that could be construed as a public or private nuisance, or from restrictions voluntarily placed upon the land at a prior time, such as easements or equitable servitudes. Such restrictions could prevent or limit the development of mariculture in otherwise suitable land.⁸

On the other hand, access to water - necessary in virtually every type of mariculture activity- constitutes rarely a problem.

Riparian rights in most states assure the littoral owner access to and from the water by means of improvements such as piers and docks. In addition, littoral owners have rights of navigation and fishing, preference in the development of submerged lands and freedom from interference by neighboring owners, subject to restrictions placed on these rights by public access⁹.

The riparian right to water is the right to capture and use a reasonable amount of water, this in contrast with the ownership of the water itself. Problems may arise when defining "reasonable amounts", particularly when conflicts occur between competing uses. In such cases, mariculture may be destined to be a loser because of its low priority in comparison with more established uses.

2. Submerged lands

Limitations on the use of submerged lands¹⁰ can seriously affect certain types of mariculture operations. Common law limits private ownership of land at the high water mark; the lands beyond it are held by the state in a type of public trust. A major point of conflict remains the distance to which municipal boundaries extend into tidal waters. Varying definitions apply, depending on the corporate charter of each locality¹¹.

The Submerged Lands Act confers jurisdiction to submerged lands to the state. As a result the use of these lands is governed by state agencies.

The Act provides that states have title and ownership over the living resources of the submerged lands¹³. This permits states to issue licenses or leases with respect to the exploitation of these resources.

The way this is done varies widely from state to state. The situation with regard to oyster cultivation, a mariculture activity requiring extensive use of submerged lands, can serve as an illustration.

Maine has no area limit for oyster cultivation but limits the area for cultivating Irish Moss or other marine species to one square mile per parcel. In Rhode Island, an oyster lessee's total acreage is unlimited, but he may obtain only one acre at a time¹⁴. New York and Connecticut laws provide for leasing by competitive bid.¹⁵ Virginia allows one lease holder to accumulate up to 5,000 acres in the Chesapeake Bay and up to 3,000 acres in the tributaries¹⁶. Maryland, on the other hand, limits total acreage to a single individual to 500 acres in the Bay and 30 acres in the tributaries¹⁷. Oyster culture on the West Coast is entirely conducted on privately owned or leased intertidal or subtidal lands. The 1971 session of the California state legislature enacted a law on oyster culture, providing for leasing of submerged lands and water areas in regions where oysters were not native as of January 1971¹⁸.

The states' power to lease submerged land areas can result in conflicts and competition for certain areas. Again, this is a matter of priorities. Some states have enacted positive laws with respect to the use of submerged lands for maricultural purposes, others give priority to mineral or other interests. The question also arises whether there can be multiple use leasing of the same area¹⁹.

Regulatory statutes and laws relating to the use of submerged lands do not represent a consistent structure conducive to the development of mariculture. Potential investors are faced by a legal disarray if their operations require the use of submerged lands under state jurisdiction.

3. Superjacent Waters

Many mariculture activities involve the use of water not including the bottom. In this case, a different set of legal constraints apply, as both the federal government and the states have concurrent jurisdiction over the waters above submerged lands.

Under international law and the United States Constitution, the federal government possesses paramount authority over all waters within the territorial sea. The Commerce Clause²⁰ confers upon Congress the power to regulate navigation and related conduct within U.S. waters. Under the Rivers and Harbors Act of 1899²¹, the Secretary of the Army, acting upon the recommendation of the Chief of Engineers, must authorize the creation of any obstruction to navigation. A mariculturist, who wanted to exclusively use navigable waterways by building an obstruction, would therefore need a federal permit as well as the permission of the state government. In addition, the federal government asserts jurisdiction over navigable waters for purposes of pollution abatement²².

Subject to the federal authority over navigation and commerce, the states have concurrent jurisdiction over the vertical water column up to the limit of the territorial sea. This jurisdiction is derived from the state's

authority to protect its interests in the vertical water column by additional legislation. Congress, indeed has only occupied a limited portion of the field of marine regulation and state statutes not conflicting with federal legislation on navigation, flood control and water power, are not preempted²³.

Most state statutes enacted with regard to the use of the vertical water column concern fisheries. States have the recognized ability to control their citizens in the exploitation of fishery resources. Whether a mariculture activity constitutes a fishery for all purposes is not entirely settled, but is generally accepted that mariculture established under the authority of the state would be held to be a fishery for the purposes of state regulation²⁴.

Most state laws are silent on the question of the relative positions of capture and culture operations and as such provide the mariculturists with little or no protection. Florida is unusual in this respect, being the first state to provide by statute for the leasing of the water column specifically for use in aquaculture²⁵. The law has not been used, however, and remains untested²⁶. Some fundamental weaknesses in its guidelines are apparent, among them the effect of aquaculture on navigation, a failure to deal with conflicting interests and inadequate provisions for onshore installations²⁷.

The same situation is evident in the use of the vertical water column for off-bottom culture of mollusks. Rhode Island, Massachusetts and Maryland have laws permitting such culture methods²⁸. Delaware and New Jer-

sey do not forbid such ventures²⁹. The New York Aquaculture Law authorizes raft culture. This patchwork of applicable state laws is not a very encouraging factor in the development of mariculture. Regulations concerning the use of the vertical water column under state jurisdiction lack consistency. What is needed is a regulatory system encouraging, promoting and protecting mariculture but state practice does not indicate such development in the near future.

4. Beyond State Waters

It is conceivable that advancing technology could permit mariculture operations to move further off-shore, Depending upon the distance from the coastline, the legal status of the operation would be altered.

As mariculture tends to be classified as a fishery rather than a non-extractive use of the seabed³¹, mariculture operations within 200 nautical miles of the U.S. coastline would be controlled by the Fishery Conservation and Management Act of 1976³². These regulations, through their control of fishing, could affect mariculture in two ways: if excessive catches are permitted, the nature of the biomass may be changed or the general level of productivity may be reduced; if gear restrictions are not compatible with capture operations, mariculture could become impossible in certain areas.³³

It is unlikely that mariculture activities would be conducted beyond the limits of United States jurisdiction. If it would be the case, however, the customary and conventional law of the sea would apply. As mariculture

represents a new ocean use, it has not previously been considered by international law and as such it may conflict with the traditional freedoms of the high seas. The use of a certain area of the high seas to the exclusion of fishing and navigation would however not automatically render the use contrary to international law. The legality of such activity would depend on reasonableness, taking into account such factors as the size of the area, its location and the duration of use. Mariculture may thus be conducted on the high seas, although the operator would be subject in some respects to the traditional tort law of admiralty for damages the operation may cause to vessels or persons in the area.

A move off-shore, although at present technologically prohibitive, would offer the mariculturist some very important advantages. Near shore mariculture activities, with very few exceptions, are bound to run into conflicts with traditional coastal zone uses. Because of mariculture's low priority it is frequently ruled out in potentially suitable areas.

In addition, near shore activities are subject to wide variations in applicable laws. Once a mariculture activity moves beyond the territorial sea, it is subject only to more uniform federal law or, in certain instances, to international law.

III. THE ENVIRONMENTAL IMPACTS OF MARICULTURE

Mariculture can create a substantial source of pollution. High concentrations of fish and shellfish, grown at rapid rates, create concentrated and increased waste loads. Unless these wastes are quickly and efficiently removed, disease or oxygen depletion may result.

This source of pollution is controlled by state and federal laws. The Federal Water Pollution Control Act Amendments of 1972³⁴ and its implementing regulations³⁵ are administered by EPA and certain cooperating state agencies. Any discharge from a point source into U.S. waters is prohibited, unless made pursuant to a National Pollution Discharge Elimination System (NPDES) permit from EPA or from a delegated state agency. Effluents from land-based mariculture activities are in almost all cases covered by the FWPCA. Offshore installations, such as rafts and pens, are not considered to be point sources requiring a permit, although they may be subject to state law and regulation³⁶.

Effluent limitations set forth in point-source discharge permits are based on EPA effluent limitation guidelines and standards, limiting both the type and the quantity of discharge. EPA has not yet proposed guidelines and standards for aquatic animal production³⁷. A revised development document for effluent limitations pertaining to fish hatcheries and fish farms is currently planned.³⁸

In the absence of specific guidelines, it is up to the EPA regional administrator or the permitting state's director to determine the appro-

priate effluent limitation for each permit application. The state director's decision is subject to the veto of the EPA administrator. Differences in judgments can create conflicts; this is the case in Washington where the Department of Ecology wants to reduce the effluent standards for certain hatcheries. The EPA regional administrator will not allow this and a law suit is in progress⁴⁰.

Experiments with the use of heated effluents from power plants and waste discharges from sewage treatment plants to assist in growing aquatic organisms, resulted in a FWPCA provision specifically permitting the discharge of effluents into a defined area of the navigable waters. These discharges may exceed effluent limitations because of the benefit to society from increased plant and animal production. The project, however, must be under state or federal supervision and have received a permit pursuant to the regulations.

State water pollution control efforts are not preempted by the federal program. With respect to mariculture, very little has been developed in the nature of environmental quality controls. Reasons for this lack of state control seem to be a relatively low interest in legislative circles due, in part, to the relative novelty of the mariculture concept.

IV. PUBLIC HEALTH AND SAFETY REGULATIONS

A number of federal and state laws are applicable to mariculture activities or products to protect the health and safety of consumers and aquatic farmers.

Federal laws concern the quality and safety attributes of various food commodities, including those produced in mariculture. All mariculturists are responsible for assuring that products produced by them are pure and wholesome to eat, and produced under sanitary conditions.

Maricultural products can have problems meeting public health standards. This problem has long been evident in the gradual disappearance from the marketplace of shellfish, formerly harvested from natural beds in bays and protected waters adjacent to heavily populated coastal areas. The contamination problem is not confined to sessile organisms, although they are the most helpless to evade it. Fish also absorb many organic and inorganic materials through the gills and as such reflect the environment from which they originate. As a result, they may represent a risk to consumers.

This situation results in several serious disadvantages to mariculturists. The nearshore waters which they seek to cultivate are often subject to biological or chemical contamination. As a consequence, they need to obtain permits or approval of the area envisaged, approval of water supplies and permits for processing facilities. These regulations are

uncontested necessities but stricter regulations in recent years have forced many smaller operations out of business.

One final point of interest may be the protection offered by the law to the mariculturist facing a threat to his operation from other pollution sources. There seem to be great variations in the positions of the individual states. Some states offer no protection, others offer adequate protection. This would be another area a mariculturist would need to consider in selecting a potential site for cultivation.⁴¹

V. CONCLUSION AND RECOMMENDATIONS

Legal constraints act as a serious deterrent in the development of mariculture in the United States coastal zone. Undoubtedly, many of the regulations applicable to this unconventional industry are needed, but a lack of consistency in regulatory statutes is evident and delays development.

Permits, licenses and periodic reports are required by state agencies for their administration of laws specifically related to land and water use, environmental protection, and public health and safety. In many states 30 such requirements must be met before a producer may legally start operations. Clearly, such procedures do not stimulate development. Regulations occur at three levels of government: federal, state and local. Overlaps occur where each government level feels it has an interest in the resource or health question. In addition are the rules constantly changed as Congress, state legislatures and courts respond to the pressures of many diverse users.

This situation is maybe normal for new land and water uses, but as long as it continues there is no legal framework to promote and protect such activities.

My recommendations center around the lack of consistency in applicable laws and the non-existence of a legal framework accompanying the needs of mariculture as a new use of the coastal zone. If mariculture received more of a priority through a fully coordinated mariculture program, its development would be stimulated. This task should be carried out by the

federal lead agency, the Department of Agriculture, at a higher and more serious level than evidenced before.

Unfortunately, mariculture, at present, does not represent an industry that would easily broaden the tax base, nor does it represent a low-cost protein supplier that would clearly be in the public's interest. As a result, state or local governments may not be very responsive to federal incentives in the years to come.

FOOTNOTES

1. For the purpose of this paper, the upland area is defined as being situated inland of the high tide mark and within the coastal zone as defined by the Coastal Zone Management Act.
2. Wetlands are an example in many states. See: Wetlands-Related Legislation in the United States by Walter P. Stepien and Segundo J. Fernandez; Sea Grant Special Report # 11, University of Miami, May 1977.
3. Scoenbaum, T.J. Ocean and Coastal Law, Vol. II Coastal Law Sea Grant Publication UNC-SG-77-o9, April, 1977 pp. 318-320 "Note on the Taking Issue"
4. NRDC, Chaoter 14, Local Land Use Control, Washington, D.C., 1976.
5. Coastal Zone Management Act of 1972, as amended (16 U.S.C. 1451-1464) Section 306 c.
6. CZMA, op. cit. Section 306 d.
7. CZMA, op. cit. Section 306 d.
8. Aquaculture in the United States - Constraints and Opportunities. (hereinafter cited as "Aquaculture") p. 79
A Report of the Committee on Aquaculture, National Research Council. National Academy of Sciences, Washington, D.C. 1978.
9. Riparian Law. Appendix to Aquaculture, pp.98-101
10. Submerged lands as defined by the Submerged Lands Act, 43 U.S.C. Section 1312.
11. Henry, H. In T. Gaucher (ed.) Aquaculture: A New England Perspective. New England Marine Resource Information Program, 1971.
12. Submerged Lands Act, 43 U.S.C. Section 1301 (e).
13. Submerged Lands Act, 43 U.S.C. Section 1301 (e).
14. Gaucher, op. cit.
15. Terry, O.W. Aquaculture, MESA New York Bight Project, New York Sea Grant Institute, Albany, N.Y., June 1977.
16. Lewis, T.B., and Power, G. Chesapeake Bay Oysters: Legal Theses on Exotic Species. A paper presented to the Workshop on the Introduction of Exotic Species, WHOI, Sept. 18-21, 1978

17. Lewis, op. cit. p. 3
18. California Revised Statutes, Section 6480-6505.
19. Aquaculture, op. cit. p. 80. Apparently Louisiana has had some experience in this regard (mineral leases v. oyster leases).
20. U.S. Constitution Art. I par. 8
21. Rivers and Harbors Act, 33 U.S.C. section 403 et. seq.
22. See below p. 10
23. J. Owens Smith and David L. Marshall, "Mariculture: A New Ocean Use" Ga J. of International and Comparative Law, p. 318
24. J. Owens Smith, op. cit. p. 321
25. Florida Statutes Chapter 253, Section 68
26. Aquaculture, op. cit. p.83
27. Maurer, D. and Aprill, G. Feasibility Study of Raft Culture of Oysters in the Delaware Bay Area. College of Marine Studies, University of Delaware, Lewes, Oct. 1973. p. 121.
28. Maurer, op. cit. p. 121
29. Maurer, op. cit. p. 121
30. New York Aquaculture Law. Section 1 13-0316 of New York Conservation Law of 1973.
31. See however J. Owens Smith, op. cit. p.336-341.
On non-extractive uses of the seabed see: Knight, G. "Non-Extractive Uses of the Seabed", MTS Journal, Vol. 6. 3 pp. 18-22.
32. Fishery Conservation and Management Act of 1976
33. Aquaculture, op. cit. p. 81.
34. FWPCAA (33 U.S.C. 1251)
35. See 40 CFR
36. Aquaculture, op. cit. p. 84.
37. Idem p. 84.
38. Idem p. 84

39. Idem p. 85

40. Supra note 39

41. Hanson, C.C. and Collier, J.M. "Legal and Political Perspectives on Open Sea Mariculture. In: Open Sea Mariculture, Hanson, J.A. (ed.) Dowden, Hutchinson & Ross, Inc., Stroudsburg. Pennsylvania, 1974.