RESOURCES FROM THE SEA
AND
FEDERAL LIMITATIONS ON STATE CONTROL

Partial report under a study carried out under the joint sponsorship of:
The School of Law of the University of Maine
and
The National Science Foundation
Office of Sea Grant Programs

PREFACE

This is the fourth volume in a study of Maine Law being carried out as a joint project of the School of Law of the University of Maine and the National Science Foundation, Office of Sea Grant Programs. The major portions of the funds expended in support of this project were furnished to the School of Law under Grant No. GH 0022 awarded under the National Sea Grant Colleges and Program Act of 1966.

MAINE LAW AFFECTING MARINE RESOURCES

VOLUME IV

RESOURCES FROM THE SEA

and

FEDERAL LIMITATIONS ON STATE CONTROL

Partial Report Under a Study Carried
Out Under the Joint Sponsorhip Of:

The School of Law of the University of Maine

and

The National Science Foundation
Office of Sea Grant Programs

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H.P.H.

Portland, Maine
May 8, 1970

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CHAPTER ELEVEN FISHERIES*

We take judicial notice of the great importance of the fishing industry in the life of our State...The well-being of large numbers of our citizens is directly dependent upon it. From colonial days we have drawn upon the sea and shore fisheries for a substantial part of our income and wealth.[1]

A profitable fishery is not essential to man's survival, a productive ocean is.[2]

INTRODUCTION

The Maine fisherman as a prototype projects the image of a rugged individualist undauntedly facing the fury of wind, waves, and adversity as complete master of his fate and captain of his soul. While the actual Maine fisherman may be captain of his soul, nothing could be further from the truth than to describe him as master of his fate. He is subjected not only to fluctuations in abundance of fish and the climatic conditions under which he must search for his catch, but he is often victimized by the international economics and politics of fisheries. He is baffled by Federal laws which guarantee freedom for interstate and foreign commerce and privileges and immunities for all citizens, but do very little to promote his general welfare. Some Federal laws even hinder his own efforts to advance his economic position by granting special protection to other groups.[3] He is restricted by certain State laws which he has all too often

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* Harriet P. Henry

1. State v. Lasky, 156 Me. 419, 426, 165 A. 2d 579 (1960).

2. Edward Myers, President of Salt Water Farms, Damariscotta, Maine.

3. E.g. restrictions against foreign built fishing vessels, tariff considerations, anti-trust laws.

helped to promulgate, or preserve as eternal truths, but which in reality are either idols to inefficiency or scientific abberations passed in the dark ages of biological empiricism.

Perhaps his unique character keeps him from being unduly depressed by the ocean of ignorance about fisheries that still remains to be explored, or the less than universal distribution or utilization of information that is available. He may even be amused by the fact that Maine fishing laws, though not designed to eradicate poverty, have at least made poverty bearable in guaranteeing a bare subsistence and kept persons "off the town"[4] in the absence of other economic alternatives, long before any declared war on poverty. While some of Maine's laws prevent growth of "big" fishing competition he may not realize that the competition of those enjoying the economies of scale is present, from members of the industry outside Maine. In tenaciously clinging to present law, not only to protect his source of income but also often his way of life, he may well be endangering both. His pocketbook may tell him to combine and conquer, but his heritage and instinct results in his going it alone.

Is this caricature of a Maine fisherman accurate? Is the Maine fisherman becoming obsolete? This survey cannot pretend to definitively

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4. See Inaugural Address, Gov. Lewis O. Barrows, Laws of Maine, 1937, p.702; Gov. Louis J. Brann had recommended giving free fishing licenses to people who needed it for food. (Inaugural Address, Jan. 3, 1935, Laws of Maine, 1935, p.735) Many times local officials have petitioned for leniency in revocation of fishing licenses of violators whose livelihood was dependent on their marginal catch from the sea and who otherwise would be on the town's welfare rolls. (Interview with Robert Dow, Chief of Research, Department of Sea and Shore Fisheries, November 26, 1968).

answer these questions but these and other questions must be considered in evaluating Maine's fishing laws for their economic and scientific validity. For present purposes it is enough to ask whether the legal structure is responsible for the depressed condition of the fishing industry, or alternatively, whether the economic well being of the fishing industry and protection of the resource would be materially affected by changes in the law. Except in a few specific instances (e.g., method of clam digging)[5] in which the law works not only to the detriment of the fishermen themselves, but of the industry as a whole, there is no unequivocal answer. There are strong indications that a change in some "conservation" laws would materially help. In other cases, change might be justified scientifically, but the actual effect would be negligible; there are unsound laws on the books that result in minimal harm to the industry or the species (e.g., maximum size limitation on lobsters)[6]. Other changes in the law might not affect total production but could produce important economic consequence: for example, a shift in economic advantage from one group to another (e.g., weekend versus fulltime lobstermen)[7]; other changes might not only shift the group enjoying the benefit but by more efficient operations make the product more competitive, yielding a greater monetary return to a fewer number of harvesters (e.g., removal of restrictions on lobster gear)[8].

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5. 12 M.R.S.A. 4352.

6. 12 M.R.S.A. 4451.

7. 12 M.R.S.A. 4458.

8. 12 M.R.S.A. 4453.

Finally, it must be asked: What ends are sought to be accomplished, and are present Maine fishing laws designed to achieve those results? Any realistic evaluation of Maine law pertaining to living resources from the sea must begin with a consideration of international and federal law which may enhance or render nugatory all efforts of the Maine Legislature to effectively manage this common property resource.

I INTERNATIONAL AND NATIONAL LAW AFFECTING MAINE FISHERIES

INTERNATIONAL

The international law of fisheries is a result of political interactions among nation-states, each seeking to secure the optimum benefits for their country. Historically, the great tension has been between the interest in being able to fish close to the shore of other nations (producing claims for a narrow territorial sea) and the interests in coastal defense and in preserving coastal fisheries for residents (producing claims for a wide territorial sea). As discussed infra, this is now largely settled by international consensus. The more difficult problem is preserving species for the benefit of all, and (theoretically) allocating the resource among those with common fishing rights.

Most nations are willing to agree to restrictions on entry, gear, or other conservations regulations only when it inures to their own economic advantage. Conservation measures will not be accepted internationally unless the empirical basis of the proposed restraint and regulation can be demonstrated. Even then, agreement is usually reached only when the stock has already been depleted and the economic return is so disproportionately small (compared to the fishing effort) that restraints or total

abstention do not constitute major sacrifices. Two international treaties have a direct bearing on Maine fisheries.

ICNAF

The first of these treaties is the International Convention for the Northwest Atlantic Fisheries (ICNAF)[9] The Convention has been supplemented by a declaration of understanding and several procotols. It has been utilized by member nations in attempting to regulate and conserve a diminishing stock of haddock off Georges Banks and in the Western Atlantic. Member nations had agreed to regulations on the size of the openings in nets (mesh) in an attempt to conserve this resource by preventing capture of smaller fish. Although initially successful this restriction did not prove adequate to sustain the stock. Recent discussions resulted in agreement for two-month moratoria in haddock fishing off Georges Banks, during the spawning season of March and April in 1970 and 1971. The ban outlaws any vessel from using "ground fishing equipment gear which sweeps the bottom of the ocean" which is where haddock live. Within hours from the time the ban went into effect, it was violated by 21 boats, (13 Spanish and 8 Canadian).[10]

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9. Signed at Washington, D.C. February 8, 1945, ratified September 1, 1945, and became operative for the United States, July 3, 1950 (1 U.S.T. 477; T.I.A.S. 2089, 157 U.N.T.S. 157); See Vol. II, p.118 for signatories of this Convention to which Spain should be added.

10. Portland Press Herald, March 2, 1970, p.18. Poland, U.S.S.R., Canada, United States and Rumania signed this agreement in Warsaw last summer (1969). It was binding upon the other nine nations which include Spain. (Id.).

Chart No. 1

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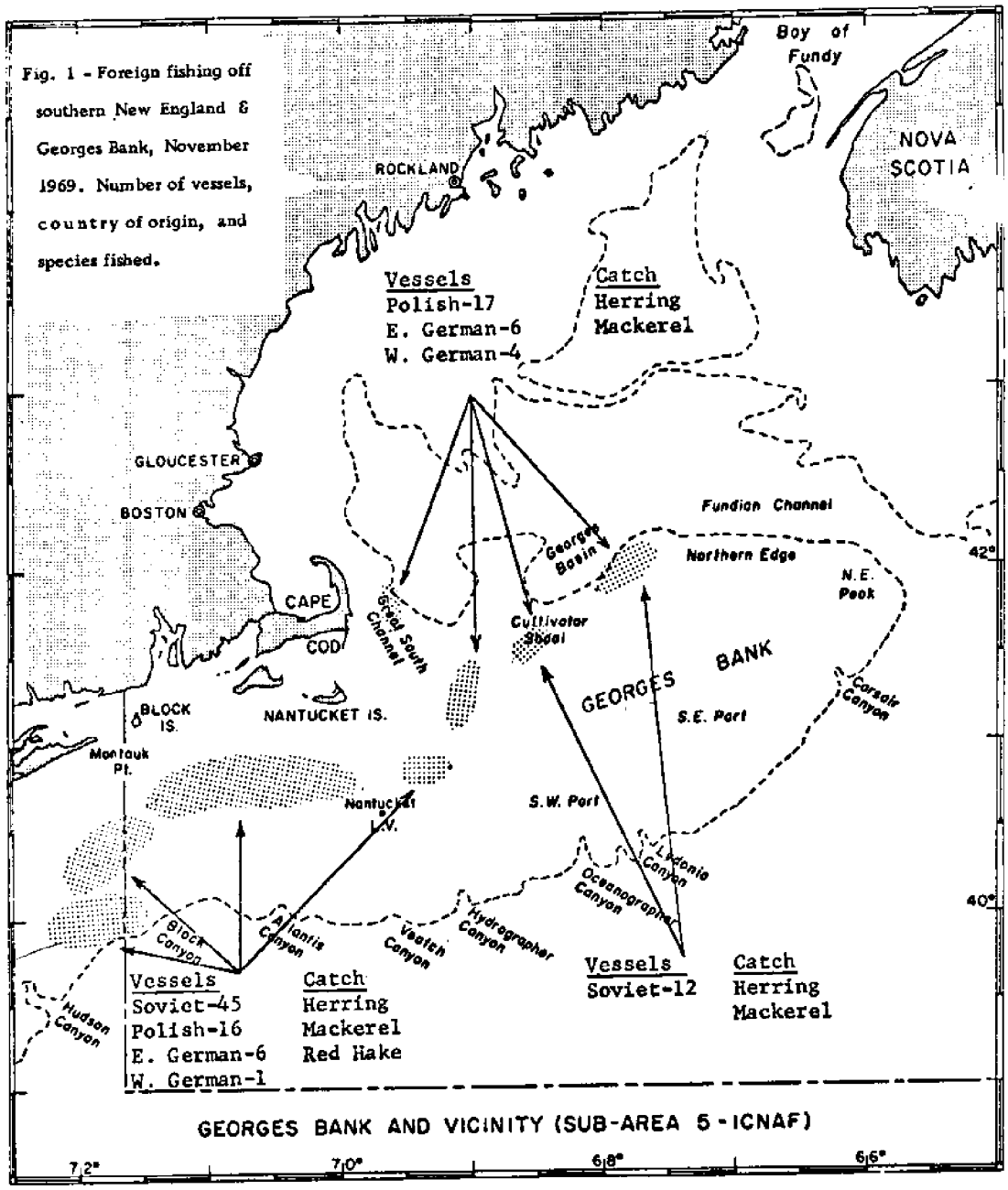
FOREIGN FISHING OFF U.S. NOVEMBER 1969

Northwest Atlantic



Foreign Fishing Off U. S., November, 1969[11a]

105 individual fishing and support vessels sighted (256 in October 1969; 92 in November 1969).

USSR: 51 medium side trawlers, 18 factory stern trawlers, 1 factory base ship, 3 refrigerated transports, 2 tankers (about 107 vessels in October 1969; 50 early in November 1968 to about 10 at month's end). Side trawlers took moderate-to-heavy catches of herring and mackerel south of Long Island to Nantucket. Limited amounts of red hake observed on stern trawlers south of Nantucket.

Poland: 9 large side trawlers, 7 stern trawlers, 1 factory base ship (44 in October 1969; 46 in November 1968). Vessels scattered east of Cape Cod and Cultivator Shoals, and southeast of Nantucket, during first 2 weeks; south of Martha's Vineyard and Nantucket from mid-month. Moderate-to-heavy catches of herring and mackerel.

East Germany: 9 factory and freezer stern trawlers (45 in October 1969; 14 in November 1968). Principal catch probably herring.

West Germany: 4 freezer stern trawlers (28 in October 1969; 7 in November 1968). Herring was principal catch.

Weaknesses in the effectiveness of this Convention include the fact that East Germany, whose nationals fish extensively in the Georges Bank area, has not ratified this Convention. Also, as indicated above, member nations are not willing to undergo regulatory measures for conservation unless the scientific validity of these measures can be demonstrated. For many fisheries of the Northwest Atlantic there is no evidence on which to base regulations; even where there is evidence available to strongly suggest that a given measure would be effective, there has been a reluctance to accept regulations without conclusive proof.[12]

11a. See Chart No. 1.

12. Interview with Ronald Green, Commissioner of Sea and Shore Fisheries, December 17, 1968.

Convention on Fishing and Conservation of the Living Resources of the High Sea [13]

The Convention on Fishing and Conservation of the Living Resources of the High Sea drawn up at the first Law of the Sea Conference in 1958 came into force on March 20, 1966 following the deposit of the 22nd instrument of ratification or accession with the Secretary General of the United Nations. Twenty-seven nations had ratified this Convention as of November 11, 1968.[14]

This convention provides for conservation measures and recognizes the special interests of national states in the high seas beyond their territorial sea. Unfortunately the states that have recently been involved in serious fishing controversies (including those of the Soviet bloc, Chile, Ecuador, Japan, Korea, Mexico and Peru) are not signatories of this Convention.[15]

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13. U.N. Doc. A/CONF. 13/L/54 and Add. 1, T.I.A.S. No. 5969,

14. States included were Australia, Cambodia, Colombia, Dominican Republic, Finland, Haiti, Jamaica, Madagascar, Malawai, Malaya, Mexico, Netherlands, Nigeria, Portugal, Senegal, Sierre Leone, South Africa, Switzerland, Thailand, Trinidad and Tobago, Uganda, United Kingdom, U. S., Upper Volta, Venezuela, Yugoslavia, and Denmark. (See Knight, H. Gary, The Law of the Sea, 1969, p.359).

15. See Bishop, William W. Jr., the 1958 Geneva Convention on Fishing and Conservation of the Living Resources of the High Seas, 62 Colum. L. Rev. 1206, 1220-1228 (1962).

FEDERAL

No National Fishery Policy

There is no national fishery policy.[16] Although of tremendous importance to certain coastal states of the United States and even more important to specific geographic areas within these states, the total impact of income from domestic fisheries on the gross national product is relatively small. It would be erroneous to convey the impression that fishermen or segments of the fishing industry have not been assisted by specific federal programs and substantial financial encouragement, but such help has usually been directed toward a specific area or a specific problem to help alleviate a particular situation. The perpetuation of skills possessed by individual fishermen and the preservation of the domestic fishing industry has never been a widely proclaimed or well financed national goal or priority. Part of the explanation is historical. When fisheries flourished there was little need for governmental intervention; even today, the same individualism that attracted persons to fishing or fisheries enterprises would undoubtedly cause resentment against too much government intervention, and resistance to a subsidized industry.[17] Yet many of the nations whose fishermen and processed products compete with United States fisheries in United States

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16. The stated purpose of the Fish and Wildlife Act of 1956 (P.L. 1024, Stat. 1119 as amended by 75 Stat. 788 (Oct. 4, 1961), 76 Stat. 849 (Oct. 11, 1962)) was "to establish a sound and comprehensive national policy with respect to fish and wildlife." But see Panel Report of the Commission on Marine Science, Engineering and Resources, Vol. 3, p.VII 39-50.

17. The New England fisheries have not availed themselves of available federal subsidies to the same extent that more aggressive (Cont'd)

markets have subsidized fisheries industries, or even state enterprises. Such subsidized competition for the resource and the market raises questions about the economic validity of preserving marginal producers by encouraging United States fishery efforts where the products can be procured cheaper elsewhere.

Balanced against the industry's economic weakness must be a consideration of the people financially damaged or displaced by foreign competition, and whether it is in the national interest -- for reasons of national security[18] or future need for protein[19] -- to encourage fisheries that are not economically viable.

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17. (Cont'd) tuna and shrimp fleets of the Gulf and West Coast have. These two industries are also highly capitalized by private investment. (Interview with James A. Storer, January 17, 1969. In January, 1969 Mr. Storer was Dean of the Faculty at Bowdoin College and a member of the Department of Interior Advisory Committee on Marine Resource Development. He has served as Assistant to the Director of Economics, U.S. Bureau of Commercial Fisheries. He is presently with FAO in Rome.)

18. The depressed condition of the fishing industry was a motivating force in the passage of the Fish and Wildlife Act of 1956. The plight of the commercial fisheries and the persons dependent upon them for a livelihood was stressed in the House Report with an equal emphasis on the needs of this resource as an element of outdoor recreation and the profitability from such use. The national security interest was recognized in the desirability of having citizens with seafaring skills. (U.S. Code Congressional and Administrative News, 1956, p.4590).

19. This consideration also received passing notice in the House Report of the Fish and Wildlife Act of 1956.
While the diet in some countries is largely dependent on fish and the total world and U.S. demand for fish is growing, protein requirements in the United States are primarily being met from other sources of protein. It is hard for persons in Maine to feel a sense of urgency about using krill from Antartica (See Portland Evening Express, Oct. 10, 1968, p.15) when fish are being dumped in Portland Harbor because the economic return is so small.

Bureau of Commercial Fisheries

The Bureau of Commercial Fisheries,which theoretically looks out for the United States fisheries interests, must serve at least three separate constituencies: the New England Fisheries, the Gulf Fisheries and the Pacific Northwest Fisheries. The needs of these fisheries may be diametrically opposed. For example fishing enterprises whose catch is near the shore are proponents of a wide territorial sea for the United States whereas those engaged in fishing off foreign shores favor a narrow territorial sea. This lack of a unified voice for the fishing industry may be responsible for the absence of any national policy for fisheries, and in turn for some of the problems of the Bureau.

FEDERAL-STATE RELATIONSHIP

In addition to operating in a geographic cross-fire the Bureau of Commercial Fisheries is hampered by the status of federal-state relationships in the management and regulation of fisheries.

Historic Role of States

Historically, the regulation of fisheries has been deemed a power of the states within their territorial waters. The Supreme Court has spoken of this reserved power in McCready v. Virginia[20] and in Manchester v. Massachusetts.[21] The power of the state is subject to the treaty-making powers of the federal government;[22] the exercise of this power in pre-

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20. 94 U.S. 391 (1876).

21. 139 U.S. 240 (1891).

22. See Missouri v. Holland, 252 U.S. 416 (1920).

scribing regulatory measures which are outgrowths of treaty agreements has not been questioned. It seems reasonably clear that no effort has been made to exercise the full potential federal power over fisheries existing, for example, on the basis of the Commerce Clause.

A state's prerogative to regulate and manage its marine fisheries is tempered by the Privileges and Immunities and the Due Process Clauses of the 14th Amendment, and by the Commerce Clause, of the United States Constitution. The Due Process and Privileges and Immunities Clauses have worked to prevent discriminatory laws against non-residents solely on the basis of non-residency; if there is some other reason for the distinction, such as conservation requirements, different treatment of non-residents may be permissible. The Commerce Clause has prevented states, in the regulation of their fisheries or the processing of fish products, from placing an undue burden on interstate commerce.[23]

Individual states are not able to provide for the sound management of species whose migrations transverse state jurisdictions. There are no known instances in which two states have initiated and implemented coordinated measures for the efficient management of migratory marine species. There is an equally apparent absence of any concerted effort to expand the harvesting of under-utilized resources.[24] Thus, there is a compelling logic for the federal government to have some voice in the management of migratory fish resources. Regional commissions such as the

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23. See Vol. II, p.389 et seq. and Chapter 14 this volume.

24. See Panel Report, Vol. 3, P.VII 50.

Atlantic States Marine Fisheries Commission[25] have the requisite geographical jurisdiction, but recommendations originating from these compacts are purely advisory. Such organizations have in a large measure, been by-passed by bi-state agreements.[26] With the creation of the 12-mile contiguous zone (See p.649 infra)[27] a vacuum has been created for the management of fishery resources in the nine miles beyond the states' territorial jurisdiction. Power in this area has not been granted to the states; and the federal government has not chosen to exercise regulatory powers in this area.

Erosion of State's Power

In addition to the treaty and constitutional limitations on states, certain actions of Congress have eroded the states' "absolute" autonomy to manage and regulate their own fisheries. While some federal legislation has helped Maine fisheries, many acts contain limitations detrimental to the efficiency and economy of Maine's and the national fishing industry. Some, but not all such legislation, can be justified as serving broader social and economic considerations of the United States even though adversely affecting fisheries; some can be explained only by the inability of fisheries interests to mount pressure on Congress comparable to other economic interests.

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25. 56 Stat. 267 as amended by 64 Stat. 467; See Vol. I, p.120.

26. Interview with Commissioner of Sea and Shore Fisheries, Ronald Green, December 17, 1968.

27. Most large fisheries would prefer to deal with state rather than federal fishery laws and will undoubtedly push for delegation of power in this area to the states. i.e. Alaskan industry would prefer to deal with Governor Hickel rather than Secretary of the Interior Hickel. (Interview with James A. Storer, January 17, 1969).

Prohibition Against Fishing in Foreign Boats

Two[28] of the earliest Acts of Congress involving fisheries were the stipulation that fish could be landed in United States ports only in vessels registered in the United States, and the requirement that vessels of five tons or over engaged in fishing must be built in the United States, in order to be registered. This legislation was designed to encourage American shipbuilding industry and at the time it probably worked no hardship on the fishing fleet. Now, with few exceptions, fishing vessels can be built at much lower cost in foreign countries than in the United States. The general obsolescence of the American fishing fleet is, at least partially, the result. Legislation authorizing loans for the construction of fishing vessels was passed in 1956.[29] The United States Fishing Fleet Improvement Act[30] made provision for subsidies for American built fishing vessels up to 50 per cent of construction costs, but there has never been enough money allocated for this subsidy, and the method of allocation to specific vessel construction is dubious. Although Maine has some very modern vessels, the high initial cost of vessels is a detriment to the modernization of much of Maine's fishing capacity.

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28. 1 Stat. 305, February 18, 1793; 1 Stat. 287, December 31, 1792; See Panel Report Vol. 3, p.VII 54.

29. Fish and Wildlife Act, P.L. 1024, 70 Stat. 1119.

30. P.L. 86-516, 74 Stat. 212 amended by P.L. 88-498, 78 Stat. 614.

Import Duties on Fishing Equipment and Fishery Products

Another element in the high cost of U.S. fishing activity is the complex of high import duties on many import items of fishing equipment, i.e. nets and twine, certain types of instrumentation such as precise positioning and sonar scanning gear, and for basic and auxiliary power sources. While no one of these factors is critical, in combination they add up to a definite competitive disadvantage for the U.S. flag vessel.[31] The high duties on fishery gear is ironic because tariffs on fish products from other countries were lowered substantially in the Kennedy round of trade negotiations. Similarly, as evident in Chart No. 2, the lowering of duties on all imports has not kept pace with the reduction of duties on fish.

Chart No. 2

United States Customs Duties for Fishery Imports and For All Imports Expressed as Average Ad Valorem Equivalent, 1950-1965[32]

Year	Average Ad Valorem Equivalent (per cent)	
	Fishery Imports	All Imports
1950	6.3	6.1
1951	4.9	5.6
1952	5.0	5.3
1953	5.7	5.5
1954	5.7	5.4
1955	5.6	5.9
1956	5.5	5.9
1957	5.3	6.0
1958	5.0	6.5
1959	4.8	7.1
1960	4.4	7.4
1961	4.2	7.2
1962	3.7	7.5
1963	3.5	7.3
1964	3.9	8.5
1965	3.8	7.7

31. See Panel Report Vol. 3, p.VII 54.

Insurance Costs

In addition to other factors increasing costs of investment and operating costs, United States fishing vessels are subject to the Jones Act,[33] an act which is much more generous to seamen injured in maritime accidents than, for example, workmen's compensation. The risk of liability (aggravated by the obsolesence of an aging fishing fleet) under the Jones Act results in higher insurance costs,[34] that plague United States and Maine vessel owners.[35]

Anti-Trust Regulations

The commercial fishery industry is hampered in many instances by undue price instability and uncertainty. Elimination of excessive price instability would benefit the industry. The Fisherman's Collective Marketing Act of 1934[36] permits persons engaged in fisheries to "act together in associations -- in collecting, catching, producing, preparing for market, processing, handling, and marketing in interstate commerce, such products of said persons so engaged." This parallels the Capper Volstead Act of 1922 for agriculture.[37] In neither case may an association monopolize or restrain trade "to such an extent that the price is unduly

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32. Fisheries of the United States, 1966, Bureau of Commercial Fisheries.

33. 46 U.S.C.A. 861 et seq.

34. See Panel Report Vol. 3, p.VII 54.

35. Interview with Jack Willard, Willard and Daggett Fish Co. Inc., November 17, 1969.

36. 48 Stat. 213, 15 U.S.C.A. 521-2.

37. 42 Stat. 388, 7 U.S.C.A. 291-2.

enhanced."[38]

Additional special legislation passed in 1937[39] (and amended since) permits farm produce and processors to organize and establish marketing orders and agreements for exercising control over the marketing of such commodities as fluid milk, fruits and vegetables, and yet to be exempt from the anti-trust legislation. Marketing orders for example, may limit production to meet estimated demand (at a "fair" price), and may restrict the amount of a crop harvested.[40]

But as noted supra at n.38, monopoly and restraint of trade are still forbidden. Maine lobstermen attempted to enhance their own economic position in 1958 by controlling the number of lobsters that were offered to dealers -- thereby hoping to raise the price of lobsters. Dealers were also acting in concert to resist this attempt and maintain a low price on the wholesale market. The lobstermen were brought up short by criminal prosecution under the anti-trust laws.[41] The price of $.50 per lobster retail during most of the summer of 1958 bears witness to the lobstermen's need, if not the legality of their action.

No doubt influenced by the plight of the lobstermen, in 1959 the

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38. See n.36 and 37.

39. 50 Stat. 246

40. See 33 A.B.A. Antitrust L.J. 7-19 for discussion of fishery and agricultural cooperatives.

41. The case of United States v. The Maine Lobstermans Association and Leslie Dyer was heard in the Maine Federal District Court from May 19-June 4, 1958 and resulted in a conviction and a fine of $5,000 against the Maine Lobstermans Association and $1,000 against Leslie Dyer. Both fines were later remitted. (Records of Maine Federal District Court).

Maine Legislature passed the Fish Marketing Act as emergency legislation in order

> ...to promote, foster and encourage the intelligent and orderly marketing of fish and fishery products through co-operation; to eliminate speculation and waste; to make the distribution of fish and fishery products between producer and consumer as direct as can be efficiently done; and to stabilize the marketing of fish and fishery products.[43]

Section 2007 of the Act provided

> An association shall be deemed not to be a conspiracy nor a combination in restraint of trade nor an illegal monopoly; not an attempt to lessen competition or to fix prices arbitrarily or to create a combination or pool in violation of any law of this State; and the marketing of contracts and agreements between the association and its members and any agreements authorized in this chapter shall be considered not to be illegal nor in restraint of trade nor contrary to any statute enacted against pooling or combinations.[44]

which clearly removes such associations from prohibitions against formation of trusts[45] or contracts in restraint of trade[46] under Maine law. Obviously, the Maine Legislature cannot create immunity from the federal anti-trust law.

It seems apparent that the effort of the lobstermen was a classic case of an attempt to control supply so as to control price. This is

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42. 13 M.R.S.A. 2001-2287.

43. 13 M.R.S.A. 2002.

44. 13 M.R.S.A. 2007.

45. 13 M.R.S.A. 171.

46. 10 M.R.S.A. 1101.

a far cry from the legitimate aims of cooperatives and similar associations which permit producers to bargain on an equal footing with buyers, by-pass dealers so as to sell directly in prime market areas, and eliminate middle-man profits. In fact, the individualistic lobstermen seem unwilling to break the traditional marketing pattern by forming such a marketing cooperative or association; their attempt to raise prices was solely directed to limitation of supply.

EXTENT OF U.S. FISHING JURISDICTION

Several federal enactments have related to the United States jurisdiction over fisheries in its territorial waters and the contiguous zones. To the extent that these acts and/or proclamations have reserved American waters for American fishermen, Maine fishermen have benefited.

Truman Proclamation

The Truman Proclamation of September 28, 1945, declared the right for the government to establish zones for conservation and protection of fish and resources in the areas of the high seas contiguous to the coast of the United States where fishing activities had been or in the future might be developed and maintained on a substantial scale.[47] This declaration was the forerunner of the 12-mile contiguous fishing zone declared by Act of Congress (infra at n.52) and of the "special interest" of the coastal states recognized in the Convention on Fishing, etc., supra at n.13.

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47. Proclamation No. 2668, 59 Stat. 885. This proclamation has been widely confused with the Truman Proclamation on the Continental Shelf (See Vol. II, p.170, Proclamation 2667, 59 Stat. 884).

Submerged Land Act[48]

By the Submerged Land Act, Congress vested in the states ownership of the land beneath navigable waters within the boundaries of the respective states and the natural resources within such lands and waters. The Act defined natural resources to include minerals, "fish, shrimp, oysters, clams, crabs, lobsters, sponges, kelp and other marine animal and plant life..."[49] The right and power to manage, administer, lease, develop and use the same land and natural resources in accordance with applicable state law was established and vested in and assigned to the respective states:

> The United States retains all its navigational servitude and rights in and powers of regulation and control of said lands and navigable waters for the constitutional purposes of commerce, navigation, national defense, and international affairs, all of which shall be paramount to, but shall not be deemed to include, proprietary rights of ownership, or the right of management, administration, leasing, use, and development of the land and natural resources which are specifically recognized, confirmed, established, invested in and assigned to the respective states.[50]

Ownership of the states extends three miles (except for Florida and Texas) and does not encompass the extent of the United States' claim to the continental shelf.

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48. 67 Stat. 29, 43 U.S.C. 1301-1315. (See Vol. II, p.170).

49. 67 Stat. 29 43 U.S.C. 1301 (E).

50. 67 Stat. 32, 43 U.S.C. 1314; See Panel Report Vol. 3, p.VII 75.

Prohibition of Foreign Fishing Vessels

In 1964 Congress prohibited foreign flag vessels from fishing in United States territorial waters or from taking any continental shelf fishery resources.[51] In 1966 the United States established a 12-mile contiguous fishing zone extending 9 miles beyond the territorial sea of the United States, and made clear its intention to exercise the same exclusive fishery rights, subject to the historic rights of other nations, in that contiguous zone as in the territorial sea;[52] the latter clause chiefly benefits Canadian fishing vessels. The result of this act may be negligible on Maine fisheries since much of the effort is expended in the Georges Bank area in competition with foreign fleets. The Commissioner of Sea and Shore Fisheries of Maine does not think that a 12-mile contiguous fishing zone will materially benefit Maine fisheries. Neither will a 25 mile zone, in his opinion. It would take at least a 200 mile zone to make any difference in the productivity of Maine fisheries.[53]

FEDERAL FINANCIAL ASSISTANCE

There are federal acts which directly help the fishing industry. 1954 legislation had provided that 30% of the gross receipts collected from duties and customs on fishery products be transferred from the

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51. P.L. 88-308, 78 Stat. 494, 16 U.S.C.A. 1081-5.

52. P.L. 89-657, 80 Stat. 907, 33 U.S.C.A. 855.

53. Interview with Ronald Green, December 17, 1968; See also Vol. II, p.170-173.

Department of Agriculture to the Department of Interior to promote "the free flow of domestically produced fishery products in commerce."[54] The Fish and Wildlife Act of 1956, a major piece of fishery legislation, sought to develop measures to assure the maximum sustainable production of fish, study the economic and biological requirements of the industry, develop promotional and information services, and "take such steps as may be required for the development, advancement, management conservation, and protection of the fisheries resources."[55] Specific activities authorized in the act were research on the species and research on the marketing of fishery products. Authorization was also made for an extension service to disseminate fishery information.[56] The Bureau of Commercial Fisheries and the Bureau of Sports Fisheries were upgraded and combined as the Fish and Wildlife Service under an Assistant Secretary of the Interior.

More recent legislation includes the Commercial Fishery Research and Development Act, better known as Public Law 88-309.[57] This act authorized a five year program to provide $5 million annually for apportionment among the states to carry out projects on a cost sharing

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54. 49 Stat. 774 as amended by P.L. 466, 68 Stat. 376 (1954).

55. 70 Stat. 1119.

56. Id.

57. 78 Stat. 197.

basis.[58] P.L. 88-309 has never been completely funded. Only $4.1 million of the authorized $5 million annually has been provided for aid to the states, only $400,000 of the authorized $650,000 for resource disasters during fiscal year 1966-68, and none for establishment of new commercial fisheries.[59]

The Anadromous and Great Lakes Fishery Act of 1965, known as P.L. 89-304[60] had the purpose of the redevelopment and enhancement of anadromous fisheries. Federal funds up to 50 per cent may be used to finance projects. These funds have been utilized by the Commissioner of Inland Fisheries and Game and the Commissioner of Sea and Shore Fisheries to carry out their joint responsibility for anadromous fish.

The National Sea Grant Colleges and Program Act of 1966, while not limited to fishery resources, has provided significant financing for research projects on living resources from the sea.[61]

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58. According to Panel Report Vol. 3, p.VII 8 this Act has generated a new level of understanding in cooperation between the federal government and individual states. The Director of Research of the Department of Sea and Shore Fisheries in Maine has acknowledged the benefit of this Act but has raised questions about the formula for determining in what proportion the money should be divided among the various fishery states. He mentioned that the presence of a food processing plant, such as Booth Enterprises just over the Maine border in New Hampshire, qualifies a state for additional funds under this Act even if none of the fish there processed were originally caught in the state's territorial waters. Another objection was that the preponderance of funds were made available in the first year of the act. He felt it would have been more advantageous to start the financing slowly and then increase the funds as the research programs developed. (Interview with Robert L. Dow, November 26, 1968).

59. Panel Report Vol. 3, p.VII 48.

60. 79 Stat. 1125.

61. P.L. 89-688.

652.

Foreign Aid, Fisheries, Food Protein Concentrate

An amendment to the Agricultural Trade Development and Assistance Act of 1954[62] which went into effect in 1965 provided for the inclusion of domestically produced fishery products in the Food for Peace Program. The Fish Protein Concentrate Act[63] authorized the manufacture of fish protein concentrate for human consumption. The agency for International Development contracted for a large amount of this concentrate.[64] This program has not been particularly successful because of the restriction as to the one kind of fish (hake) that can be used for the project, the process under which it can be manufactured, and the transportation cost of this product to the assisted nation. One company under contract with the agency for International Development to manufacture food protein concentrate cancelled its contract in the fact of a shortage of the requisite species of fish and technological difficulties.[65] In Maine it is more profitable to sell hake (whiting) as fillets than to sell it for food protein concentrate.

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62. P.L. 87-703, 76 Stat. 610.

63. P.L. 89-701, 16 U.S.C. 778 et seq.

64. See New Marine Resources Bulletin No. 5, October 1969.

65. New York Times, January 15, 1970, p.29.

II MAINE MARINE FISHERY POLICY

INTRODUCTION

The purpose of this report (see Vol. II, p.158) is to examine all Maine laws affecting marine resources and evaluate their economic impact and scientific validity. Optimum coverage would entail an economic profile of all Maine fisheries and a discussion of their interrelationship with the fisheries of New England and the world -- obviously beyond the scope of this inquiry. Instead we have chosen the more modest goal of presenting Maine law in a format which will highlight the salient points of its many provisions with pertinent observations as to how such provisions affect the economics of certain fisheries and the conservation of certain species. The interdisciplinary analysis of this phase of the report does not purport to be exhaustive, but the presentation of the information is designed to facilitate further analysis.

Part III of this Chapter will discuss the laws governing each fishery regulated by Maine. Part II,will attempt to present and illustrate some of the policy issues against which those laws may be tested.

POLICY AND OBJECTIVES

Although other perspectives are possible, fishery management may be viewed basically as an economic activity. So viewed, and considering the "product" as a living renewable economic resource, two basic approaches to "resource management" may be briefly summarized.

Maximum Sustainable Yield

Maximum sustainable yield is a biological concept. Starting with the premise that there is a minimum "stock" necessary for each species to regenerate annually in sufficient numbers so as to maintain itself, the question is how many of the fish may be taken annually while still leaving a sufficient stock so that corresponding numbers may be taken in succeeding years (ad infinitum). The question is ecological; reductions in catch may reduce the sustainable yield if overcrowding results. Regretably man's biological knowledge is not sufficiently advanced in most cases to state the minimum stock necessary to sustain the species, or maximum. The goal of a maximum sustainable yield is not primarily concerned with economics. It is encompassed in the Fisheries Convention, Article 2,[66] which speaks of the optimum sustainable yield.

To achieve maximum sustainable yield in an overcrowded fishery, it is necessary to either limit the number of fishermen or restrain the efficiency of the fishing effort. The method chosen, however, is very important to the economist, for it will determine how profitable the fishery will be.

Maximum Economic Rent

The other possible objective has been described as maximizing the economic rent or profit. The maximum profit in a fishery may be realized by taking the fish by the most efficient method. Fishing effort, given a particular technology, will increase (according to economic theory) up to but not quite reach the level where the economic return (i.e., the value)

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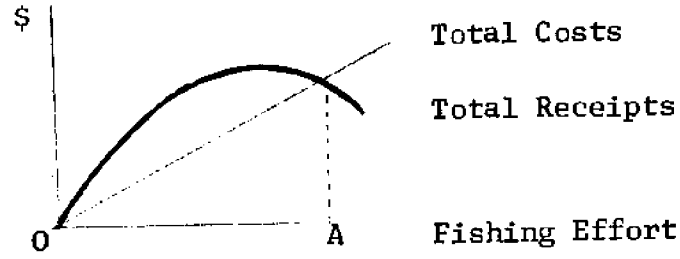
66. U.N. Doc. A/CONF 13/L.54 T.I.A.S. 5969, 17 U.S.T. 138.

of catching additional fish will be less than the cost of catching those fish.

The effort/yield curve in relation to total costs and total receipts[67]



When the economic rent principle is applied to private property, it determines whether further exploitation will take place. The rule works a little differently with a common property resource like fish for "if you don't take them, someone else will." What usually happens in a profitable fishery is a rush to capture a share of the profits with the result that the fishery becomes overcapitalized, overcrowded, overfished and the stock is depleted. Theoretically, fishing effort should then move on to another species, but given human nature this may not occur promptly. Economic considerations, in the final analysis preserve the species from extinction because of the meager return. "In most cases the fishermen give out before the fish."[68]

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67. See Panel Report Vol. 3, p.VII-63.

68. Remarks by Wilbert M. Chapman, Institute of Ocean Law, Miami, Florida, December 12, 1969.

Relationship Maximum Sustainable Yield and Maximum Profits

Assuming an efficient industry, fishing effort up to but not beyond the break even point will maximize profits. There is no guarantee, however, that such fishing effort will not exceed maximum sustainable yield. Therefore, conservation efforts are necessary to impose maximum sustainable yield as an overriding limitation on fishing effort of a species that is commercially valuable in order to sustain the fishery. (According to fishery economists, there is no point in conserving any fish unless they have some economic value.)[69] To achieve maximum sustainable yield in an overcrowded fishery, it is necessary to either limit entry or restrain efficiency. Limited entry and efficient gear, however, does not mean overfishing nor will it necessarily increase the total supply of fish. (depends where you are on the yield curve). It will, however, provide fish at a lower unit cost, because it will allow fewer fishermen to take a larger catch with smaller effort. A lower cost will yield a larger profit and make the fishery more competitive. If you do not limit entry, other methods of preventing overfishing are restrictions on gear, area, and season. Whatever validity these restrictions may have for

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69. Interview with James A. Storer, January 17, 1969. Compare:
> It is simply impossible to make sense of fishing regulations except in economic terms. Why conserve fish at all? Unless the end products of the fishery are worth more in money than the cost of producing them, there would be neither fishery nor a conservation problem. Physical yield becomes important only if the value of the fish is assumed. The quality of maximum physical yield as an objective becomes even more dubious if fisheries are regarded as a whole, rather than singly. If part of the capital and labor now used in the salmon fishery, for example, were devoted to catching flounder and dog fish it is probable that we could expand physical effort considerably. Obviously this would be nonsense, but only because the value of the catch to the consumer and the producer, would be reduced. Panel Report, Vol. 3, P.VII 64-5.

conservation, they adversely affect economics. Much of the economic profit from fisheries has been dissipated by spreading the fishery among wide numbers of people and assuring that the operation will not be too efficient. This explains why some of the most valuable fisheries are harvested by fishermen with the lowest incomes (e.g. lobsters, marine worms)[70]. Reality rarely corresponds precisely with economic theory in achieving ideal conditions in a fishery.

While it hardly seems necessary to emphasize that changing laws alone will not make a fishery in Maine or in the United States competitive, a legal structure which will allow efficient operations and coordinated management would seem to be a prerequisite for any upgrading of fisheries. The legal structure can contribute toward encouraging private interests to maximize their profits, for example by encouraging technological improvements; or conversely, it may discourage such improvements in methods and total profits, as seen in the case of the clam fishery.

Finally, law (and not economics) must impose certain overriding limitations on economic activity to prevent overfishing of economically valuable species. Thus the maximum sustainable yield must be imposed -- artificially by law, if need be -- as an overriding limitation on the catch from valuable fisheries.

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70. See Panel Report, Vol. 3, P.VII 64. It has been argued by some that non-economic considerations may justify the use of inefficiency in a fishery as a conservation technique, "but those who argue thusly, rarely justify the additional cost imposed on the economy and the industry." (Id. at p.VII 65).

MAINE'S ROLE IN "RESOURCE MANAGEMENT"

Much interest has been expressed in "resource management" for the world's fisheries. Very little such management now takes place, and the phrase may be as euphemistic as "harvesting" in lieu of "hunting" for these undomesticated marine animals.

But if it does not widely exist now, some "management"[71] will clearly be necessary soon for various fisheries. The goal of such management may, and probably will, vary by species and economic circumstance; it may be as limited as preserving a minimum stock of a species not having particularly great economic value today. More probably, if there is sufficient interest in a species to make management either necessary or desirable, the goal will be either maximumsustainable yield or, with a still greater intensity and sophistication of regulation, maximizing profits from the fishery.

Whatever the goal of fishery management, a predictable variety of techniques will be drawn upon: size restrictions; gear restrictions; closed seasons; total catch limitations; limitations on the number of participants (total fishermen, boats, etc.); minimum capital investment (physical or financial) requirements for participation; and so on. The devices which are designed for biological purposes are familiar, and are (or should, in every case be) readily explicable in terms of protecting fish during the spawning season, and the young until they have at least had a chance to reproduce, and preferably, until they have grown to an optimum

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71. Interview with James A. Storer, January 17, 1969.

economic size; and protecting the total size of the stock to assure adequate regeneration. The economically-oriented measures seek to maximize efficiency, and hence minimize cost.

A mere summary of these goals, and of some of the means of working toward them, makes the limitations on State action evident.

As has been repeatedly suggested in this report (see particularly, Chapter 15, Federal Limitations) Maine's effective jurisdiction stops, for most purposes, three nautical miles beyond the general shoreline. Maine (or any other coastal state) can, therefore, effectively "manage" only those species whose life cycle is, substantially shoreward of the three mile limit (12 miles, if the United States expands her territorial sea to that point for all purposes). Fortunately, this includes the shellfish most significant to Maine: the sedentary shellfish (clams, etc.); and lobsters (although free-swimming, their range is apparently limited).

As to species whose life cycle is largely completed offshore, and particularly those commonly caught more than three miles offshore, Maine (or a comparable state) not only lacks the means but the incentive to "manage". (1) The means are clearly lacking since no body of regulations, licensing, or the like can control the conduct of others than Maine residents beyond the three mile limit; even if the Maine residents comply perfectly with the "management" provisions, therefore, the management scheme will fail because of the unregulated conduct of fishermen from other states and foreign nations. (2) For the same reason, therefore, there will be no incentive to impose conservation-oriented regulations; since the fishing process is hunting, and the fish belongs to him who

catches it, "what Maine men don't catch today either will be caught by foreigners, or will have migrated, tomorrow." In the absence of comprehensive regulation, common sense demands that each fisherman take all he can when he can.

As to the latter, offshore species, therefore, any effective management program must be based at least at the federal level; but since most such species are now found more than 12 miles offshore, international management[72] is the only practical solution. It is always possible that states, like Maine, may have a role in administering such schemes; but the regulatory system must originate elsewhere.

Fortunately the species having the greatest value in the United States are those "luxury" seafoods (e.g., lobster) which are already within Maine's complete power to regulate and hence, manage. If Maine were to effectively manage those species so as to maximize the long term return from them, greater profits would be realized, as economic waste in the form of overcapacity and inefficiency were curtailed. The pressure for management of not only Maine's but United States' fisheries will increase as the necessity to become competitive intensifies. As the species-by-species discussion will illustrate, she has not yet even attempted to do so.

Allocation of Benefits

Basic political questions to be resolved before management criteria can be formulated are: Who is entitled to the economic benefits from a

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72. See discussion of ICNAF, p.633.

fishery and how do you allocate the resource? Among commercial fishermen? Between commercial and sports fishermen? Whatever decision is made (and continually being remade) such a decision is reflected in the fishery laws and regulations.

An analysis of Maine's fishing laws indicates an effort, wherever possible, to limit Maine's fishery resource to Maine residents. Among residents, the laws are designed to assure that all who wish to obtain their livelihood from this source shall have the opportunity.[73] This is in accordance with a historic dependence on fisheries for subsistence. The Legislature has not squarely faced the allocation of the resource between commercial and sports fisheries. In some cases, preference has been given sportsmen by default because laws make a profitable commercial fishery impossible.[74] (The Commissioner of the Sea and Shore Fisheries anticipates a tremendous growth in salt water sports fisheries and feels potential conflict will be minimized if both sports and commercial marine fisheries are under the same administrative management).[75] Maine has successfully limited certain shellfish resources to Maine residents. These laws have withstood attacks of unconstitutionality under the 14th Amendment because of the assertions that they are necessary as conservation measures.[76] Laws so sustained have involved sedentary species that are closely tied to the flats or the ocean bed. It is doubtful whether such restrictions could be sustained for Maine shrimp or other free swimming

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73. This statement must be qualified as to clam, quahog and mussel fisheries, see p. 712.

74. See Remarks, p. 710.

75. Interview with Ronald Green, December 17, 1968.

fish. With the exception of clams, quahogs, and mussels, no attempt has been made to limit entry among Maine residents. Some differentials exist between residents and non-resident licenses for other fisheries, but there is no indication of any attempt to exclude.

Conservation and Regulations

There are conservation measures essential to maximum sustainable yield (e.g., 24 hour closed time to allow alewives to spawn and return) but some restrictions promulgated in the name of conservation are basically designed to serve economic ends. The closed season on sardines was to enable canneries to operate only certain portions of the year free from competition. By knowing the extent of the season and having fairly reliable estimates of supply, not only was the processors' convenience served but the orderly marketing of the sardines was facilitiated. When herrings became scarce, the closed season was repealed with no protests from "conservationists."[77] The present size restrictions[78] on herring are closely related to canning requirements. The two inch clam is a commercially desirable size for restaurants. Lobsters below the maximum size are the most tasty; destruction from disease and cannibalism in lobster pounds is lower per unit with smaller lobsters,[79] and the loss of a single

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76. E.g. State v. Peabody, 103 Me. 327, 69 A. 273 (1907); State v. Leavitt 105 Me. 76, 72 A. 875 (1909).

77. 12 M.R.S.A. 3855.

78. Interview with Richard Reed, Executive Secretary, Maine Sardine Council, March 11, 1969.

79. Interview with Robert L. Dow, November 26, 1968.

animal is less serious than if each were larger and represented a greater investment. The fact that such regulations are not scientifically valid does not mean that they are not economically defensible.

Management of Maine's Fisheries -- Limited Entry

All fishing licenses are unrestricted in number, available to all who meet objective criteria; the cost of no license is high enough to significantly deter applications.

Politically and economically, the advantages of limited entry must be weighed against the economic alternatives open to fishermen who would be displaced. When there is a scarce labor supply, which is becoming more and more evident from Casco Bay up to Wiscasset[80] there is an economic rationale for limiting entry and diverting some fishermen into other activities. Perhaps further down the coast, i.e. at Machiasport (proposed site of oil refinery) and other sections of Washington County, there presently may not be that economic alternative. If people are fishing for other than economic reasons, the economist cannot give an answer, but society itself must decide about submarginal activity and whether it should be discouraged.

The decision as to whether entry into a fishery should be limited should not be confused with the problem of how to accomplish the limitation. The resolution of the second, however, will materially influence the political acceptability of the first.

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80. Interview with James A. Storer, January 17, 1969.

There can be no doubt that the State of Maine has the constitutional authority to limit entry. Fishing is a public right and the Legislature has the power to regulate, curtail, and if necessary abolish public rights.[81] The means used to limit the number of participants, however, may raise legal questions.

Alaska attempted to limit entry into the salmon fishery by limiting the issuance of commercial licenses to those who already held licenses or to those who had engaged in the fishery for three years. The statute was declared unconstitutional because ability to obtain employment in the fishery and thus accumulate the necessary three years was left to the private discretion of individuals whose own benefit would not ordinarily be served by assisting potential competitors to qualify. The method selected by this particular statute, but not the concept of limited entry, was deemed invalid.[82]

Michigan has limited entry with regard to its commercial fisheries. As part of the statute, the Michigan Legislature has declared that the fishery resource is a property of the State; the taking of fish is declared to be a privilege. The implicit rationale of this legislation is the optimum economic exploitation of the fisheries. Pertinent portions of the statute read:

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81. See Vol. II, Public and Private Rights on the Sea Shore and in Maine's Tidal Waters, p.233-271.

82. Bozanich v. Reetz, Commissioner of Fish and Game of Alaska, 297 F. Supp. 300 (D. Alaska 1969).

§308.1 Fish, property of State.

Sec. 1. All fish of whatever kind found in the waters of Lakes Superior, Michigan, Huron and Erie, commonly known as the Great Lakes, and the bays thereof and the connecting waters between the lakes within the jurisdiction of this state, shall be, and are declared to be, the property of the state and the taking thereof is declared to be a privilege. All fish in such waters shall be taken, transported, sold and possessed only in accordance with the provisions of this act. (Emphasis supplied)[83]

§308.1b Fishing license, limiting number to be issued, qualifications; provisions; expiration date; suspension or revocation; renewal; transfers.

Sec. 1b (1). Notwithstanding the provisions of this or any other act, the director of conservation, when in his opinion it is necessary for the better protection, preservation, management, harvesting and utilization of the fisheries in the waters described in Section 1[1] may limit the number of fishing licenses to be issued under the provisions of this act and fix and determine the qualifications of such licenses. In determining the number of persons holding such licenses, the number of licenses needed to harvest the fish known or believed to be harvestable, the capacity of the boats and equipment owned and used by licensees to effectuate such harvesting, and any other facts which may bear upon the allowing of a limited number of licensed persons to engage in commercial fishing in an economical and profitable manner. In determining the qualifications of the licensees, the director of conservation shall consider the kind, nature and condition of the boats and fishing equipment and gear to be used by the applicant, the years of experience the applicant has had in commercial fishing and the quantity and kinds of fish that the applicant has caught during the previous five years and such other facts which may assist him in determining that the applicant is capable to engage in commercial fishing in a proper and profitable manner and will comply with the laws applicable to commercial fishing.[84]

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83. Michigan Compiled Laws Annotated, §308.1 (1969 Supp.). Underlined portion was added by P.A. 1968, No. 336. §1.

84. Id. Section 1b (1).

Section 308.1b also provides that the Director of Conservation may promulgate rules limiting the amount of fish to be taken by specie and kind, the area in which the licensee will be permitted to fish, specifying the season when and the depths where the licensee may conduct his commercial fishing operations, the methods and gear, and other conditions, terms and restrictions which are deemed to be necessary in carrying out the provisions of the act.

Although the privilege language is legally questionable, the Michigan statute--if fairly administered--seems sound. Compare the Michigan approach of an extremely broad delegation of powers to an administrator, with the Maine approach: setting forth highly specific detail in the statute, leaving minimal discretion in the administrator.

Massachusetts has relatively recently given its Director of Marine Fisheries the power, subject to approval of the Marine Fisheries Advisory Commission and the Commissioner of Natural Resources, to make regulations which would supersede private and special acts of the Massachusetts Legislature.[85] In ruling on provisions of this legislation, the Massachusetts Attorney General advised:

> The intent of the Legislature, in my opinion, was that there be, as you state in your letter, "a fresh start at marine fisheries management" and not "that the rule making power should be circumscribed by the many special acts" passed over the last two centuries.[86]

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85. Massachusetts General Laws Annotated, Title 103 §17A, §104 as amended by Chapter 715 of the Acts of 1962, entitled "An Act Relative to the Promotion and Development of Marine Fisheries of the Commonwealth."

86. Letter from Robert H. Quinn, Attorney General to Honorable Arthur W. Brownell, Commissioner of Natural Resources, the Commonwealth of Massachusetts, dated December 5, 1969.

By Maine law, the Commissioner of Sea and Shore Fisheries may not make any regulations in conflict with any act of the Legislature.[87]

RESEARCH

An obvious goal of maritime state's fisheries programs should be research which would increase knowledge about the resource.

Statutory responsibility for the conservation of marine life and the research, promotion, and development of Maine coastal fisheries has been assigned to the Department of Sea and Shore Fisheries,[88] but the laws administered by the Department do very little to facilitate private or institutional research and in some instances have worked as a positive barrier to such activity. Despite a long recognized need, with the exception of lobsters, very little research was carried out by the Department prior to the end of World War II.[89]

Other publicly supported research in Maine is being undertaken by the Bureau of Commercial Fisheries Laboratory at West Boothbay Harbor, the University of Maine's Darling Research Center at Walpole, SMVTI, and limited activity undertaken by municipal shellfish committees.[90] More and more interest in marine species is being evidenced by private enterprise as the lure of profitable aquaculture looms over the horizon.

87. See McKenney v. Farnsworth, 121 Me. 450, 118 A. 237 (1922).

88. 12 M.R.S.A. 3451.

89. See Inaugural Address of Percival P. Baxter, Laws of Maine, 1923, p.859; Interview with Robert L. Dow, November 26, 1968.

90. See Study made for Brunswick Shellfish Committee. Arndt, H.E. and Berry, R., Marine Resources Survey for the Town of Brunswick, 1967.

Conservation

A primary aim of the research effort of the Department is obtaining information necessary to make regulations as to time taken, method taken, and number taken to remedy any conditions which "endanger the conservation of fish, shellfish, lobster and crabs, shrimp and marine worms in any of the coastal waters or flats of the state."[91] Almost all regulations promulgated under this authorization pertain to closure of flats.[92]

Much of the information needed to make meaningful conservation regulations is useful in enhancing a fishery. Research is in progress at the Department's laboratory at Boothbay Harbor and at numerous research sites along the coast of Maine. The Department has been given limited authority to take flats in the inter-tidal zone for research.[93] Presumably the Department could utilize any water area or bottom below low tide subject to non-interference with navigation, but no provisions to do so have been set forth in the statutes. Department personnel are either explicitly or implicitly exempted from compliance with any of the fishery laws which would hinder their research effort.

Outside Research

The Department has at least discretion in its enforcement policies, which could facilitate or retard bona fide research by other organizations.

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91. 12 M.R.S.A. 3504. Salmon is regulated under 12 M.R.S.A. 3601-04.

92. See Maine Sea and Shore Fisheries Laws and Regulations, Revised to October 1, 1969.

93. 12 M.R.S.A. 3701 (Supp.).

In fact, it is repeatedly claimed that strict enforcement[94] of the statutes of the Department have hindered both biological and technical research by other than department personnel. The problem was very real for the Darling Research Center in their research on lobsters: No one may take samples without a valid lobster license; to obtain such a license one must be a Maine resident for three years; most of the graduate students at the Center are not Maine residents and are thus prohibited from gathering specimens; the opportunity of students to conduct research on lobsters is limited. Even with a license, a researcher can take -- and therefore, study -- only legal sized lobsters. Even a diseased non-legal size lobster cannot be returned to the laboratory for study. Similarly, experiments toward developing more efficient traps are precluded because lobster can only be taken by conventional traps.[95]

Similar frustrations have been experienced by those who have sought to experiment with oysters in polluted waters. By a strict construction of the law, oysters cannot be grown in grossly polluted waters or taken from polluted to unpolluted waters unless such activity qualifies as an experiment on polluted shellfish.[96] Some relief was provided by an amendment to the statutory provision relating to the closure of contaminated flats by adding a new section which reads:

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94. See 12 M.R.S.A. 3652 which provides that coastal wardens "shall enforce all laws and regulations relating to Sea and Shore Fisheries, except as otherwise provided."

95. Correspondence with David Dean, Director of Darling Research Center, January, 1970.

96. 12 M.R.S.A. 3452.

> It is unlawful to wash, hold or keep any shellfish in any coastal waters which are closed under this section, or in any waters taken in whole or in part of coastal waters which are closed under this section.
>
> A. Except this subsection shall not apply to shellfish kept or washed in waters sterilized by a system which has been approved in writing by the Commissioner provided the waters are also approved for such use.[97]

Private individuals attempting to cultivate oysters have sometime run into opposition from municipal shellfish management authorities. By statute municipal jurisdiction extends to clams, quahogs, and mussels with no mention of oysters.[98] Harvesting of oysters is covered under a commercial shellfish license which exempts oysters for home consumption.[99] Either erroneous or deliberate misreading of this section has resulted in municipalities attempting to exercise jurisdiction over oyster cultivation and harvesting.

The problem of "prosecutorial discretion" is always a difficult one. "Research" activities are not self-defining (graduate students might enjoy illegal lobsters on off hours; health considerations do require a careful monitoring of shellfish). The line between research and commercial exploitation becomes even more ill-defined when private enterprise is involved. To complete research on a new process or species, it must be sanctioned for market testing. There are problems with innovations, e.g., present law will not allow sewage to be used for nutrients, a possibility with great potential.

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97. 12 M.R.S.A. 3503 as amended by P.L. 1969, c.408 §10.

98. 12 M.R.S.A. 4304. Correspondence with the Town Manager of Brunswick, Nov. 27, 1968 indicated problems caused by the confusion in laws regulating oyster culture.

99. 12 M.R.S.A. 4301.

There can be little doubt that the Legislature would, if requested by responsible persons, grant special exceptions from the fishery laws to a governmental or university research effort. We would highly recommend against such a procedure. There should, instead, be a general law authorizing special research licenses, to be granted on such conditions as are appropriate for each case. The Commissioner takes a relatively dim view of such a proposal because he feels it would cause enforcement problems. Specifically he is concerned about having to certify the absence of any such permission in libel proceedings.[100] The Commissioner's fears seem ill-founded if, as suggested, it became necessary to plead the possession of a special research license as an affirmative defense.[101] More probably, the Commissioner may be apprehensive of the broad discretion, and possible disputes over its exercise, which would result from such a category of licenses.

Appropriations for Research

Appropriations for the research function of the Department have been small -- whether measured absolutely, in comparison with departmental budgets, or with regard to the need for knowledge about marine fisheries. The Research Division is funded from general appropriations and is also recipient of a multitude of dedicated revenues derived from licenses and fees. (e.g. alewife fund, marine worm fund, shellfish fund, lobster fund, quahog tax, percentage of revenues derived from the tax on gasoline used

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100. See 12 M.R.S.A. 4506 (1).

101. Conversation with Ronald Green, January 1970.

in boats). The Department has been a recipient of special research grants and was specifically authorized by statute to receive funds under Public Law 88-309.[102] Despite fiscal limitations, the research results of the Department have been impressive. The Department is feeling the rising tide of appropriations from the Legislature and the federal grants resulting from a new and dynamic interest in the ocean. This interest is particularly apparent in legislative largess to the Darling Research Center.

The existence of this center and the intensification of private research into fishery problems raises interesting questions as to the proper disposition of research grants among these competing contenders. These include: Are the University and the Department usurping a legitimate role of private enterprise? Should an agency responsible for recommending regulations and enforcing them be a recipient of private grants from the interests they regulate? (E.g., determination of lethal limits of thermal pollution under grants by a power company). Is it reasonable for the Department to require that private research results be made public? How can the Department best prevent duplication of research effort and help develop marine fisheries without access to all available information? Is competition rather than cooperation a luxury that Maine can afford?[103]

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102. 12 M.R.S.A. 3705 (Supp.).

103. These are composites of many points raised by various persons.

Aquaculture Research

One of the glamour aspects of oceanography is the possibility of initiating widespread aquaculture of marine species. Aquaculture, based on the concept that many resources of the sea may be farmed rather than hunted, has been in extensive operation in Asian countries such as Japan for some time. In the United States, with the exception of oyster culture, aquaculture is in its infancy.

The greatest potential for aquaculture in Maine would presumably be the shellfish resources, not only because of the natural proclivity of these fish for the Maine coast, but also because of the high unit price of these resources. There are already provisions in Maine law for the aquaculture of clams, quahogs, and mussels,[104] which allow one fourth of the total area of all flats and tidal creeks within a municipality to be leased for periods of from five to ten years. The adjacent riparian owner has preference in obtaining a license to cultivate the flats in front of his land. Municipal officials have the responsibility for the management of this program. In deorganized towns the Department of Sea and Shore Fisheries has jurisdiction. These statutes do not take into consideration areas closed by the Department for either conservation reasons or because of pollution; if extensive areas of the town's flats were closed, competition for flats might become acute between regular clam diggers and aquaculturists. A person granted a license to cultivate has exclusive rights to the shellfish resource in the area; he has, however, very little recourse against the destruction of his clam beds

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104. 12 M.R.S.A. 4303. See Vol. II, p.343, 349-50; Chapter 12, this volume.

by pollution. A pollutor faces no more serious consequences under these provisions than someone who merely molests a marker indicating where the clams are being grown.[105]

Provisions for aquaculture of oysters are older than the Department of Sea and Shore Fisheries. The right to use water areas for this purpose is subject to the assent of the adjacent riparian owners, even though private ownership does not extend beyond low water mark.[106] Municipalities do not have authority to regulate oyster cultivation. The Department has no statutory authority over oyster culture as such, other than to receive notification of areas being used for this purpose. It does have the responsibility to assure that sanitary and health regulations are upheld. The oyster culture statutes do not deal with the usual method of cultivating oysters today, on rafts which float between the surface of the water and the bottom. Presumably, a municipal harbor master might have some voice in the disposition of these rafts inasmuch as they are structures in coastal waterways. Certainly navigable-in-fact tidal waters would be subject to State sanctions and federal prohibitions against obstructing navigable waters. Any statute covering raft culture must give consideration to the whole gamut of multiple uses of a water way; swimming, boating, commercial and sports fisheries, etc. The extent that the exclusion of other activities is necessary for oyster culture may vary with location. The statute, therefore, should provide enough

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105. 12 M.R.S.A. 4351.

106. 12 M.R.S.A. 4253.

flexibility to assure sufficient protection for aquaculture without unduly restricting areas not so needed.

Either as a prerequisite or a necessary next step, Maine law must be revised and enlarged to fully realize the potential for aquaculture. State action in the nature of zoning or condemnation may be needed to allocate areas for aquaculture; state action will be needed to deal with problems of pollution, conservation and other aspects that cannot adequately be handled by municipalities. Regional authorities could be created to bring the decisions as to water and land usage and allocation of the cultivation privilege a little nearer to people whose land and water is being affected.

The provisions for private research on flats and water areas other than for those mentioned above were discussed in detail in Vol. II, p.343. Basically these provisions provide for a private individual to take flats subject to the approval of the riparian owner and lease water areas not exceeding one square mile from the Department of Sea and Shore Fisheries.[107] It was under these provisions that Marine Colloids obtained a lease for the harvesting of Irish Moss. In the discussion of that lease set forth for comparison was a summary of a Florida Statute[108] relating to the exploitation of submerged lands and water columns. The statute has particular relevance to aquaculture. Members of the faculty of the University of Miami School of Law have been intensely interested in this law and the regulations which have been promulgated under its authority.

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107. 12 M.R.S.A. 3703 (Supp.).

108. Florida Statute §253.67-253.75 as added by Laws of Florida, 1969, c.69-49 amending c.253. See Vol. II, p.346 et seq.

Some of their comments about that statute, and problems in its operation, may be useful in considering comparable legislation for Maine; their observations[109] include the following points.

1. Lease Permits

The statute makes provision for a basic rental plus royalties based on future share arrangement after operations have attained a successful status. It is difficult to visualize many individuals engaging in a risk venture with such indeterminate rental terms.

2. Failure to consider all conflicting interests

Present law limits objections to lease permits to riparian owners within 1,000 feet of the proposed aquaculture site. Others with an economic interest in the State's territorial waters such as commercial and sports fishing, recreation, etc., should be involved in the leasing procedure. Additional guidelines were subsequently added to the statute to protect common uses of the coastal waters. They provide for at least one opening in the aquaculture enclosure for fishing, navigation and recreational use of the leased areas. Questions raised by these guidelines are whether such limited access is indeed an adequate reservation for such public use? Since the lease may provide exclusive fishing rights to leasee in the leased area, would not such reservation for common fishing be in derogation

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109. Mr. Dennis O'Connor and Mr. Dorian Cowan discussed features of this statute at the Institute of Ocean Law, Miami, December 10, 1969. We are indebted to Mr. Cowan for the following comments.

of the leasees right and constitute a taking without due process?

3. Relationship to local authority

The aquaculture law provides that the consent of the local county authorities[110] is a prerequisite for a lease. The law contains no protective provisions for onshore installations. Since these installations may follow execution of the lease, the nature of local zoning requirements is obviously an important factor. A set-back line for coastal construction zoning at the county level with final state supervision is recommended. A similar highly successful procedure had been demonstrated in connection with the outer limits of riparian property, i.e. location of bulkhead lines. The question is raised whether the issuance of a state lease extinguishes the exercise of local jurisdiction in respect to undesirable structures?

4. Pollution control

Although the law requires a preliminary report of the state department of natural resources in respect to the ecology of the area, there is no provision for subsequent pollution control, either in the leased water area, or on shore operations. Use of chemicals to repel predators and processing of fish products are obviously pollution possibilities.

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110. Unlike Maine, County government in Florida forms an intermediary level of government between municipality and the state. Comparable authority in Maine could be exercised by regional authority that could or could not coincide with county lines.

5. Necessity of exclusive areas

Any lease, whether it deals with oil, gas, minerals, or fish culture would, in Mr. Cowan's opinion, have to be generally exclusive in nature in order to be marketable. This, however, does not deny the right of the state to make specific reservations to take away the substantive value of the lease.

PRODUCT AND MARKET RESEARCH

The Department of Sea and Shore Fisheries is not staffed or financed to engage in any significant research in the preparation and processing of fishery products. The Department did lend assistance to the sardine industry in the development of mechanization for the processing and canning of sardines and has also been involved and interested in the testing of shrimp peeling machines from Louisiana and Norway. The Department, however, has not been engaged except to a limited extent in experimentation with new types of sea food products (not to be confused with research on species), innovative marketing of old types, or attempting to solve chemical problems such as the deterioration of frozen fish, etc.

Research on fishery products is taking place at the Food Science Department at the University of Maine in Orono.[111] The relatively small commitment to fishery products is oriented more toward concern about salmonella, adulterated products and other pure food requirements than the devel-

111. Interview with Professor John Hogan, Head of the Department of Food Science, and Matthew Highlands, Professor of Food Science, University of Maine, Orono, May 21, 1969. Development of the Maine shrimp industry has been assisted by this Department.

opment of new processes. The Food Science Department is concerned with quality controls and level of utilization. Both the Department of Sea and Shore Fisheries and the Food Science Department are interested in the marketing of fishery products, but because of fiscal limitations have not been able to do extensive work in this area.

EDUCATION

The need for increased knowledge about fishery biology, harvesting technology, and marketing is apparent. The successful experience in dissemination of agricultural information to farmers through the extension services of land grant colleges has been a model that fisheries would do well to emmulate. As in agriculture, it is not only a question of obtaining new and relevant knowledge from scientific investigation, but it is necessary to make sure that such information reaches the people whom it was designed to help and who are in a position to use it. Mere distribution of fishery information is not sufficient. Resistance to change and hostility to innovation is particularly evident among fishermen. Adaptation of new techniques and implementation of research results is as much a matter of human relations as public relations.[112]

A start has been made along these lines. The Fish and Wildlife Act of 1956[113] made provisions for an extension service. Public Law 88-309 also was directed to this goal. The Maine Sea and Shore Fisheries

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112. See Editorial, Maine Times, November 8, 1968.

113. P.L. 1024, 70 Stat.1119.

Department had previously initiated an informal extension service. Because of this, the Bureau of Commercial Fisheries selected Maine to initiate the first formal program under P.L. 88-309.[114] The National Sea Grant College and Program Act of 1966 is also concerned with dissemination of information to the working level.

Although it has always been part of their duties, an intensification of the educational work by wardens should not only simplify enforcement, but to some extent eliminate the need for much of it.

PROMOTION

The Department of Sea and Shore Fisheries has a vigorous department for the promotion and marketing of Maine fishery products. It has produced an award-winning film[115] and many attractive brochures on Maine's fishery products and their preparation, among other activities. But the total promotional budget has averaged $40,000 per year and the words of the Department with regard to shrimp could be descriptive of the entire promotional effort. "It is difficult to pinpoint the results of such a marketing program..."[116]

Again, the basic fact is that the United States is not a fish eating nation and, except for the luxury type of fish products (shellfish, lobster, fillets, many of which are supplied from foreign import), basically

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114. 24th Biennial Report of Dept. of Sea and Shore Fisheries, p.28.

115. See Maine Sunday Telegram, February 22, 1970, p.10B.

116. 25th Biennial Report of Dept. of Sea and Shore Fisheries, p.21.

receives its proteins in other forms. Whether a national full-fledged publicity effort could materially influence eating habits and consequently preference which in turn would affect the price and market for fish is conjecture. Suffice it to say that the Maine budget is respectable in relation to the task only in comparison with the similarly relatively small amounts spent by the Bureau of Commercial Fishery for promotion. The Bureau of Commercial Fisheries does have exhibits and bright posters but the Department cannot promote brand names or concentrate on certain types of products except in an emergency (the depressed condition of the Maine sardine industry has been adjudged such an emergency and they were afforded special help.)[117]

LICENSING AND ENFORCEMENT PROVISIONS

LICENSES

The constitutional ability of the State of Maine to regulate fisheries within its territory by requiring licenses to participate in the taking, processing, shipping, transporting, or selling of fish products has been firmly established,[118] provided no undue burden is placed on interstate commerce and there is no violation of the Privileges and Immunities or the Equal Protection Clauses of the 14th Amendment.[119] Regulations for the conservation of the resources, either alone or coupled with

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117. Interview with Dr. J. L. McHugh, Acting Director, Office of Marine Resources, Department of the Interior, April 14, 1969.

118. E.g. State v. Peabody, 103 Me. 327, 69 A. 273 (1907); State v. Dodge, 117 Me. 269, 104 A. 5 (1918); State v. Snowman, 94 Me. 99, 46 A. 815 (1900).

119. See p.661 supra.

a method of allocating the right to exploit a limited resource, have been held to be within constitutional bounds. Limitation of licenses to residents, state or local, may be upheld as a means of effectuating this purpose, as demonstrated by laws limiting to Maine residents the privilege of taking and cultivating scallops, marine worms, lobsters and crabs, and other shellfish.[120] Regulation aimed at restricting taking of other than shellfish to Maine residents has not been so successful.[121] The de facto statutory embargo against bringing out of state processed lobster meat into Maine has also been successfully challenged.[122]

Although generally valid, Maine's fishing license provisions are an uncoordinated morass. In his Inaugural Address of 1953, Governor Burton Cross said "From a practical standpoint I strongly recommend the consolidation of many of the existing licenses to promote uniformity and for a greater convenience of those who make their livelihood from the sea."[123] The multiplicity of licenses has produced further difficulties (compounded by various recodifications) in drafting provisions which cross-refer to these complicated, interrelated, and sometimes inconsistent licensing requirements.

A good example of the status of the statutes can be found in 12 M.R.S.A. 3403 which provides that all general laws of the State pertaining to size, sale, transport, and possession of fish, shellfish, and

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120. See 12 M.R.S.A. 4001, 4252, 4301, 4301-A & B, 4303 and 4404 discussed in Vol. II, p.388 et seq.

121. Russo v. Reed, 93 F. Supp. 554 (D. Me.1950).

122. Ipswich Clam Co. v. Green, 283 F. Supp. 586 (D. Me. 1968).

123. Laws of Maine, 1953, p.985.

lobsters apply whether the same are taken from the waters of the State of Maine or any other state, country, territory, or international waters and brought into the State, subject to certain exceptions. The first exception reads:

> 1. Exception for wholesale dealer in certain instances; authority for regulations. This section does not apply to lobsters reconsigned intact in the original crates by a holder of a Maine wholesale seafood dealer's and processor's license to another such dealer if the crates are sealed in accordance with regulations adopted by the commissioner with materials furnished by him at cost. (Emphasis supplied).

This is intended to protect Maine dealers from charges that they have violated Maine's stringent size restrictions when they are merely conduits for lobsters, etc., packed elsewhere. If read literally, however, the exception applies only if the dealer to whom the seafood is reshipped (in their original cartons) is also the holder of a Maine dealer's license. The statute makes sense only if the word "such" is ignored. This law is not literally enforced, but it points up the problem of statutory provisions that leave the interpretation of their meaning up to the Commissioner of Sea and Shore Fisheries. This is hardly a good example of the discretionary power which should, in certain instances, be given the Commissioner.

Another amomalous situation is the fact that a taxpayer may be able to cultivate shellfish under §4304-5 and transport seed clams and quahogs under §4308, but if this same taxpayer is not also a resident, he might not legally be entitled to harvest the clams he has planted.

Several specific points are worthy of mention which cannot be gleaned from any cursory examination of the statutes:

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1. There is no requirement or licensing provision for the sale of fish (excluding shellfish) in the retail market. Interstate shipments would fall under Federal purview. The proposed federal fisheries inspection legislation[124] would undoubtedly cover this point.

2. There is no quality classificaton or control of Maine fishery products other than assurance that shellfish are not hazardous to health because of concentration of pollutants or other toxic elements. A consumer has only his olefactory and visual senses to determine the freshness and general quality.

3. No license is required for sports fishing in salt water for other than lobsters, clams, quahogs, or mussels.

CHART NO. 3

LICENSES, PERMITS AND CERTIFICATES ISSUED BY THE DEPARTMENT OF SEA AND SHORE FISHERIES

TITLE 12 SECTION	FEE	SUBJECT MATTER
3452		Permission to conduct experimentation for purification of marine mollusks from contaminated flats.
3703		Certificate. Commissioner may set apart flats or water areas to persons to undertake research on or cultivation of marine species.
3708 (as added by P.L. 1969, c.254)		Department lease of alewives fisheries when towns relinquish the right to manage.
3801	$3/$10/$25	Resident commercial fishing license.
3802	$100/$25	Non-resident commercial fishing license.

124. S-1092. House Bills on the same subject include H.R. 1235, 3054, 3683, 5550, 7905, 11262.

CHART NO. 3 (Continued)

TITLE 12 SECTION	FEE	SUBJECT MATTER
4001	$10	Scallop license. Limited to residents.
4051	$2 $15	Resident sea moss license. Non-resident sea moss license.
4204	No charge	Permit to use trawls in Casco Bay.
4301	$3	Commercial shellfish license residents only. Dig, ship or transport within the state, clams, quahogs, mussels or oysters. Subject to municipal regulations.
4301-A	$10	Marine worm diggers' license - residents only.
4301-B	$25/$1	Marine worm dealers' license - residents only.
4302	$35/$10	Wholesale seafood dealers and processing license covers only fish, shellfish, lobsters, crabs or parts thereof.
4302-A		Special authorization for holders of a wholesale seafood dealers license to sell shucked shellfish.
4303	$2	Retail dealers license. Covers only clams, quahogs, crabs, lobsters or parts thereof. [No mention of oysters, mussels or other non-shellfish].
4304-5	$1-$5/acre	Cultivation of clams and mussels by municipality and by Department of Sea and Shore Fisheries in deorganized territories.
4306	$35/$10	Interstate transportation license. Ship or transport soft shell clams, quahogs, oysters or mussels. (See exceptions).
4307	No charge	Intrastate shellfish permit to shuck shellfish for intrastate trade.
4308		Permit for transportation of seed clams or quahogs.
4309		Certificate to ship shellfish for out of state trade. (See Subsection 8 making it lawful for interstate shellfish transport licensee to ship without the certificate).

CHART NO. 3 (Continued)

TITLE 12 SECTION	FEE	SUBJECT MATTER
4310		Certificate to pack or shuck shellfish for interstate shipment.
4401		Permit authorizing any person to handle egg bearing lobsters.
4402		Permit to remove lobster meat from the shell.
4403	$50/$5 ($25/$5)	Interstate lobster transportation license. (For holder of current wholesale seafood dealers and processor's license, §4302).
4404	$10	Lobster and crab fishing license.

WARDEN SERVICE

The 34 wardens of the Department of Sea and Shore Fisheries are primarily responsible for enforcing Maine's fishery laws. These same wardens share responsibility for enforcing the Maine Boat Laws, regulations governing snow trail vehicles, and laws regulating litter; the warden service cooperates with the Department of Inland Fisheries and Game, the State Civil Defense Agency, the United States Coast Guard, the Maine State Police and other enforcement agencies.

Historically the Department of Sea and Shore Fisheries was primarily an enforcement agency whose personnel were picked for political compatibility,[125] rather than for competence or capability. The days of the "wardheeler warden" have long since passed into history; and although not politically antiseptic the upgrading of the service and training of

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125. See Inaugural Address Governor Carl E. Milliken, January 4, 1917; Laws of Maine, 1917, p.870.

personnel has assured the caliber and efficiency of its members, and an unbiased and uniform enforcement of the law. The enforcement function of the Department is still a major concern but the proportion of the departmental budget expended for this purpose has declined.

CHART NO. 4

EXPENDITURES - DEPARTMENT OF SEA AND SHORE FISHERIES (in dollars) [126]

	1960-61	1961-62	1964-65	1965-66	1966-67	1967-68
Warden Service	185,769	214,724	220,188	248,013	274,950	285,337
Aircraft	816	24,716	1,936	3,463	3,244	3,336
Patrol Boats	26,343	31,184	36,915	43,535	59,411	51,257
Departmental Total	410,769	494,543	552,521	627,749	936,286	928,104

Violations of Law

The Commissioner of Sea and Shore Fisheries claims that all of the laws for which his Department is responsible are enforced is not invalidated by variations which may occur depending on the number of wardens assigned to a particular locality and the general attitude of the fishermen in a given area towards the law. One lobster dealer questioned whether measuring lobster lengths by carapace measures was an exact science; he readily acknowledged, however, the value of the short lobster prohibition and the fact that short lobsters would indeed be taken if the law were not strictly enforced.

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126. State Department of Sea and Shore Fisheries, 22nd Biennial Report, p.4; 24th Biennial Report, p.39; 25th Biennial Report, p.46.

Most of the prosecutions for violations have resulted from infringements of law pertaining to shellfish; well over half of such infractions result from violation of some aspect of the lobster statutes (see charts 5 and 7). This is not surprising in view of the fact that lobster is Maine's most commercially valuable shellfish resource. Most of the lobster violations are for short lobsters.[127] -- a restriction almost universally recognized as a valid conservation measure. There are surprisingly few prosecutions for fishing lobsters other than by conventional methods (the lobster pot), in view of the fact that the most efficient way to catch lobsters is for a scuba diver to place them in a container.[128]

Violations of regulations prohibiting taking clams from areas closed either for conservation or because of pollution are the second most numerous "crime on the flats." The crime rate for these acts seems to fluctuate with the abundance of clams on the flats which are open.

JUDICIAL PROCEEDINGS AND PENALTIES

Any person authorized to enforce the Sea and Shore Fisheries laws may arrest a violator of any of these laws.[129] Prosecution is carried out by the county attorney in either the district or superior court.[130]

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127. See Chart No. 5, infra.

128. See discussion of lobsters, p. 716 et seq.

129. 12 M.R.S.A. 4503.

130. 12 M.R.S.A. 4502; See State v. Giles, 101 Me. 349, 64 A. 619 (1906) which allowed an indictment to be made by a private individual. The court noted that willingness of the populace to support the laws has always been a crucial element in their enforcement.

The penalty for violation of most of Maine's fishery laws is a fine of from $10 to $300 or imprisonment for not more than 90 days or both.[131] Special penalties are prescribed for particular offenses (see Chart 6 below). Any fish caught in violation of law is contraband and subject to forfeiture to the State. Similarly, any gear used in illegal fishing, including vessels, is subject to seizure and forfeiture.[132] The Commissioner indicated that seizure of a fishing vessel is used quite infrequently and then only in the case of flagrant or habitual offenders, but feels that the power to do so is a very important element in the enforcement procedure.[133] The severity of the penalty, of course, must be related to the offense. In State v. Lubec,[134] the defendant maintained that the penalty for short lobsters was excessive and hence unconstitutional. In repudiating the claim, the Court held that in determining whether or not a fine is excessive, consideration must be given to purpose of the enactment, and the importance and the magnitude of the public interest sought to be protected. In ruling that the fine imposed is not dependent upon the value of lobsters found in the unlawful possession of a person, the Court found that the purpose of the act was to prevent the destruction of lobsters to a degree that would materially diminish the lobster supply.

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131. 12 M.R.S.A. 4504.

132. 12 M.R.S.A. 4552.

133. Interview with Ronald Green, Commissioner of Sea and Shore Fisheries,

134. 93 Me. 418, 45 A. 520 (1899); See also State v. Craig, 80 Me. 85, 13 A. 129 (1888) same principle. (Case authority for additional point that Commissioner has jurisdiction over lobsters caught outside the three mile limit but brought within states territorial waters) Campbell v. Burns, 94 Me. 127 46 A. 812 (1900).

690.

A random selection of three different counties for prosecuting on July of 1969 indicates the infringements and the penalties imposed which are perhaps typical of the state-wide, year-round pattern. (see Chart No. 7, p.697)

The innumerable lobster litigations[135] illustrate the intensity of the enforcement effort as well as some of the genuine problems in interpretation of statutes and the manner of enforcement. Other portions of the fisheries laws have not been so frequently litigated.[136]

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135. Lobster cases that are not emphasized or mentioned in other portions of this report include:
State v. Bennet, 79 Me. 55, 7 A. 903 (1887); State v. Trefethen, 79 Me. 132, 8 A. 547 (1887); Thompson v. Smith, 79 Me. 160 8 A. 687 (1887) are three cases which are obsolete because of the change in statutes. The Thompson case is interesting because of language determining legislative intent in direct contravention of terms of the statute. Staples v. Peabody, 83 Me. 207 22 A. 113 (1891) held that the old law was repealed because the new law covered the subject. State v. Dunning, 83 Me.178, 22 A. 109 (1891) involved pleading technicalities re short lobsters.

State v. Swett, 87 Me. 99 32 A. 806 (1895) held possession of short lobsters by a common carrier without knowledge or reasonable cause to believe not illegal. State v. Hanna, 99 Me.224 58 A. 1061 (1904) ruled on ability of Commissioner acting through a warden to "settle an offense". State v. Brewer, 102 Me. 293 66 A. 642 (1906) short lobster-obsolete; State v. Norton, 114 Me.424, 96 A. 735 (1916) held that license of employer covered employees who handled lobsters for commercial purposes.

State v. Chadwick, 118 Me. 233, 107 A. 129 (1919) involved short lobsters and legislative intent; State v. Chadwick, 119 Me. 45 109 A. 372 (1920) held that intent of violator not material in crime of possessing short lobsters; State v. Cote, 122 Me. 450, 120 A. 538 (1923) dealt with power of Commissioner to suspend lobster license; State v. Morton, 125 Me. 9, 130 A. 352 (1925) dealt with measurement of lobsters and fact that intent to violate law immaterial; State v. Mitchell, 150 Me. 396, 113 A. 2d 618 (1955) involved private person re setting a lost trap that he had found afloat. Court held that he may prevail against

(Cont'd)

135. (Cont'd)
all but the rightful owner. (This case does not encompass taking traps cast ashore which is clearly prohibited by statute. (12 M.R.S.A. 4457). Moral: always steal your traps from the water.)

136. See Vol. II, p.252 et seq. Regulation of Fishing Rights. These following cases are not emphasized elsewhere:
Caswell v. Johnson, 58 Me. 164 (1870) held that oyster is included in definition of fish; State v. Skofield, 63 Me. 266 (1874) interpreted phrase "ordinary process of angling with single bait hook line and artificial fly. Holmes v. Paris, 75 Me. 559 (1884), Allen v. Young, 76 Me. 80 (1884) involved interpretation of statutory intent frequently quoted in interpreting fishing laws; State v. Whitten, 90 Me. 53, 37 A. 331 (1897) close time for landlocked salmon;

State v. Beal, 75 Me. 289 (1883) interprets "offering for sale" during close time (trout); State v. Huff, 89 Me. 521, 36 A. 1000 (1897) intent immaterial in violation of law against using seines for smelt; State v. LeBlanc, 115 Me. 142, 98 A. 119 (1916) power of Commissioner of Sea and Shore Fisheries beyond the three mile limit held Commissioner may revoke license if boat does not return on command but cannot make refusal a criminal act; State v. Chadbourne, 132 Me. 5, 164 A. 630 (1933) what constitutes proper labelling of clams for transportation. Opinion of the Justices, 155 Me. 30, 152 A. 2d 81 (1959) criteria for constitutional delegation of power to Commissioner of Inland Fisheries and Game; Cobb v. Bolster Mill Improvement Society, 158 Me. 199, 182 A. 2d 1 (1962) states necessity for explicit specifications in orders for construction of a fishway.

CHART NO. 5

PROSECUTIONS OF VIOLATIONS[137]

	July 1, 1966 to June 30, 1967	July 1, 1967 to June 30, 1968
Digging clams-quahogs in closed area	27	40
Digging clams-quahogs in conservation area	1	1
Digging marine worms without a license	1	6
Digging marine worms in conservation area	2	1
Lobstering without a license	21	15
Illegal possession lobsters and lobster meat	80	55
Illegal possession of lobster traps	6	4
Illegal possession clams-quahogs	14	14
Illegal possession clams-quahogs - closed area	9	14
Illegal possession and taking of smelts	6	21
Illegal selling of clams	2	7
Illegal selling or buying of lobsters and lobster meat	1	2
Illegal selling of sea food	0	1
Illegal selling or buying of marine worms	0	6
Illegal transportation of clams	0	2
Illegal transportation of lobsters and lobster meat	2	1
Illegal setting of lobster traps - closed season	2	5
Illegal fishing of lobster - other than conventional method	0	1
Unmarked lobster gear and lobster meat containers	12	3
Molesting gear	13	6
Refusing to stand by - dumping	7	7
Juvenile offense	5	6
Operating trawl in closed waters	0	3
Illegal resident commercial fishing	3	4
Dumping of litter	7	12
Selling fish wholesale without license	0	1
Operating truck in wholesale trade without supplemental license	2	0
Hauling lobster traps after 4 p.m. Saturday - June 1 to August 31	0	3
Failing to display buoy colors on boat	0	6
Removing lobster meat from shell without permit	1	0
Illegal possession of oysters	1	0
Illegal possession of oysters - conservation area	1	0
Taking scallops during closed season	0	1
Total	242	272

137. Department of Sea and Shore Fisheries, 25th Biennial Report, p.31-32.

CHART NO. 6

STATUTORY PENALTIES FOR VIOLATION OF SPECIFIC SECTIONS
OF THE LAWS OF THE DEPARTMENT OF SEA AND SHORE FISHERIES

SECTION	VIOLATION	FINE and/or IMPRISONMENT	REMARKS
4504	General penalty for violations not otherwise specified by statute.	$10-$300 and/or 90 days	
3704	Interfering with research activity	$50-$100 or 90 days	Each offense
3752(1)	Conviction under §4457	3 year suspension of license	Mandatory suspension. §4457 refers to molesting, possessing or hauling another's lobster traps.
(2)	Conviction under other sections	6 mo. suspension license 9 mo. suspension license 12 mo. suspension license	1st offense 2nd offense 3rd offense
(8)	Pursuing or possession of marine species when license suspended	$50-$300 and/or 90 days	
3852 3853 3855 3856	Herring packing, sealing, weighing, size taken, fishing for with artificial light	$100-$500 or 60 days	
3901	Minimum size quahogs	$10-$25 or 30 days $20-$50 or 30 days $40-$100 or 60 days $100 or 60 days	1st offense 2nd offense 3rd offense 4th offense
3951	Closed season salmon	§4504	Plus $10 for each salmon taken
4002	Closed season scallops	§4504	Plus $5 for each 100 scallops taken in or out of shell
4051	Sea moss license	$100 and/or 60 days	

CHART NO. 6 (Continued)

SECTION	VIOLATION	FINE and/or IMPRISONMENT	REMARKS
4151	Tuna gear limitation		Boat subject to seizure under §4552
4201	Setting seines within 2000 ft. mouth of weir	$100 and/or 30 days	Each day = separate offense
4202	Otter trawls in Casco Bay, Friday, Saturday in summer	$200-$1000 and/or 30 days	
4203	Otter or beam trawl Washington County	$100 or 30 days $200 or 60 days	1st offense 2nd offense
4204	Size of trawls Casco Bay, summer	$200-$1,000 and/or 30 days	
4205	65 ft. vessel limitation, Casco Bay	$200-$1,000 and/or 30 days	
4206	Dumping of dead or scaled fish	$100 and/or 30 days	
4207	Use of dynamite, poison or stupefying substance	$100 and 60 days	
4208	Purse near stop seines July 1 - Sept. 30	$100-$500 or 30 days	
4252	Municipal shellfish ordinances	$10 or 30 days	Municipalities shall be responsible for enforcement
4253	Interference oyster culture	$20-$50 or 90 days	Plus civil damages
4301-A B	Marine worm provisions	$20-$300 and/or 90 days " " " " " "	
4351	Interfering with culture, clams or oysters		
(1)	Taking clams, quahogs, other shellfish	$20 and/or 30 days	Each offense. Liable to treble damages in civil suit by licensee, heirs or assigns.

CHART No. 6 (Continued)

SECTION	VIOLATION	FINE and/or IMPRISONMENT	REMARKS
4351-(2)	Disturb, molest or discharge any substance which will directly or indirectly injure shellfish	$20 or 30 days $50 or 180 days	1st offense 2nd offense
(3)	Interfering with markers	$20 or 30 days	Liable to treble damages in civil suit. Responsibility of municipalities to enforce.
4306	Interstate shellfish transportation license	$100-$200 and/or 90 days	
4309	Certificate to ship shellfish out of state	$100-$200 and/or 90 days	
4401	Taking, holding, possessing, transporting or shipping egg-bearing, v-notched or mutilated lobsters	$25 and/or 90 days	Plus $10 for each female lobster
4403	Interstate Lobster Transport License	$100-$500 and/or 90 days	
4451	Short lobsters	$10 and/or 90 days	Plus $5 a lobster for the first 5 lobsters; $25 a lobster for all in excess of 5
	Long lobsters	$10 and/or 90 days	Plus $25 for each lobster
	Mutilated lobsters	$25 per lobster and/or 90 days	Fine up to $100 if number of lobsters cannot be determined.
4452	Sale of crawfish or lobster other than Homarus Americanus	$50-$1,000 and/or 90 days	

CHART NO. 6 (Continued)

SECTION	VIOLATION	FINE and/or IMPRISONMENT	REMARKS
4455	Possession of certain lobster meat removed from shell	$25 and/or 90 days	Plus $5 for each tail section
4457	Raising, possessing or molesting someone else's lobster traps	$50-$300 and/or 90 days	Mandatory suspension of license for three years (§3752)
4459	Take, have in possession, or sell any egg-bearing lobsters	$10 each lobster and/or 90 days	See §4401
4460	Unmarked lobster shipping containers	$50-$300 and/or 90 days	
4461	Improperly marked lobster gear	(§4504)	
4462	Setting lobster traps within 300 ft. mouth of weir	$10 or 30 days	
4551	Violation of search	$25-$500 and/or 90 days	
4552	Provides for seizure of any marine species as well as gear and vessels used to take them if in violation of the laws or regulations of the Department of Sea and Shore Fisheries.		

CHART NO. 7

PROSECUTIONS FOR VIOLATIONS - THREE COUNTIES - JULY 1969 [138]

SECTION	VIOLATION	FINE	IMPRISONMENT	REMARKS
3505	Digging clams in contaminated flats	$20 $10 $20		
4301-A	Worm digging without license	$20		
4401	Possession of v-notched lobsters	$35 $510		10-notched lobsters 60-notched lobsters
4404	Fishing without lobster license	$15		
4451	Size of lobsters	$260 $50 $60 $25 $30 $35 $510 $385 $360 $20 $160 $335		14 short 2 oversize 6 short 3 short 77 short 19 short 14 short 2 short 10 short 17 short
4457	Molesting lobster car	$100 $300 $300	30 days	(Offense means 3 years mandatory suspension of license (12 M.R.S.A. 3752 (1))
4458	Pulling lobster traps on Sunday	$20 $185 $10 $25		11 lobsters
4461	Inadequate marking of traps	$20		

138. Files of the Department of Sea and Shore Fisheries.

CHART NO. 8

PROJECTED ESTIMATES FOR 1968 LANDINGS AT MAINE PORTS

SPECIES	1968		For Comparison 1958		For Comparison 1967	
Fish	**Pounds**	**Value**	**Pounds**	**Value**	**Pounds**	**Value**
Cod:						
Large	3,825,000	$ 172,300	1,491,291	$ 99,758	2,355,527	$ 127,744
Market	1,368,000	66,800	1,221,406	49,243	1,130,383	59,298
Scrod	9,000	200	22,682	507	9,656	552
Cusk	164,000	9,400	542,083	29,186	193,707	11,493
Haddock:						
Large	885,000	97,000	2,735,066	263,017	699,247	77,489
Scrod	1,162,000	116,500	1,261,872	76,045	1,651,207	137,221
Hake, White	1,448,000	62,600	2,087,960	91,913	1,412,534	60,673
Pollock	1,470,000	67,700	4,364,038	140,146	1,095,073	54,939
Ocean Perch	57,650,000	2,185,000	71,067,781	3,002,566	62,153,765	2,408,184
Total Groundfish & Ocean Perch	67,981,000	$ 2,747,500	84,794,179	$ 3,752,381	70,701,099	$ 2,937,593
Alewives	2,249,395	$ 43,813	3,095,380	$ 31,841	1,617,305	$ 47,502
Butterfish	1,060	87	275,689	21,759		
Eels	45,000	9,000	21,426	4,164	48,647	9,439
Flounders:						
Gray Sole	769,000	69,000	1,006,610	100,686	528,603	50,649
Lemon Sole	8,000	400	270	13	312	31
Yellowtail	57,000	3,700	64,253	5,357	77,850	6,189
Blackback	64,800	3,200	487,445	26,635	102,807	5,949
Dab	565,000	32,100	968,373	62,279	753,075	45,872
Grayfish			792,989	6,345	150,820	1,060
Halibut	74,000	30,100	136,328	35,034	99,763	40,007
Herring, Sea	68,102,000	1,630,400	170,977,322	2,562,805	64,599,660	1,537,697
Mackerel	387,800	17,100	513,287	30,600	352,683	15,754
Salmon	61	61	1,589	991	232	211
Shad	2,311	44	10,098	544	125	9
Sharks			29,738	928		
Smelt	80,000	16,000	133,919	38,568	158,361	33,315
Striped Bass	4,600	1,200				
Sturgeon	1,500	100	730	130	1,583	135
Swordfish	42,600	14,800			88,204	30,270
Tuna, Bluefin	36,500	2,649	44,759	7,973	47,922	4,996
Whiting	29,155,300	821,300	23,577,240	318,131	20,725,540	504,067
Wolffish (Catfish)	14,900	500	100,650	3,034	14,292	573
Unclassified:						
For Food	1,119,200	80,100	167,701	12,587	917,153	66,503
For Bait, Reduction, and Animal Food	234,400	3,400	3,307,708	23,280	2,810,045	30,124
Total Fish	170,996,327	$ 5,556,554	290,507,678	$ 7,046,065	163,796,118	$ 5,367,951
Shellfish, Etc.						
Crabs:						
Green	8,400	$ 900			10,275	$ 1,075
Rock	1,460,200	74,500	1,210,445	$ 45,828	1,678,413	75,623
Lobsters (Maine)	21,220,000	15,803,000	21,312,000	10,445,004	16,489,196	13,597,869
Shrimp	13,325,000	1,465,800	4,899	1,548	6,925,058	864,974
Clam Meats:						
Soft	3,418,000	1,425,000	1,634,023	599,633	3,176,209	1,478,777
Hard (Quahogs)	800	700	252,598	148,942		
Mussel Meats, Sea	418,000	32,800	120,417	9,093	370,703	31,473
Oyster Meats	1,700	2,100	3,290	2,256	4,100	4,432
Periwinkle Meats	50,300	12,600	30,633	10,584	54,148	13,596
Scallop Meats, Sea	242,300	241,600	393,923	191,611	188,305	151,501
Squid	4,465	286	6,120	178		
Sea Urchins (Sea Eggs)	118,300	4,100	63,780	4,260	110,565	2,908
Sea Moss	5,100,000	153,000	837,000	13,490	3,180,000	55,650
Bloodworms	818,200	1,031,000	308,800	309,678	748,110	834,826
Sandworms	738,000	560,900	269,058	193,853	706,435	492,384
Total Shellfish, Etc.	46,923,565	$20,808,286	26,472,610	$11,978,345	33,641,617	$17,605,088
GRAND TOTAL	217,919,892	$26,364,840	316,980,288	$19,024,410	197,437,735	$22,973,039

139. Department of Sea and Shore Fisheries, 25th Biennial Report, (Insert).

III REGULATION OF SPECIFIC FISHERIES

There are certain restrictions on area, closed time, and gear that are applicable to all fisheries in Maine's tidal waters. In addition to general fishery laws, there are regulations and restrictions pertaining to particular fisheries; these will be discussed by species infra. Most fishery laws have been enacted as public laws and are codified under Title 12. In addition, many private and special laws have been passed regulating fisheries; these laws usually exempt a certain area or species from a general law or else add further restrictions on gear, season, or quantity that may be taken. But it is not always apparent why a particular law that does not have state- or species-wide applicability is passed as a public law (as an exception to the general law) instead of as private and special legislation; or conversely why legislation of broad applicability is passed as private and special legislation. Private and special laws are readily available only in the Compilations of Laws and Regulations of the Department of Sea and Shore Fisheries published biennially. A third source of fishery regulations may be found in ordinances passed by municipalities for the management of shellfish and alewives.

General restrictions have been compiled in Chart No. 9. Laws pertaining to specific species are summarized in Chart No. 11 and 12 (p.737 ff.) These Charts contain restrictions found in the statutes and in private and special legislation.[140] Such restrictions are not included in the

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140. Only representative examples of restrictions have been included when regulations are particularly numerous, e.g. alewives, smelts.

CHART NO. 9

RESTRICTIONS ON GEAR

GEAR	AREA	TIME	REMARKS	SOURCE
Dynamite, poison or stupefying substance for taking fish prohibited	State wide			12 M.R.S.A. 4207
Net or seine	Prohibited within 2000 ft. of mouth of any weir licensed under §3801-2			12 M.R.S.A. 4201
Purse seine	Prohibited within 1500 ft. of stop seine	June-Sept. 1		12 M.R.S.A. 4208 as added by P.L. 1967, c.309
Otter trawls forbidden	69°50' west longitude 70°20' west longitude	Midnight Friday- midnight Saturday, June, July, August		12 M.R.S.A. 4202
Otter or beam trawl	Washington County	May 1-December 15		12 M.R.S.A. 4203 as amended by P.L. 1967, c.210
Trawl, otter or other	Casco Bay	June, July, August	Limited to foot rope of 70 ft., lead rope of 50 ft. length of door no more than 6 ft., width of door no more than 3 1/2 ft. Trawl may be used only with permit from Comm. to holders of commercial licenses	12 M.R.S.A. 4204 as amended by P.L. 1965, c.33 §3
Vessels over 65 Ft.	Casco Bay	June, July August		12 M.R.S.A. 4205
Purse seine and drag seine	Waters of Sargentville Harbor known as Billings Cove			P.&S.L. 1959, c.155 §32

No weir, seine, trap or other contrivance except gill nets and permanent weirs, with not less than 50 poles constructed of laths, brush, wire or twine	Bagaduce River or its tributaries		P.&S.L. 1959, c.155 §33
Beam trawls (not applicable to taking of smelt by purse seine when use of seines is lawful for this purpose in other waters of the State.)	Sedgwick Harbor, known as Benjamin's River		P.&S.L. 1959, c.155 §34
Draggers, except standard scallop draggers	Portions of Penobscot Bay	1 Oct-1 Feb	c.155 §56A as added by P.L. 1959, c.363 §66, 69
	Sheepscott Bay [Have influence on shrimp fleet]	1 Nov-1 March	c.155 §73A as added by P.L. 1959, c.363 §67, 68 P.&S.L. 1961, c.89 §6
Purse, drag, or stop seines	Portions of Kennebec, Sheepscott, Damariscotta, St. Georges Rivers	Subject to certain modifications	c.155 §9 I-V
	Portions of Penobscot Bay	2 Dec-14 May, except when other laws of chapter to contrary (16 Nov-14 May)	c.155 §9 VI
Net or seine (except for eels and alewives)	Portions of Sheepscot River		c.155 §73 as amended by P.&S.L. 1961, c.89 §5
Fish spawn, grapnel, spear, trawl, weir, gaff, seine, gill net, trap or set line (Exceptions for alewives in town of Columbia Falls and for eels by spear in November.)	Certain waters of Pleasant River and its tributaries in Washington County above Maine River Bridge	1 May-1 Dec	12 M.R.S.A. 2753
No gear except hook and line except for alewives authorized by any other law.	Portions of Pemaquid River		c.155 §71 as amended by P.&S.L. 1967, c.26 §2

text discussion unless they have state wide applicability, are codified, or illustrate a particularly significant point.

A comparison of Chart No. 9 and Chart No. 11 and 12 indicates an almost inverse relationship between the commercial value of the fishery and the number of restrictions on the harvesting (clams and lobsters notwithstanding). It should be further apparent that some of Maine's most commercially important fisheries are not referred to in the laws administered by the Department of Sea and Shore Fisheries.

ANADROMOUS FISHERIES[141]

Alewives

Alewives are an anadromous fish used for lobster bait, fish meal, and when smoked, as food. Rights to alewive fisheries have historically been granted to towns and cities. Towns have been empowered to operate the fishery itself or to lease the rights, and to establish fish committees to oversee the exercise of rights and the maintenance of fishways. (Fishways are now a responsibility of the Department of Inland Fisheries and Game who with the Commissioner of Sea and Shore Fisheries share concurrent jurisdiction over sea salmon, shad, alewives, and smelt which migrate from ocean to fresh water.)[142]

Grants currently in effect stipulate that the towns may make such rules as they wish subject to review by the Commissioner of Sea and Shore

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141. Anadromous refer to fish which ascend rivers to spawn.

142. 12 M.R.S.A. 3405.

Fisheries. Should the Commissioner of Sea and Shore Fisheries after investigation conclude that a municipality is not following sound conservation principles, he notifies the municipal officers of these findings and they are to take immediate corrective measures to prevent the destruction of the fisheries. Prior to 1969 in cases of default by the town officers, alewives fisheries were regulated by the general laws of the State and enforced by the municipal officers of the city or town. One almost universal stipulation in the State grants is that there shall be a 24 hour weekly closed season in all such waters from sunrise Saturday to sunrise on Sunday.[143] Most of the grants also contain gear restrictions. (See Chart No. 11, p. 737).

The 104th Legislature authorized the Commissioner of Sea and Shore Fisheries to manage alewife fisheries where no rights had been granted to others or municipalities failed to act.[144] The Commissioner may act when the legislative bodies of those towns who are possessors of the right have taken no action prior to April 1st of any calendar year. After that date the Commissioner may lease these rights to any person, persons, firm or firms. The money from these leases are to be put in the Migratory Fish Fund[145] which is to be used for improved environmental conditions of and research on migratory species.

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143. P.&S.L. 1959, c.155 §76a as added by P.&S.L. 1967, c.11.

144. 12 M.R.S.A. 3708 as added by P.L. 1969, c.254.

145. Id. §3708 (4).

The alewife is an easily managed species: Escape of 5% to 7% of the adult population for reproductive purposes is normally adequate to sustain the fishery. This small percentage, however, must have access to fresh water ponds for spawning, and the resulting young must be allowed ready migration to the sea in order to assure adequate returns. Careless adherence to or application of this portion of the law, however, frequently has jeopardized the survival of commercial-sized alewife returns.[146]

As of October 7, 1967 there were approximately 30 alewive fisheries that had been granted to towns in the coastal counties of Hancock, Knox, Lincoln, Sagadahoc and Washington.[147] Alewive fisheries have not provided the Eldorado that one might imagine from the emotions aroused in protecting these prerogatives.[148] The dollar and cents value of the alewife fishery is subject to the fluctuation of the fish and also the efficiency of the management program or the leasee of the fishery near the mouth of the river.

Another factor limiting the effectiveness of municipal management of the alewife fisheries is priority of governmental attention. Town meetings, municipal elections, and the changing of municipal officers

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146. See Baird F. & Gordon, S. Observations on the Management of Alewive Fisheries. Department of Sea and Shore Fisheries, September 1964, p.1-4.

147. See Chart No. 12; Maine Sea and Shore Fisheries Láws and Regulations, Revised to Oct. 1, 1969.

148. Alewife fisheries are not a principal source of municipal revenue. Bath took in $66.60 from the source from April 1967-March 31, 1968 and is estimated to take in $166 for a similar period in 1968-69. Maine Times, Feb. 21, 1969. Landed value of alewives in Maine ports during 1968 was $44,000 for 2,250,000 lbs. (25th Biennial Report, Department of Sea and Shore Fisheries, 1968, Insert).

usually coincide with a period in which the fishery should be closely supervised and when necessary revision in town regulations or allocating of leases for the fishery should be made. Interest in the fishery and continuity in management is not always present at such times. Adequate provisions had not been made in the towns of Newcastle and Nobleboro in the Spring of 1969 and because of an unusually large run there were not enough containers in the towns to haul the fish away.[149]

There have been suggestions that volume of the take could be substantially increased by removing many of the dams on Maine rivers and streams to allow the fish easier access to spawning areas.[150] Arguably, an expanded alewife population might be the raw material for food protein concentrate. Skepticism has been expressed as to the economic feasibility of such a scheme because of the great volume needed for FPC or fish meal and the dispersion of the fish on the many rivers of Maine.[151]

Salmon

The Commissioner of Sea and Shore Fisheries and the Commissioner of Inland Fisheries and Game share concurrent jurisdiction over sea salmon.[152] Since 1947 the Atlantic salmon has not had commercial significance in

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149. See Portland Press Herald, May 26, 1969.

150. Interview with Robert L. Dow, November 26, 1968.

151. Interview with James A. Storer, January 17, 1969.

152. 12 M.R.S.A. 3405.

Maine[153] but the salmon resource provides a tremendous sports attraction and a species of great potential commercial importance if the stock can be restored. The management of this marine species has been formalized into the Atlantic Sea Run Salmon Commission.[154] The commission is empowered to make regulations on the taking of Atlantic Salmon in one or more of the following ways:

1. the time of taking
2. the method by which taken
3. the number taken
4. the weight taken
5. the length salmon which must be taken.

There is a closed season on salmon between July 15 and March 31 of the next year,[155] except that between July 16th and October 15th salmon may be taken by the ordinary manner, with rod and single line. (See Chart No. 12 for exceptions).

The 104th Legislature enacted a provision to provide for a minimum size of salmon making it unlawful for any person to take or have in his possession salmon which are less than 14 inches in length.[156] The restoration of salmon has been one of the prime aims of Public Law 89-304 with the active cooperation of the Departments of Sea and Shore Fisheries and

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153. 61 pounds worth $61 was landed in 1968 (25th Biennial Report; 1947 was the last year that the Penobscot was open to commercial fisheries for salmon (Maine Times, Nov. 14, 1969, p.3).

154. 12 M.R.S.A. 3601-3604. See Vol. I, p.113.

155. 12 M.R.S.A. 3951 as amended by P.L. 1969, c.264.

156. P.L. 1969, c.264.

Inland Fisheries and Game. The restrictions on salmon are clearly for purposes of conservation.

Shad

Shad is primarily a sports fishery as indicated by the $44.00 landed value of the approximately 2,300 pounds landed at Maine ports in 1968.[157] Restrictions on shad are only those found under the general laws of the state, with a few special provisions by locality. (See Chart 12).

Smelts

Smelts comprise a minor fishery in Maine. Commercial value in 1968 was $16,000 for 80,000 pounds.[158] The taking of smelts is regulated by general law which requires a closed season between March 15 and June 15; restricts gear to hand dip net operated by one man or by angling with hook and line, and limits possession to four quarts per day (with exceptions) during this period.[159] There are innumerable restrictions prescribed by special legislation which vary from town to town and from county to county (See Chart No. 12). The extent of these regulations is no measure of the importance of this fishery.

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157. 25th Biennial Report (Insert).

158. Id.

159. 12 M.R.S.A. 4101. A fish dealer licensed under Section 4302 or a bait dealer under Section 2558 may have in his possession more than four quarts but dealer himself may not catch more than four quarts a day. Holders of any resident or non-resident commercial fish license are exempt from this provision for smelts caught in a licensed weir or trap maintained and operated in tidal waters for catching herring.

SHELLFISH

CLAMS

The soft shell clam (Mya arenaria) fishery of Maine contributes just under $1.5 million to the Maine economy.[160] The processing and retailing of the product generates additional income to Maine citizens. The clam fisheries provide an excellent example of all the problems, health, biological, physiological, sociological, political, technological, economic and legal which beset fisheries and is worthy of an examination in greater depth than is possible herein.

State - Municipal Jurisdiction. The legal questions are basically those of exploiting a common property resource harvested from an area, (inter-tidal zone - shore - flats), which is impressed with a public servitude.[161] The State, which is responsible for fisheries, has delegated partial responsibility for this resource to local units of government by providing that municipalities that have shellfish conservation programs may enact local ordinances regulating the taking of clams.[162] Municipalities are also empowered to allocate up to one fourth the total area of flats in their community for the cultivation of clams.[163] The State retains control of the commercial clam fisheries by requiring a license for harvesting of clams by anyone who takes over one half bushel a day;[164] for

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160. 1969 estimates were 3,476,700 lbs. of clams for a value of $1,395,000 versus 3,331,983 lbs. in 1968 for a value of $1,388,000. Portland Press Herald, January 31, 1970.

161. See Vol. II, Chapter 3; Chapter 12 this volume.

162. 12 M.R.S.A. 4251-2 (Supp.).

163. 12 M.R.S.A. 4304-5.

164. 12 M.R.S.A. 4301.

enforcing health requirements established by the United States Public Health Service (clam flats must be closed when the waters do not meet Public health standards)[165]; in supervising shucking activities[166]; overseeing shipment and transportation in interstate commerce[167]; and supervision of depuration plants.[168] The State also retains responsibility for closing flats for conservation reasons.[169]

Gear. A law of statewide applicability requires that clams be taken by devices or instruments powered by hand.[170] Exceptions to this requirement include equipment operated by department personnel; mechanical dredges in Hancock County subject to approval by municipal officers and the provision that no marine worms may be taken by this method; and hydraulic or mechanical dredges in the town of Phippsburg.[171] The 104th Legislature authorized hydraulic mechanical clam dredges in the area between Cape Elizabeth and Pemaquid Point, subject to department approval, providing that this equipment was not used for taking marine worms, lobsters or other crustaceans. Total number of dredges that may be licensed in this area in one year is limited to 50. There is a 50 cents license fee for each dredge and a tax of 10 cents per bushel of soft shell clams taken by this method. The fees are to be used for research on the effects on

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165. 12 M.R.S.A. 3503.

166. 12 M.R.S.A. 4307, 4310.

167. 12 M.R.S.A. 4306, 4309.

168. 12 M.R.S.A. 4253.

169. 12 M.R.S.A. 3504.

170. 12 M.R.S.A. 4352.

171. Id.

aquatic growth and fish life in the dredged area.[172]

The Department of Sea and Shore Fisheries has data showing that the requirement that clams be taken by hand, which usually means the four pronged hoe, is economically and biologically unsound. Not only it is useless as a conservation measure but is actually destructive of the resource. Extensive studies and research show the degree of breakage, suffocation of clams, and the pot-lucking effect of digging clams by this method.[173] It has been estimated that over 50 per cent of the marketable clams are lost because of this method of digging; unless some relief is given in the not too distant future clam fisheries will be relegated to sports fisheries rather than being commercially valuable enterprises.[174]

The continued support of this inefficient method by local clam diggers can only be rationalized as their means of protecting the flats for their own use and hence their own livelihood, and their limited financial ability to invest in clam digging machinery. There are, however, small hydraulic dredges which can be operated by one or two men which can be purchased for approximately $250.[175] The clam fishery, which by design excludes efficient harvesting technology, is widely characterized as a substitute for welfare, which might otherwise be the sole income source for diggers displaced by machines.

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172. 12 M.R.S.A. 4352 (6) as added by P.L. 1969, c.250.

173. See Clam (Mya arenaria) Breakage in Maine, Department of Sea and Shore Fisheries, January, 1954.

174. Interview with Robert L. Dow, November 26, 1968.

175. Id.

Need for Continuous Supply. The hand-powered device limitation results in wide fluctuations in the supply of clams for commercial outlets, since individual diggers are more affected by weather and other contingencies than machines. Thus gear restrictions, coupled with residency requirements, keep the processors from fully utilizing this resource, and tend to keep out enterprises that could enhance the economic return of the fishery to the whole community. It is ironic that Snow's cannery in Scarborough, Maine makes clam chowder from New Jersey quahogs; and that Howard Johnsons, formerly supplied from Maine fisheries, had to turn elsewhere to be sure of a continuous supply for fried clams.[176] One of the supposed advantages of depuration plants is that they will provide a continuous supply despite occasional mild pollution; however, one of the economic problems of the plant in Phippsburg is that it can not be assured of clams in sufficient number to guarantee market commitments.[177]

Minimum Size. The State now prescribes no minimum size for clams. Until March 1, 1960 it was illegal to take clams of less than 2 inches in the longest diameter;[178] despite the repeal of this State requirement, some municipalities still retain the 2 inch minimum. When the legal minimum size for clams was eliminated the 2 inch requirement was retained for quahogs.[179] The Chief of the Research Division of the Department of Sea

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176. Id.

177. Interview with D.H.Erickson, Resources Development, Inc., July 16, 1969.

178. R.S. 1954, c.36a §54 as enacted by P.L. 1959, c.331 §11.

179. P.L. 1959, c.335 §2.

and Shore Fisheries believes that no conservation interest is served by this limitation, coupled with hand digging. A size limitation might make sense if Maryland type dredges were used, because the age of the bed can be determined by the size of the clam, and harvesting areas could be rotated.[180]

Local Regulations and Licensing. Subject to conservation or pollution restrictions, or prohibition by local ordinance, any person may take up to one half bushel of clams per day for his own use.[181] A commercial shellfish license is required to harvest over a half bushel per day.[182] A commercial shellfish license does not guarantee entry into a clam, quahog or mussel fishery if local ordinances prohibit fishing by non-residents of the town. Municipalities may enact more restrictive rules than State law for clam fisheries (i.e. Scarborough and Freeport have retained the 2 inch minimum for clams). As of July, 1968, 38 municipalities had enacted local shellfish digging regulations.[183] Most local restrictions limit digging to residents and set low enough license fees that no one will be denied subsistence (25 cents for a resident license fee in Jonesboro, 25 cents for non-residents fee which is restricted to taking clams for home consumption). Other regulations include: reciprocal agreements with other

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180. Interview with Robert L. Dow, November 26, 1968.

181. See State v. Gross, 89 Me. 542, 36 A. 1003 (1897) and State v. Bunker, 98 Me. 387, 57 A. 95 (1903) for strict interpretation of any local ordinance which would prohibit this privilege.

182. 12 M.R.S.A. 4301.

183. See Regulations Pertaining to Shellfish Digging in Maine Coastal Communities, Department of Sea and Shore Fisheries, July, 1968.

towns (Brunswick), closed season for commercial digging (Deer Island, Sorrento), specific areas allocated to non-resident sports diggers (Freeport). Some municipalities exclude non-residents but allow non-resident riparian owners to dig without a license for home consumption (Scarborough, South Thomaston, St. George). Commercial digger licenses are more expensive in productive clam areas ($10 Scarborough, $8 Wells, $3.25 Yarmouth) and Scarborough, alone has a dealers license of $20.[184]

Pollution. Previous reference has been made to the 70,000 acres of clam flats, some of them the most productive areas in the State, closed because of pollution; and the estimate of the over $1.5 million lost to the Maine economy because of this fact. The necessity of closing flats because of health considerations was vividly dramatized in the 1940's by the closing of some of the most lucrative flats on the Penobscot River.[185] The extreme hardship that this closure caused to the individual clamdiggers, their families, and the economy of the whole area is a matter of public record.[186] Depuration plants enable clams to be taken from mildly

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184. Id.

185. There was initially executive and judicial resistance to closure until the United States Health Service prepared to implement its threat to cut off all clam shipments in interstate commerce if extremely polluted flats were not closed. When the Department of Sea and Shore Fisheries was faced with the reality, the flats were closed. The local clam diggers, decades ahead of current civil disobedience, telegraphed the Commissioner to the effect "We dare you to try and stop us digging". The gauntlet thus thrown down was picked up by the Governor, who to avoid insurrection against the Department and anarchy in the fishing law, ordered about 50 law enforcement officers from Sea and Shore Fisheries, Inland Fisheries and Game, the State Highway Department, police, etc. to the scene. The clam diggers were outnumbered and outflanked and the order was enforced. (Interview with Richard Reed, former Commissioner of Sea and Shore Fisheries, March 11, 1969.

186. See A Study of the Coastal Disaster, Dealers Trouble Pale By Side of Diggers' Plight, Portland Sunday Telegram, July 31, 1966.

polluted areas,[187] but there are many areas now closed which are too polluted even for this process. The process is an ultraviolet treatment and washing for a period of from 24 to 48 hours, after which clams may be sold if they come up to standard. The cost of this process adds about $1 a bushel to the price of clams. This process, however, is only economically feasible if the processor can be assured of a continuous supply of clams.

Quahogs

Laws governing the harvesting of quahogs (mercenaria mercenaria) corresponds to those for clams except that the two inch minimum has been retained by state statute for quahogs,[188] but there are no restrictions on gear. The law relating to quahogs, at the moment, is relatively irrelevant because of the scarcity of this shellfish. Fluctuations of water temperatures in Maine resulted in major decrease in this resource, which was accompanied by an increase in soft shell clams.[189] The 1969 landings showed a dramatic increase over the 1968 figure (9,000 pounds as compared with 782 pounds).[190] which may be indicative of a renewed plentifulness of this resource. A quahog tax of 5% of landed value of all quahogs bought from primary producers by shellfish dealers was imposed in 1957 to finance research and restoration of this resource.[191]

Mussels

There are no State restrictions on size of mussels or the gear by

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187. 12 M.R.S.A. 3452.

188. 12 M.R.S.A. 3901.

189. Interview with Robert L. Dow, Nov. 26, 1968. See Chapter 12.

190. Portland Press Herald, January 31, 1970.

191. 36 M.R.S.A. 4631-38.

which they may be taken. Licensing and cultivating procedures correspond to those for clams and quahogs.

Oysters

There are no State restrictions on the size of oysters or the gear by which they may be taken. Cultivation of oysters, however, is handled differently[192] than for clams, quahogs, and mussels. Perhaps because oysters grow below low water mark, municipalities have been given no jurisdiction. In some distant past, Maine had large natural deposits of oysters but today any significant oyster harvesting is from artificially cultivated oysters. Great interest has been evident in developing this resource in Maine.

Crabs

Fishing for crabs is governed under the same licenses and procedures as those for lobsters. There are no regulations as to size, however, and crabs may be taken from the inter-tidal zone by hand or hook and line, without a license, provided they are used for home consumption.[193]

Crawfish

Under Maine law, crawfish is a term used to designate those species which are sometimes referred to as rock lobsters, spiny lobsters, sea crawfish, red lobster, boney lobster, langers, sidney crawfish, creef, Cuban rock lobster, African lobster or African crawfish.[194] "It is unlawful for any persons in Maine to sell, offer for sale, or present for sale crawfish in any form; it is unlawful to serve them in public eating places

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192. 12 M.R.S.A. 4253. See supra and Vol. II, Chapter 4.

193. 12 M.R.S.A. 4404.

194. 12 M.R.S.A. 3401 (8).

or to label or advertise as lobster or imitation lobster any species of fish in either a canned, or frozen or fresh state, whether removed from the shell or not, except the species of lobster commonly known as Homarus americanus."[195]

It is quite clear from the statute that no competition with Maine lobster will be tolerated. No pretense of conservation of the species has been associated with these provisions.

LOBSTERS[196]

Licensing. Lobster is Maine's most valuable fishery resource. 1969 landed value of 19,400,000 pounds was $15,520,000.[197] Entry into the lobster fishery is limited to Maine citizens who have been residents for "three years next prior to the date of application for a lobster license."[198] There are approximately 5,500 licensed lobstermen; of this number almost half are part time fishermen.

Lobster fishing is further restricted by an informal allocation of fishing areas by commercial lobstermen themselves. There is no legal basis for water-area allocations, but some have been established by long continuous appropriation; the right has been regarded, at least by some lobstermen,

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195. 12 M.R.S.A. 4452.

196. See Myers, Edward A., The Law of the Lobster, The New England Galaxy, Vol. IV No. 4, Spring, 1963 for a comprehensive and delightful account of the evolution of and present lobster laws.

197. Portland Press Herald, January 31, 1969.

198. 12 M.R.S.A. 4404. Veterans may apply with residency of a year prior to date of application.

as a conveyable and inheritable right. Those who would challenge this de facto allocation might first find a knotted line; failure to be enlightened might next lead to cut ropes and lost traps; sometimes those particularly hard to convince have been subjected to shot gun volleys; there have been incidences in which the Coast Guard has had to close areas to lobstering when contention for rights became too acrimonious.[199]

Entry is further limited by a closed time from 4 p.m. E.D.S.T. Saturday to one half hour before sunrise on the following Monday morning during the period from June 1 to August 31 each year, which minimizes competition of weekend fishermen with regular fishermen.[200] With the advent of the boat trailer, superhighways, and population mobility, this prohibition is probably not as effective in limiting entry as it might once have been.

Inefficiency. The statute provides that lobster may only be taken by the conventional method of lobster traps or pots which means "a stationary device set on the ocean bottom and commonly used along the Maine coast for catching lobsters."[201] This law was passed in 1961 to prevent scuba divers from catching lobsters.[202] The definition is not really too helpful.

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199. Interview with Richard Reed, former Commissioner of Sea and Shore Fisheries, March 11, 1969.

200. 12 M.R.S.A. 4458 as added by P.L. 1967, c.327.

201. 12 M.R.S.A. 4453.

202. An Act Regulating Catching Lobsters While Swimming or Diving, P.L. 1961, c.204.

A lobster pot might better be described as a device that is not too efficient. There have been various devices designed to increase the harvesting of lobsters, but "they have been found" not to be "lobster pots." A new wire trap has recently been developed by a Maine firm[203] which is lighter, therefore easier to handle, and more durable. This trap has not been disallowed. Perhaps this can be explained because efficiency is limited to convenience rather than to productivity.

Another restriction on efficiency is the prohibition against having more than three lobster traps on one warp and buoy.[204] A highly efficient means of lobster fishing is to have a long string of traps on a single cable -- the boat picks up one end of the cable, and the whole string comes aboard, one by one. Many more traps can thus be checked and rebaited than under the present method, requiring each trap (or set of 3) to be hauled up individually. However, a bill in the 104th Legislature to limit to 400 the number of traps that could be fished by one lobsterman[205] failed to pass.

The lobstermen did succeed in having a bill enacted which not only prohibits the fishing or taking of lobsters by otter or beam trawl, but also makes it unlawful to have lobsters in possession on any vessel which is rigged for otter or beam trawling.[206] The obvious purpose of this

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203. Applied Oceanics which is a subsidiary of Vocaline.

204. See 12 M.R.S.A. 4463-5 applicable to York County, Saco Bay, Cumberland County, and parts of Knox and Lincoln County.

205. L.D. 457.

206. 12 M.R.S.A. 4466 as added by P.L. 1969, c.221.

legislation was to prevent dragging for lobster beyond the three mile limit and subsequently landing the catch in Maine, its objective apparently was to reinforce the prohibition on dragging for lobster within Maine's waters.

To the extent that it limits activities outside Maine waters, or the landing of lobsters taken in international waters, these laws might be challenged as restraints on interstate commerce (but query whether international waters are "foreign commerce"). If the law were to be contested, it would almost certainly be necessary to show a conservation rationale. This could only be done by establishing a direct relationship between the near shore and deep sea population. An analysis of a computer projected, simulated lobster population did indicate that the deep sea lobsters constituted a distinct population and the development of this fishery had not been detrimental to the close to shore catch.[207]

The gear limitations favor small, marginal fishermen; since the lobster catch is relatively invariable resulting in dissipation of the available income among a large number of lobstermen, few of whom have a good income. (See Chart No. 10A-C)[208] Were restrictions on efficiency removed, many marginal producers would be unable to obtain even their small income

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207. For reference to study undertaken at the University of Rhode Island, see A Life Time in Minutes, Data Processor, Vol. XI, No. 3, June, 1968. The Bureau of Commercial Fisheries Laboratory at West Boothbay has also been investigating the relationship between the inshore and deep sea populations. (Portland Press Herald, June 28, 1969).

208. Data made available by James A. Storer who made a study of lobster economics for the Public Affairs Research Center at Bowdoin.

from this resource. Fewer fishermen would not significantly reduce the total lobster harvest from the near shore population, inasmuch as 90% of the available supply is now being taken.

CHART NO. 10-A

INCOME TAX DATA - LOBSTERMEN

1967

MEDIAN COMPUTATION

Dist.	Total Receipts	Gross Profits	Total Other Bus. Expenses	Net Profit	A.G.I.	No. of Returns
1	7,605.06	6,543.22	3,359.60	2,332.82	4,948.20	10
2	5,257.59	5.257.59	2,411.94	1,674.43	4,496.03	22
3	4,535.73	4,964.80	1,446.00	2,244.00	4,436.00	17
4	5,059.68	4,938.92	2,145.14	2,263.25	3,907.22	74
5	5,446.02	4,580.68	2,293.25	2,087.66	1,579.45	33
			Median Computation For Totals			
Total	5,245.11	5,013.69	2,252.54	2,087.66	3,985.49	156

CHART NO. 10-B

INCOME TAX DATA - LOBSTERMEN

1967

RANGE COMPUTATION

	Dist.	Total Receipts	Gross Profits	Total Other Bus. Expense	Net Profit	A.G.I.	No. of Returns
Low	1	1,612.14	695.11	22.88	379.49	1,153.97	
High	"	15,332.95	14,763.55	7,274.15	8,145.00	8,540.58	10
Low	2	579.70	274.67	143.20	12.79	1,272.83	
High	"	35,253.60	35,253.60	29,821.41	13,574.23	13,890.53	22
Low	"	579.70	274.67	143.20	12.79	1,272.83	
High	"	20,961.65	20,961.65	9,339.29	11,860.96	9,652.90	20
Low	3	274.03	274.03	32.34	0	209.32	
High	"	12,295.00	12.295.00	5,300.00	4,547.53	9,534.65	17
Low	4	175.87	175.87	35.00	0	469.45	
High	"	29,127.63	18,574.87	11,876.81	10,972.21	14,374.86	74
Low	"	175.87	175.87	35.00	0	469.45	
High	"	18,275.55	18,275.55	7,887.74	11,673.62	11,450.75	71
Low	5	591.40	591.40	32.50	315.70	495.12	
High	"	21,659.70	21,659.70	6,791.26	14,868.44	18,773.55	33
Low	"	591.40	591.40	32.50	315.70	495.12	
High	"	15,216.05	11,440.20	6,496.67	6,082.48	7,817.62	32

CHART NO. 10-C

INCOME TAX DATA - LOBSTERMEN

1967

DISTRIBUTION OF GROSS RECEIPTS OF MAINE LOBSTER FISHERMEN

	District #1	District #2	District #3	District #4	District #5	All Districts
000-999	-	2	2	8	1	13
1000-1999	1	3	2	6	4	16
2000-2999	2	2	1	13	4	22
3000-3999	1	3	2	6	5	17
4000-4999	-	-	2	7	4	13
5000-5999	1	2	5	7	4	19
6000-6999	-	1	1	2	2	6
7000-7999	-	-	-	6	2	8
8000-8999	-	2	-	3	2	7
9000-9999	1	-	1	1	-	3
10000-10999	2	1	-	4	-	7
11000-11999	-	-	-	2	3	5
12000-12999	-	-	1	2	-	3
13000-13999	-	1	-	2	-	3
14000-14999	1	1	-	1	-	3
15000 & Over	1	4	-	4	2	11
Total	10	22	17	74	33	156

Size. Maine law prescribes the minimum size of lobsters as 3 3/16th inches and the maximum size as 5 inches, "measuring from the rear of the eye socket along a line parallel to the center line of the body shell to the rear end of the body shell."[209] This is known as a carapace measurement. The maximum measurement applies whether the lobster is alive or dead, cooked or uncooked.[210]

The minimum size lobster restriction has generally been accepted as a valid conservation regulation. The regulation is compatible with economic considerations: size demands of the retail market and increased profit if lobsters are allowed one or two additional molts. The maximum size requirement fails to withstand the test of scientific validity. The first maximum size limit of 4 3/4 inches was enacted in Maine in 1933[211] and raised to 5 inches two years later.[212] At the time the maximum size restriction was respected as a sound conservation requirement. The respectability can to a great degree be traced to Dr. Francis H. Herrick, a well known lobster biologist. The theory was that the larger the female, the more lobster eggs, hence a more abundant supply of lobsters. It is true that the larger females do produce a larger number of eggs; but, it has been determined that because of the reproductive characteristics and cycle of lobsters, (lobsters mate as mammals) it does not necessarily follow that

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209. 12 M.R.S.A. 4451.

210. Id. Compare Thompson v. Smith, 79 Me. 160, 8 A. 687 (1887).

211. P.L. 1933, c.247.

212. P.L. 1935, c.176.

the restrictions will increase the total yield; it may actually decrease total reproduction. Since 90% of the available supply of legal-sized lobsters are taken, the chances of an oversize female encountering an oversize male are remote, and since females are able to mate only with males of approximately the same size, she is likely to remain unfertilized. At the same time the presence of a large male near a smaller female may prevent access by smaller male lobsters, preventing fertilization of the smaller female.[213] Neither Canada nor Massachusetts nor New Hampshire have a maximum size law; lobsters legally caught in these jurisdictions may not be brought into Maine unless they conform to Maine standards.

Valid Conservation Measures. The prohibition against taking or possessing egg-bearing lobsters is a vital and valid conservation regulation,[214] and one that is strictly enforced in Maine. The need of this regulation is apparent from an examination of a lobster's life history.[215]

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213. See Dow, R. L., Lobster Maximum Size Restrictions, Department of Sea and Shore Fisheries, March, 1955, reprinted November 1964; Myers, E.A., The Law of the Lobster; A Life in a Minute, Data Processor, June, 1968.

214. 12 M.R.S.A. 4401, 4459.

215. Lobsters mate shortly after the female has molted. Sperm cells are held in the seminal receptacle of the female until the eggs are extruded from the ovaries where they have been maturing from the previous year. When the eggs are extruded the sperm is released and fertilization occurs. A sticky secretion cements the eggs to the swimmerets where they remain for ten to twelve months before hatching during the summer; hence, from the time of mating to hatching of eggs is generally about two years. The number of eggs varies with the size of females, ranging from a few thousand to nearly one hundred thousand. (The American Lobster, Marine Resources of the Atlantic Coast, Atlantic States Marine Fisheries Commission, Leaflet No. 5, October, 1966).

Scallops

A license must be obtained to operate a boat engaged in scallop fishing. One must be a Maine resident to obtain such a license; all crew members must also be Maine residents. No license is required to take two bushels of scallops in the shell or four quarts of shucked scallops for home consumption.[216] The minimum size of scallops has been set at three inches in the longest diameter with a tolerance of 10% for any lot.[217] State statutes impose a closed season from April 15 to October 31 in the Mt. Desert region.[218] (See Chart No. 12 for special legislation).

SHRIMP

The development of the Maine shrimp fishery from a scarce, under-utilized, and practically unmarketable species to the State's second most profitable fishery has been one of the outstanding success stories of Maine's commercial fisheries. The increase in the abundance of shrimp, noted since 1965,[219] was of course essential to this development. Landings have risen from 67,000 pounds in 1961 to over 24 million pounds in 1969 with a landed value of approximately $3,267,000.[220]

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216. 12 M.R.S.A. 4001.

217. 12 M.R.S.A. 4003.

218. 12 M.R.S.A. 4002.

219. See Maine Sunday Telegram, January 18, 1970.

220. See Maine Times, May 16, 1969; Portland Press Herald, January 31, 1970.

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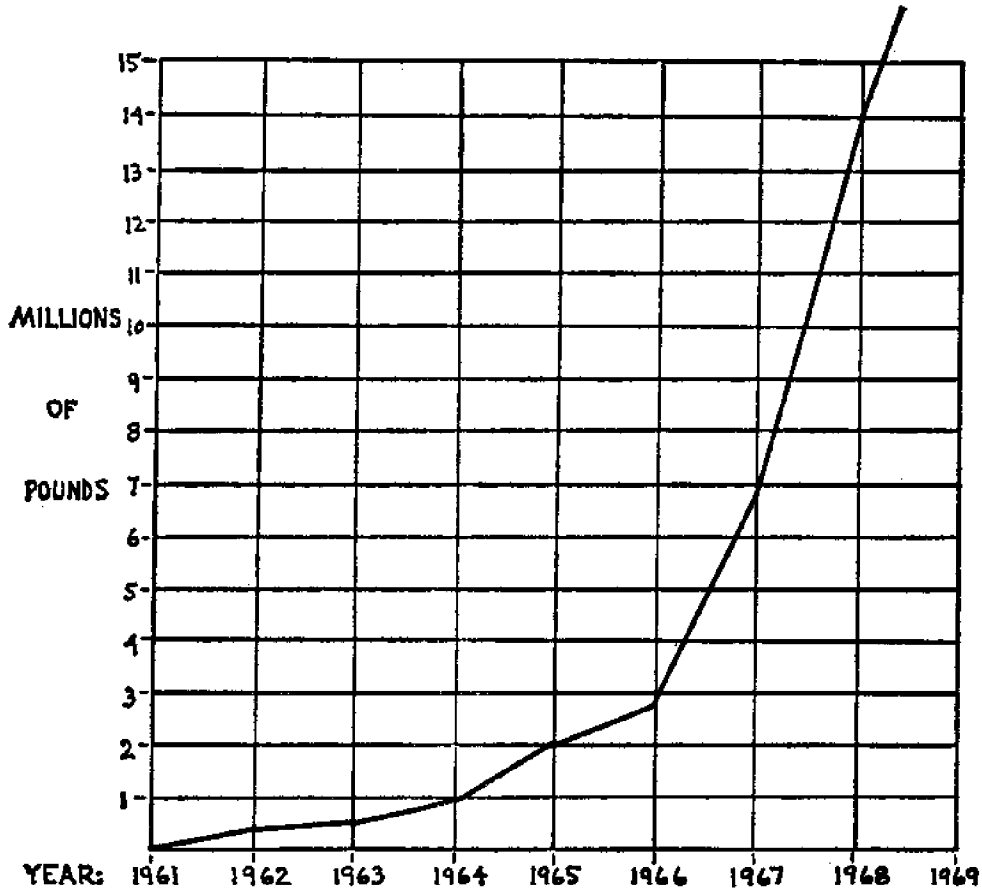
SHRIMP CATCH



RECORD SHRIMP CATCH — Shellfish are primarily responsible for Maine setting a new monetary record of $26 million in 1969. Leaders are shrimp and lobsters, with projected figures for shrimp landings showing a total of 24,050,000 pounds. Estimated value $3,267,000, bettering 1968 figures of 14,363,251 pounds and $1,589,973.

The only reference to shrimp in the laws administered by the Department of Sea and Shore Fisheries is contained in an enumeration of fish categories with respect to conservation duties of the Department.[222] The

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221. Portland Press Herald, January 31, 1970.

222. 12 M.R.S.A. 3504.

intensification of effort in this industry, coupled with the cyclical nature of the abundance of the species, has led to speculations as to the desirability of imposing any restrictive measures to properly conserve the resource. The question was posed to the biologist who had the primary departmental responsibility for the development of this fishery:[223] What laws should be enacted as scientifically valid measures and what oppressive restrictions should be avoided? We are grateful for:

Memorandum From Spencer Appollonio[224]

> At the present time the only clear recommendation that can be made about shrimp fishing concerns mesh size of the nets. This probably should not be less than 1 3/4 inch stretch. It is an occasional practice to line the nets with fine mesh. This may increase the total weight of shrimp caught, but probably not the total numbers of commercial-size shrimp. The difference is generally made up of younger shrimp, below the desired commercial size. Lining the nets or using a small mesh net unnecessarily takes smaller shrimp which can only reduce the value of the product.
>
> The 1 3/4 inch mesh, based on experiments in Scandinavia, does allow many younger shrimp to escape. It is the standard mesh used by whiting draggers and therefore should be generally acceptable to the fishermen. A few dealers apparently would prefer a 2 inch mesh, and they do exert some pressure for the larger meshes. They discourage use of fine meshes, as far as I know.
>
> Since there is good evidence the shrimp population is or has been expanding rapidly (perhaps doubling in size each year) for the last 10 years, it is not practical now to estimate "a maximum sustainable yield". Thus a legal limit on the size of the catch appears impractical. While this is done in California on a related species, the situation does not appear comparable to that in Maine.
>
> Further, there is little evidence that fishing has limited the size or rate of increase of the population. There is even a possibility that, perhaps through control of a density dependent parasite, fishing (to some extent) might possibly be beneficial to

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223. Conversation with Mr. Spencer Appollonio, November 18, 1969. Mr. Appollonio has recently assumed new duties as the State's Oceanographer.

224. Memorandum from Spencer Appollonio to Harriet Henry, January 22, 1970.

the population. Nor is there any evidence that taking egged females is harmful under present conditions. Preliminary surveys suggest sufficient egged females escape the fishery to provide adequate larvae for future adult recruitment.

There is a possibility that it might be desirable to have a closed season during the summer. Because of the peculiar distributions and migrations of shrimp, fishing must inevitably take or disturb proportionately more young, small shrimps in the summer than in the winter. We have had only one summer shrimp season so far - 1969 - and the effects are not clear. It would probably be very difficult to determine a limit to the number of vessels fishing for shrimp. This problem of "limited entry" has always been a tricky one, and, since we do not have firm estimates of population size or rate of increase or sustainable yield, would be very hard to support in objective terms. My guess is that since 1961 the resource has been under fished as far as number of boats is concerned.

An important complicating factor for Maine's shrimp fishery, now, is the Gloucester vessels fishing year-round in Jeffrey's Basin, undoubtedly an important area in the life cycle of our shrimp. Maine laws would not apply to a significant part of the fishing effort in that important area.

Critical to any legal consideration, I would think, are the present lack of good quantitative estimates of the vital parameters, e.g. population size, rate of growth, fishing mortality and sustainable yield, of the shrimps. Of course, this Department is working on these parameters but the shrimps' biological characteristics complicate the task.

We do have quite a lot of qualitative and some quantitative information. These only suggest the possibility that a summer closed season might be beneficial and argue for the mesh size limit. The closed season should be judged in light of the importance (realistically determined) of that continuing supply to maintenance of dealers' markets, particularly in Scandinavia.

In summary, our present knowledge does not suggest urgent need for legal restrictions of shrimp fishing. The mesh size is desirable but not urgent, and the summer closed season might help but we have no real evidence that summer fishing is detrimental. Undoubtedly other possible legal aspects of the fishery occur to you that I have not mentioned. I think these too fall in the category of "not urgent", or for which no sustaining data can be assembled. I would be very happy to discuss any of them with you.

I have deliberately avoided such technological fields as quality control. This is a different matter entirely.

Factors that have contributed to the shrimp success, relevant to all fisheries, are a favorable condition of supply, availability, reduced cost of operation, food usage, reception of product, and market development. Maine shrimp is expensive to process. It takes 125 to 150 individual shrimp per pound of Maine shrimp compared with 20-30 of the Louisiana variety. Shrimp peeling machines, some rented from Louisiana, some from Norway, have helped keep the price down. An initial problem in consumer reception to Maine shrimp was the tendency to overcook. Directions on preparation have been a necessary part of the promotional and marketing program. One of the major breakthroughs for the Maine shrimp fisheries was the decline in European shrimp landings which opened up the export potential.[225] Much of the Maine shrimp catch goes to Scandinavia.

OTHER FISHERIES

Bass - Striped or Sea Bass

Prior to the 104th Legislature restrictions on the taking of striped bass were limited to the Sheepscot River and its tributaries, in which bass could be taken only by hand line or rod.[226] The 104th Legislature

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225. Interview with Professor John Hogan and Professor Matthew Highlands, University of Maine, Orono, May 21, 1969.

226. P.&S.L. 1959, c.155 §70 as repealed and superseded by P.&S.L. 1967, c.44 repealed by P.L. 1969, c.10.

extended this limitation on the method of taking bass to the entire State in emergency legislation, citing conservation as the reason, to prevent "overharvesting practices such as 'stop netting'...[which are] seriously injuring the growth, the development and propagation of such species;..." By this act it was made unlawful to catch striped or sea bass in tidal waters of the State in any manner except by hand line or rod and reel or by use of a spear. Spear fishing for striped sea bass has been limited to the hours between sunrise and sunset.[227] There has been a conflict between sport and commercial fisheries in the taking of bass. This provision would clearly limit striped bass to a sport fishery.

Blueblacks - See Herring

Cod

The only reference to cod found in Maine law is contained in private and special legislation (See Chart No. 12).

Eels

The eel is a fresh water fish that goes to the deep waters of the ocean to spawn. This interesting, if not major fishery in Maine, is subject only to the general fishery laws and a few restrictions on gear and area prescribed by special legislation. (See Chart No. 12).

HERRING

The herring harvest constitutes Maine's largest volume fishery despite a significant decrease in abundance in recent years.[228] This species

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227. 12 M.R.S.A. 4209 as added by P.L. 1969, c.10.

is the basis of the Maine sardine industry, whose fortunes fluctuate with the supply of the fish. Sardine packers have felt both the competition of foreign fishing vessels[229] and competition from imports.[230]

The sardine industry formerly worked under a closed time for taking herring for canning purposes.[231] The scarcity of the species has led to the removal of all harvesting restrictions except the four inch minimum size,[232] a prohibition against taking herring by artificial light except in York County and parts of Sheepscot Bay,[233] and certain restrictions on the type of fishing gear. Purse seines, drag seines, and stop seines are generally prohibited from May 15 to November 15, but are allowed during this period for herring fishing in portions of Penobscot Bay and River.[234]

The standard unit of measure, requirements for measuring and sealing of boats used to transport herring for processing purposes, and stipulations about payment of herring fishermen are set forth in the statutes.[235]

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228. 54 million tons 1969, 69 million tons 1968, 64 million tons 1967, 170 million tons 1958 (Portland Press Herald, January 31, 1970; 25th Biennial Report, Department of Sea and Shore Fisheries.).

229. The relationship between the offshore and inshore population of herring is being investigated by the Bureau of Commercial Fisheries (Portland Press Herald, January 31, 1970).

230. See Vol. I, p.123.

231. See 12 M.R.S.A. 3851 repealed by P.L. 1965, c.145.

232. 12 M.R.S.A. 3854. See p. 662.

233. 12 M.R.S.A. 3856. See Maine Times, April 4, 1969.

234. P.&S.L. 1959, c.155 §9(IV).

235. 12 M.R.S.A. 3852-4.

Sardines

Sardine is now defined by statute to include "any canned, clupeoid fish being the fish commonly called herring, particularly the clupea harengus."[236] A herring is not a sardine until canned.[237] The definition of sardine assumes importance in trying to establish international standards to control the quality of fish products being shipped to underdeveloped countries.[238] Under Maine law, sardines may be packed for export which do not meet the quantity and quality standards of the Maine Sardine Law. Such products must be clearly marked FOR EXPORT and shall not be reimported into the United States.[239]

While there is authorization for the distribution of processed herring products that do not meet Maine Sardine Law standards, packers can not escape the Sardine Tax by obvious quantitative or technical variations in compliance with the standards.[240]

The processing of sardines must comply with the Maine Sardine law which is administered by the Maine Department of Agriculture.[241] Promotion and regulation of the industry and administration of the Sardine Tax laws are administered by the Maine Sardine Council.[242] These laws will be discussed in Chapter 13.

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236. 36 M.R.S.A. 4692(3). See also State v. Kaufman, 98 Me. 546, 57 A. 886 (1904).

237. State v. Millbridge Canning Co., 159 Me. 1 186 A. 2d 789 (1963).

238. Interview with Richard Reed, March 11, 1969.

239. 32 M.R.S.A. 4157-A (Supp.). See also 32 M.R.S.A. 4157 for law pertaining to disposition of processed herring that does not meet Maine Sardine Law standards.

Marine Worms

Marine worms, which include clam worms, sand worms, and blood worms, comprise Maine's fourth most valuable fishery. The landed value of these bait worms approximates $1.5 million and the primary wholesale value is $2.8 million. Because of the great demand by sportsmen, blood worms sell for approximately $5.00 a lb; sand worms sell for approximately $2.00 a lb.[243]

Anyone may take up to 125 worms per day. Beyond this limit a worm diggers license is required. Maine residency is required for both this and a Maine Worm Dealers license.[244]

There are no restrictions as to size of worms taken, but market demand controls the minimum acceptable size. Worms must be taken by hand powered devices; even in certain areas where dredging is allowed for clams, the statute specifically excludes marine worms.[245] Since they are for bait and not for human consumption, marine worms may be taken from flats closed to shellfish because of contamination; conversely, flats may be closed to the taking of marine worms for conservation considerations,

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240. State v. Vogl, 149 Me. 99, 99 A. 2d 66 (1953).

241. 32 M.R.S.A. 4151-4161. See Vol. I, p.121 et seq. Chapter 13, this volume.

242. 36 M.R.S.A. 4691-4700. The sardine tax is 25 cents a case which is used for the promotion and development of the industry.

243. Interview with Robert L. Dow, November 26, 1968. See also New England Marine Resources Information Bulletin No. 4, September, 1969.

244. 12 M.R.S.A. 4301 (A) (B) (Supp.). See Vol. II, p.

245. 12 M.R.S.A. 4352 (Supp.) as amended by P.L. 1969, c.250.

but such closings do not preclude other fishing activity on these flats.[246]

Authority for municipalities to place residence restrictions on the taking of marine worms was abolished in 1955.[247] From a study of the fishery, the Department had concluded that the life history of the blood worm and the sand worm precluded the need of management restrictions, and that municipal regulation of marine worms was handicapping the industry and adversely affecting the best use of the resource.[248]

The revenues derived from licenses are allocated to the Marine Worm Fund, the proceeds from which are earmarked for research, restoration and development of the marine worm fishery.[249] A Marine Worm Tax was enacted in 1969. Any person, firm, or corporation that sells more than 125 worms a day must pay 5 cents per hundred worms sold. These monies are used to administer the tax and by the Department of Agriculture for the inspection of packaged marine worms in accordance with 10 M.R.S.A. 2406.[250]

Sardines - See Herring

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246. 12 M.R.S.A. 3504. See 1955-56 Attorney General Report, p.45.

247. P.L. 1955, c.110. See also 12 M.R.S.A. 4301 (A) as added by P.L. 1965, c.59.

248. See Dow, Robert L., and Wallace, Dana E., Marine Worm Management and Conservation, Department of Sea and Shore Fisheries, February, 1955, reissued June, 1967.

249. 12 M.R.S.A. 4301 (C).

250. 36 M.R.S.A. 4451-7 as added by P.L. 1969, c.461. 10 M.R.S.A. 2406 relates to package inspection by the State Sealer.

Tuna

Maine law prevents the taking of tuna other than by harpoon or hook and line.[251] This law, passed over 30 years ago[252] in the hopes of stimulating a sports fishery for this species is not calculated to cause terror in the hearts of efficient tuna fleets of the world.

Sea Moss and Seaweed

Although obviously not a "fishery", for some purposes Maine law treats sea moss as a fishery, and it is included here for that reason.

A resident or non-resident license must be obtained to harvest sea moss.[253] Otherwise there are no restrictions on time, area, place, or manner in which sea moss may be taken, except those protecting research areas[254] and the rights of riparian owners to seaweed cast on the beach.[255]

The term "sea moss" has never been statutorily defined. It is interpreted to include Irish moss.[256] A now repealed statutory provision for leasing areas for the harvesting of kelp[257] might make it appropriate to suggest that all marine growth, such as kelp, seaweed, and other non-animal living resources from the sea, should properly be licensed under this category.

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251. 12 M.R.S.A. 4151.

252. P.L. 1939, c.34.

253. 12 M.R.S.A. 4051.

254. 12 M.R.S.A. 3703 (Supp.).

255. See Vol. II, p.279.

256. Conversation with Ronald Green, March 20, 1970.

257. 1 M.R.S.A. 26 repealed by P.L. 1967, c.418.

Problems of harvesting Irish moss and the value of derivative products was discussed in Vol. II, p.338. Some forms of sea moss such as rock weed, are used to pack and preserve lobsters for transportation and shipping.

Seaweed as opposed to sea moss, has long been used as a fertilizer. One company that packaged seaweed to sell it commercially as fertilizer, ran afoul of Department of Agriculture requirements that an analysis of its contents be indicated on the package. Lacking the staff or fiscal capability to conduct such an analysis on a continuing basis, the company labeled the product as seaweed (as a natural product, the chemical analysis would vary too widely from batch to batch to premit standard labeling). Brochures were placed in close proximity to the product in the retail market indicating a possible use as fertilizer. Since it was not labeled as fertilizer, the processor assumed it was not subject to labeling requirements for fertilizer.[258] Depending on the precise conditions at the point of sale, this might present an interesting legal question. Whether labeling requirements should be modified to facilitate new uses for a natural, non-standardizable product is a more difficult policy question.

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258. Interview with Larry Cole, Applied Oceanics, July 16, 1969.

CHART NO. 11

REGULATION OF SIZE AND AMOUNT BY SPECIES

Species	Minimum/Maximum	Amount	Remarks	Source (12 M.R.S.A. unless otherwise indicated)
Salmon	14 inches			§3951 as amended by P.L. 1969, c.264
Shad		5 shad	Limit by bag net portion Nonesuch River	P.&S.L. 1959, c.155 §10
Smelts		4 qts. per day	During closed season, except for wholesale seafood dealers and processors, bait worm dealers, and smelt caught in traps or weirs licensed for herring	§4101 §4302 §2258
Clams	No state restrictions 2 inch minimum certain municipalities	1/2 bushel	E.g. Scarborough shellfish ordinances. Allowed per person per day without commercial license, subject to municipal regulations	§4301
Quahogs	2 inch	1/2 bushel	Without commercial license per day	§3901 §4301
Mussels		1/2 bushel	" " "	§4301
Oysters		1/2 bushel	" " "	§4301
Lobsters	3 3/16 inch-5 inch 4 1/2 inch-6 1/2 inch		Carapace measurement Tail section removed	§4451 §4455
Scallops	3 inch (longest diameter)	2 bushels inshell 4 qts. shucked	Allowed for home consumption without license	§4403 §4401
Herring	4 inches			§3854(Supp.)
Marine Worms		125 per day	Without a license	§4301-A (Supp.)

CHART NO. 12

REGULATION OF AREA, GEAR, AND CLOSED TIME BY SPECIES*

Species	Area	Gear Restrictions	Closed Time [Open Time]	Remarks	Source (§1-132 refers to P.&S.L. 1969, c.155)
Alewives			Sunrise Saturday to sunrise Sunday	Almost universal stipulation in State grants to municipalities	E.g. §76A
(Illustrative of many alewife regulations.)*	Surry	Only by seine and weir			§38
	St. George	No net or seine	April 1-July 15	Not abridge or affect fishing privilege of town of Warren.	§54
	Newcastle Damariscotta	Only by hook and line			§64
	Sheepscot River	Alewives excepted prohibition against net or seine			§73
Salmon	Statewide		July 15-March 31		12 M.R.S.A. 3951 as amended by P.L. 1969, c.264
		Rod and single line permitted	[July 16-October 15]	Exceptions to state closed time	" " "
	St. Croix below breakwater	weirs permitted	[May 15-August 15]	" " " "	" " "
	Pleasant River, Washington County	Taking prohibited except by unweighted fly hook no larger than No. 4			§116
Shad	Nonesuch River, north of bridge Saco Road			Taking prohibited	§10
	Below bridge	Limited to single baited hook or line, artificial flies; 5 shad may be taken by bag net			§10
	Dennys River	Hand dip net only			§10

* See Maine Sea and Shore Fisheries Law and Regulations, Revised to October 1, 1969.

CHART NO. 12 (Continued)

Species	Area	Gear Restrictions	Closed Time [Open Time]	Remarks	Source
Smelts	Statewide	Hand dipped net allowed during closed time	March 15-June 15	Limit of 4 qts during closed time, exceptions - see Chart No. 11	12 M.R.S.A. 4101 12 M.R.S.A. 4302 12 M.R.S.A. 2558
(Illustrative of many smelt regulations.)	Casco Bay above Martins Bridge, Tukeys Bridge	Limited to hook and line			§6, 7
	Hancock County	Limited to hand dip net, bow diameter no more than 10 inches	[March, April, May]	4 qt. maximum during this time	§35
	Above Fish Stream Bridge, Damariscotta Mills		March, April, May		§68-A
	Sasanoa River	Seines prohibited	October 1-April 1		§83
	East Machias River	Float traps, gill nets, or bag nets allowed	[October 1-April 30]	Commercial season	§109
	Smelt Brook, Perry	By hand for own use	[Anytime]	Limit of 4 qts.	§111
	Piscataqua River	Seines or nets prohibited; weirs allowed for catch for own use			§125
Clams	Statewide closures		See Remarks	Extensive areas of clam flats closed because of pollution Selective areas closed for conservation.	12 M.R.S.A. 3503 12 M.R.S.A. 3504
	Statewide	Handpower devices except as noted			12 M.R.S.A. 4352
	Hancock County	Maryland type dredge allowed		Exceptions to general prohibition. No marine worms shall be taken by this method.	12 M.R.S.A. 4352(4)

CHART NO. 12 (Continued)

Species	Area	Gear Restrictions	Closed Time [Open Time]	Remarks	Source
Clams (Cont'd)	Phippsburg	Hydraulic or mechanical dredges allowed		Same as above	12 M.R.S.A. 4352(5)
	Between Cape Elizabeth and Pemaquid Point	Hydraulic dredges allowed		" " " No other shellfish	12 M.R.S.A. 4352(6)
Quahogs	Maquoit Bay Middle Bay	Must be taken by hand powered devices or traditional clam hoe			§4,5
Crabs		Must be taken by traditional lobster pot; hook and line or by hand for home use.			12 M.R.S.A. 4404
Lobster		Traditional lobster pot	4 P.M. EDST Sat. to half hour before sunrise Mon. June 1-August 31		12 M.R.S.A. 4404 12 M.R.S.A. 4458
	York Co., Saco Bay, Cumberland Co., portions of Knox and Lincoln Co.	Limit of three lobster traps on one warp and buoy			12 M.R.S.A. 4463-5
	Monhegan Island		June 25-January 1		§69
	Portions of York River		Taking prohibited		§130
Scallops	Statewide except water area off Mt. Desert Island seaward		April 15-October 15		12 M.R.S.A. 4002
	Harrington River and Bay, Pleasant River	No Dragging allowed	April 15-December 1		P.&S.L. 1959, c.154 as amended by P.&S.L. 1965, c.14

CHART NO. 12 (Continued)

Species	Area	Gear Restrictions	Closed Time [Open Time]	Remarks	Source
Bass (Striped)	Taking limited to hook and line, rod and reel or spear	Taking limited to hook and line, rod and reel or spear	[Spears allowed between sunrise and sunset]		12 M.R.S.A. 4209 as added by P.L. 1969, c.10
Cod (And other ground fish)	Sheepscot Bay	May be taken only with tub or line trawls or by ordinary hook and line			§72
Eels	Pleasant River	Eels taken by spear permitted	[November]	Exempted from general prohibition against fishing March 1-December 1	12 M.R.S.A. 2753
	Bagaduce River	Traps may be used for eels, despite prohibition against			§33
	Sedgwick Brooklin	May be taken only by spear and gaff or hook and line			§45
	Warren	Only by hook and line or by spears			§56
	Sheepscot River	General prohibition against net or seine (Eels may be exempted by Commissioner)		Taking of eels by permit of the Comm. of Sea & Shore Fisheries by means designated by him	§73
Herring	Statewide except York Co., part of Sheepscot Bay,	Artificial light prohibited			12 M.R.S.A. 3856 12 M.R.S.A. 3856(1)
	Kennebec River and tributaries including part of Sasanoa River		[April 1-October 1]		12 M.R.S.A. 3856(2)
	West shore Penobscot Bay and River	Purse seines, drag seines, and stop seines may be used	[May 15-November 15]	Herring removed restrictions against these seines	§9

CHART NO. 12 (Continued)

Species	Area	Gear Restrictions	Closed Time [Open Time]	Remarks	Source
Marine Worms	Statewide	Must be taken by hand powered devices			12 M.R.S.A. 4392
Tuna	Statewide	May be taken by harpoon or hook and line only			12 M.R.S.A. 4151

CHAPTER TWELVE PROBLEMS INFLUENCING USE OF RENEWABLE MARINE RESOURCES*

COMMON LAW HERITAGE

Public attitudes, reflecting social and economic conflicts, usually determine the course and content of legislation designed to solve renewable marine resource problems. Attitudes toward marine resources appear to have been developed early, even before colonization. Rosier (1605), John Smith (1614), and other early explorers of eastern North America emphasized the abundance of renewable resources, particularly those of the sea. And at this rather late date commercial fishing vessels from western Europe had been operating in the Gulf of Maine for many years. Implementation of attitudes normally has adverse effects on resources in terms of quality and quantity, and generally inhibits economic development and growth.

Legal restrictions, other than sanitary regulations, are the end products of these attitudes which had their beginnings even before the colonization of New England. Migrants to New England during the seventeenth century were predominantly from Great Britain and were accustomed to discriminatory restrictions on fishing and fowling.

The Colonial Ordinances of 1641-1647 were in part the direct result of the attitudes toward resource use restrictions in England, and in part of the requirements for food of natural renewable resources in this

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*Robert L. Dow, Marine Research Director, Department of Sea and Shore Fisheries.

country. That some of the early colonists in Maine tried to preempt comparable restrictions is evident from the history of Scarborough:

> The records of some of the early provincial courts occasionally show how careful he (Cammock) was of his own rights, while they never bear evidence of his neglect of the rights of others. In an action brought before the first general court, of the Province in 1640, Richard Foxwell of Blue Point complains of Cammock for preventing him and others from fishing for bass and lobsters in Black Point River. To this complaint Cammock answered: "that by virtue of his Patent the Royaltie of fishing and fowling belongeth to him, and (is) not to be violently trespassed by force, and hath sustained greate damage by their fishing and cominge on his ground and otherwise...."[1]

Whether this incident had any influence on the Colonial Ordinances would be impossible to determine, but the inference is clear, and one might well assume the one to be the immediate and direct cause of the other; perhaps one of the few instances in this country that required the formalizing of what had, of necessity, been unwritten law during the first twenty years of Maine and Massachusetts settlements when hunger, especially in the winter, was common.

Protection of Residents Rather Than Resource

The first fisheries regulations established after Maine became a state were designed to "protect" Maine coastal residents rather than the resources, which both Canadian and Massachusetts fishermen were apparently exploiting with more efficiency than were Maine fishermen.

The need during colonial times for a readily available food when there was little or nothing else to eat served to determine the contents

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1. The History of Scarborough from 1633 to 1783. William S. Southgate, p.14. 1853-Maine Historical Society, Portland.

of free fishing and fowling ordinances. The long tradition of subsistence fishing further strengthened the tendency to treat sedentary marine animals as noncommercial public resources. Historically, the use of resources determined the contents of the colonial ordinances. In much the same manner contemporary attitudes toward certain shellfish and finfish appear to be direct outgrowths of the 1641-1647 colonial ordinances (see Vol. II, p.189 for complete text) which gave:

> Every inhabitant that is an house holder shall have free fishing and fowling in any great ponds, and Bayes, Coves, and Rivers, so farre as the sea ebbes and flows within the precincts of the towne where they dwell, unlesse the free men of the same Towne or the General Court have otherwise appropriated them, provided that this shall not be extended to give leave to any man to come upon others proprietie without their leave.[2]

CLAMS - A CASE HISTORY OF ILLOGIC

When the shellfish resources were first used for commercial purposes the concept of public property persisted, but more and more exclusions were permitted by the Legislature. Political boundaries were employed to establish lines of exclusion. In many instances where exclusive rights to shellfish had been granted to residents of coastal towns, some of those residents were actually living further from tidewater and from shellfish growing areas than were residents of non-coastal towns; yet the latter were, by the vagaries of political boundaries, excluded from the clam flats. A further bewildering complexity was that, by implication, the State had the responsibility for the enforcement of laws and

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2. Whittlesey, John J., Law of the Seashore, Tidewaters and Great Ponds in Massachusetts and Maine, Boston, 1932 p.XXXVI.

rules and regulations which benefited only the residents of the municipalities concerned. Even uniformity was missing: in a few instances the Legislature refused to grant exclusive rights -- where the lobbying of adjacent town officials and others with relatively little shellfish resources was sufficiently effective.

Non-Commercial v. Commercial Use of Shellfish

Despite more than a century of commercialization, a strong belief still exists outside the industry that commercial use of the resource is of secondary importance to its use by the public for non-commercial purposes. Subsistence is a part, but not all, of their notion of a right to non-commercial use; it includes a mixture of limited commercial use during economic depressions or otherwise by the chronically indigent, and unrestricted use of marine resources for personal food by residents.

It might seem that these factors are peculiarly legal. While they are confirmed by law, they also reflect a confusing social psychology. It is difficult to determine if this attitude is conditioned solely by the traditional use, for example, of the clam resource during periods of privation. The attitude may be the end product of an effort to deny that the clam resource is a commercial resource. Or, it may be, by virtue of its legal sanctity, a municipal safeguard against pauperism -- a sort of low water town poor farm.

Marine Wormdiggers - Clam Diggers

There is one other possible explanation which may be of interest. In many respects marine worm digging and clam digging are alike. Diggers generally are not fishermen in the traditional sense. Both worms and

clams live in tidal flats, although worms are less sedentary. Hoes are employed in both fisheries and harvesting takes place during low tide.

There has been, however, little overlap between the two activities. Of the 2,400 licensed clam diggers and worm diggers, less than one hundred were both prior to 1958. In 1968 virtually none of the 2,867 licensed clam diggers and worm diggers were licensed to carry on both activities. The worm industry is much more recent in origin, being only about 35 to 40 years old. The clam industry, on the other hand, is over one hundred years old and clams had been dug for personal use for at least two hundred years before that.

Worm diggers will travel up to one hundred miles or more to dig during low tide and then return home; the clam digger rarely travels five miles to dig clams. Part of this travel restriction is, of course, imposed by laws. But the tradition of the two fisheries may have a great deal to do with the laws established. For several years an increasing number of towns asked the Legislature to impose the same residence restrictions on worm digging that were imposed on clam digging. The industry was opposed to these restrictions and finally in 1955, with the assistance of research findings of the Department, succeeded in obtaining repeal.

When the clam industry developed, means of travel were limited and distances which diggers would go to dig clams were likewise limited. When digging restrictions were first established, they were generally directed against the residents of adjoining or neighboring towns. In the case of the worm industry, which started in the late 1920's, travel was not the problem it had been when the clam industry originated. The

free-roving attitude which exists in both fisheries had much greater range in the worm fishery than in the clam fishery. When worm digging restrictions were imposed they were generally imposed not because of diggers from adjoining towns, but because of diggers from towns and cities fifty to one hundred miles distant. By the time the automobile gave the clam digger the means to travel any distance, he had been hemmed in by legal restrictions for nearly a half-century. Although many clam diggers are opposed to the restrictions which have been imposed on them, they have been faced with a long established fact while the worm diggers were faced with a growing threat.

One other factor which seemed to hobble the clam digger is the traditional "right" of any resident of a coastal community to go down on the flats at any time -- low water permitting -- and dig a "mess" of clams. It has been believed by many residents of a community that municipal exclusive rights to shellfish would insure -- predators notwithstanding -- enough clams for them to exercise their traditional right to dig a mess of clams.

In some areas where non-resident restrictions are palpably inappropriate -- an unsurveyed boundary between towns passing through a growing area -- local ground rules without benefit of legal sanction have been established.

Shellfish Growing Areas

Efforts to encourage individual initiative in the production of intertidal shellfish culminated in the passage of legislation in

1905 enabling individuals to obtain grants to shellfish growing areas:[3]

> Shore and flats set apart for shellfish industry.
> The Commissioner, upon the application of any person or corporation interested or engaged in scientific research relating to shellfish or other fish over which the Commissioner has supervision, or in the cultivation and development of the shellfish industry for economic purposes, setting forth their desire to make experiments relative to the cultivation and conservation of shellfish or such other fish over which the Commissioner now has supervision shall, after being satisfied of the facts set out in said application and that the applicant either owns or has the consent, so far as the same can be granted, of the owner of the flats, shore rights and waters where such work is to be undertaken, and that the granting of such rights will not unreasonably interfere with navigation, give notice of a hearing on such application, by causing the same to be published at least two weeks in some newspaper published in the county where the proposed location is situated, and stating therein the time and place where such hearing will occur. If, upon such hearing, the Commissioner is satisfied that the interests of the State will be promoted by such experiments, he shall issue a certificate setting apart so much of such shores, flats and water privileges not exceeding one acre in extent to any one of such applicants, and for such length of time, not exceeding the period of six years as in his judgment may be necessary and proper to accomplish the ends sought to be obtained. Such certificate shall be recorded in the registry of deeds of the county or registry district in which the location is situated, and the applicant shall also cause public notice of the issuance of such certificate to be given by publishing the same in a newspaper published in the county where such location is situated and by posting in a conspicuous place near said location a copy of such certificate, and also by placing stakes or other monuments upon the adjoining upland so as to designate the location so set apart as the Commissioner shall, in his certificate, specify.[4]

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3. P.L. 1905, c.88.

4. Id. §3; See 12 M.R.S.A. 3703 (Supp.).

This law was further strengthened by legislative action in 1911[5] giving towns and cities authority to grant private reservations:

> Towns may grant licenses for propagation and cultivation of clams, quahogs, and mussels.
>
> Upon application in writing, the mayor and aldermen of a city or the selectmen of a town shall grant a written license to any person who has resided in the State or who has been a taxpayer in the city or town for not less than one year preceding the date of his application, for the purposes of planting and cultivating clams, quahogs, or mussels upon and in not exceeding 1/4 of the flats and creeks of their respective cities and towns and within the limits to be specified in the license, for a term of not less than five years nor more than ten years. All such licenses shall be subject to such rules and regulations as are approved by the city government of the city, or by the voters of the town at an annual or special town meeting, and may be assigned by the licensee to any person who has been a resident of the State or a taxpayer in the city or town for not less than one year preceding the date of the assignment; but shall not be assigned or transferred without the written consent of the mayor and aldermen of such city or the selectmen of such town.[6]

Impetus for this legislation came from the experimental findings of the Department reported in the Biennial Report of 1907-1908 and in preceding and subsequent Biennial Reports:

> There is no reason why, if a system of leasing flats were adopted putting in the hands of private individuals the cultivation of the flats to whose interest it would be to improve the quality as well as to increase the quantity, this State should not compete with or excel any other of the New England states in the quality, quantity and value of this industry.

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5. P.L. 1911, c.69.

6. Id. §1; See 12 M.R.S.A. 4304.

Limited Success of Cultivation Legislation

Although enabling legislation has been in force since that time, there have been only five reservations in the last two decades. Some forty years ago between twenty and thirty private grants were made. There were several conditions which made private reservations unsuccessful. In the first place, experiments in the cultivation of shellfish growing areas were not carried out to the extent that scientific information to solve many of the problems was developed. Legal provisions for obtaining seed stock were so involved grant holders were discouraged from attempting to carry on a continuing program, and the attitudes of the industry and town officials generally did not encourage such practices. Furthermore, an overwhelmingly negative attitude toward private reservations exists in coastal communities as well as in the fishing industry. For these several reasons, together with the traditional legal problems of enforcing private property rights on shellfish flats, efforts to develop a non-public fishery have been minimal.

Public attitudes toward shellfish also include both personal sport or food fishing and the use of the resource as an adjunct of tourism. Resort areas have been prone to promote clams as an added attraction for tourists, yet have not been willing to deal realistically with the need for both commercial utilization and sport digging areas.

For many years the low commercial value of shellfish in relation to other foods encouraged these attitudes: they were scarcely worth digging for sale except when there was no other employment.

Competition For Resource

Competition for the resource has existed between and among seasonal, part-time, full-time, incidental, commercial and non-commercial diggers; operators of eating establishments, canners, processors, bait and food dealers; coastal and non-coastal residents of adjacent or bordering municipalities; commercial fishermen using shellfish for bait purposes; and municipal officials and other interested citizens who wish to have these resources available at all times for the unemployed.

This competition for the resource did not become critical until World War II. Production levels were relatively much lower prior to World War II than they have been since that time. Unit values before World War II were approximately one-tenth what they have been since. Although the intensity of harvest has not increased ten-fold, it probably has increased five to six hundred percent, an increase which has had a very serious influence upon the survival of residual populations of some species. Increased intensity of harvest is reflected by more frequent digging of growing areas, since higher prices made redigging of these areas financially attractive, even when and where production was low. Biologically this meant a compounded progression in the mortality of the residual population and a consequent compounded reduction of the yield from the area.

A noteworthy example of eliminating competition to the economic detriment of the industry is the public law passed nearly eighty years ago which provided that:

> Public Law 1901, Chapter 284 §39.
> The shipping or transportation of clams in any manner beyond the limits of the state, between the first day of June and the 15th day of September following, except clams which had been canned, packed or barreled between the 15th of September and the first day of June, is hereby prohibited under a penalty of $3.00 for each bushel so shipped or transported.

A companion restriction to this law establishing a closed time for canning, packing and barreling of clams was passed at the same time. This law provided:

> Public Law 1901, Chapter 284 §38.
> The canning, packing and barreling of clams, either fresh or in salt, and the digging of clams for the purpose of canning, packing or barreling, between the first day of June and the 15th day of September following, is hereby prohibited under a penalty of $1.00 per bushel in the shell. But this section shall not apply to the barreling of clams in the shell for consumption in this State.

Mistaken Belief in Minimum Size of Clams

For many years following the initial establishment of a two-inch minimum size restriction in 1935 the industry convinced itself that this was a sound conservation law and would solve any future problems of clam population abundance.

The reasoning behind this restriction was not based on any scientific research, but rather on faulty and superficial observation. It was observed that during the winter the cessation of growth produced a check line in the shell. It was also observed that growth rates in some areas were very good although failure to "read" winter check lines correctly frequently led to many exaggerated estimates of growth. In many cases an error of one hundred percent in actual growth was made. It was also assumed that rejected, undersize clams would survive to grow to full size, since it was observed that clams would reestablish themselves in their burrows after they had been exposed on the surface of the flats by digging. However, it was not observed, or else not reported, that many clams did not reestablish themselves. Furthermore, no consideration was given to predator damage nor to other mortalities incidental to harvesting,

except freezing during the winter and the inferred effect of the sun in the summer.

In no case were measurements made nor any effort made to evaluate the effects of these several possible causes of population loss. In fact, the only opposition to a minimum size was based on the assumption that such a law could not be enforced. It was simply accepted without proof that it would be a good law and would produce effective conservation.

The concept that management of an area has more conservation significance than management of the individual animal is difficult for most people to understand and appreciate. Yet, under the prevailing conditions of harvest in Maine no other type of clam conservation can be effective.

Equation of Conservation With Saving

There is an underlying belief that marine conservation basically means "saving." This traditional view, conditioned by the "plundered planet" concept of the early 1900's, is based on the misconception that intraspecies competition or other mortality-causing factors cannot offset the advantage of saving the "babies."

Recommendations for a cull law based on this "information" were made in the Biennial Report of 1913-1914, and in the Report of 1915-1916 it was reported that "clams are taken to such a small size that not seed enough is left in the flats to warrant the next crop." No consideration was given to the probability that 20% of the clams left in the flats would die from breakage and another 50% from upside down burial and smothering. It was not, however, until 1935 that a minimum size law was established.

Results of research investigations by the Department, the Fish and Wildlife Service, and the Fisheries Research Board of Canada compelled the Department to recommend repeal of this legislation.[7]

There is often public misunderstanding, both of research recommendations and of the reasons for these recommendations. The popular view of adequate resource conservation is reflected by an editorial which discussed research recommendations with respect to the repeal of minimum clam size restrictions.[8]

> There seems to be quite a furore in the State House over a bill that would repeal the 25-year-old law limiting the size of clams that may be dug, and make legal the taking of two-inch clams.
>
> Those in favor of repeal of the present regulation had their say: Research Director Robert L. Dow of the Sea and Shore Fisheries said that greater conservation could come from closing off clam flats for certain periods, rather than through limitation of the size of clams; a spokesman for a group of 32 diggers insisted that the ban on keeping clams less than two inches "gives the seagulls thousands of clams that should go to market," and so on.
>
> On the other side were those who declared that to take the law off the books would cause depletion. "Take it off, and it will be the end of the clam industry," said one; and others stood stoutly for conservation by maintaining the clam law as is.
>
> It would be strange enough if most people did not believe that true conservation can come best through defeating the proposed repeal of the clam law. It seems obvious to them, in all probability, that the taking of "baby" clams would cause the most serious ultimate depletion, probably ruination of the industry. People might think the proposal as

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7. See R.S. 1954, Chapter 38, Sec. 92. Minimum size was repealed in 1960 (P.L. 1959, c.335 §2).

8. Portland Press Herald, March 1, 1957.

> ridiculous as killing off chicks before they become broilers. Clams are scarce enough now without taking illogical chances.[9]

The substance of this editorial, "don't kill the babies," greatly over-simplified the conservation problem. The digging practices permitted under state law resulted in an excessive killing of subcommercial size clams. This excessive mortality could be corrected only by the repeal of minimum size restrictions in favor of regulation by growing area and the harvest of growing areas after an acceptably high percentage of the clam population has reached market size.

Testimony in favor of this and other conservation proposals has invariably demonstrated that industry is more concerned with "protecting" itself than it is with protecting any marine species. Seeking protection is usually based on spurious economics. Frequently protection is reduced to an effort to keep competitors from doing something they wouldn't do any way. Sometimes protection means reducing or eliminating competition. At other times protection involves protecting one segment of the industry from having to say "no" to another segment of the same industry. Protection has also been the theme in establishing municipal exclusive rights to shellfish in complete contradiction of the biological and hydrographic limitations involved.

THE INDUSTRY GENERALLY

Marketing and Related Problems

Other fisheries problems exist besides those of conservation and management. One of these seems to be a latent belief that the use of non-

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9. Id.

luxury seafoods is incompatible with American culture. As a result of dependence on fish and shellfish during periods of economic depression or when other foods have been scarce, as in colonial times, they are associated with such conditions -- an affront to our independence and affluence. More recently, the assumption that foreign fishermen can supply better quality fish products, and in more dependable quantities, has exercised its influence on trade policies.

The domestic fishing industry has little political muscle, capital, or real technological capability, and has exercised virtually no influence on governmental action. The difficulties of the industry are well illustrated by the fact that an American can buy imported nets to decorate his bar or den wall but cannot use these same nets legally to catch fish without paying a substantial import duty.[10]

Public Law 86-516 of 1960[11] was ostensibly designed to assist the domestic fishing industry, but was in fact engineered to protect domestic boatyards under the guise of reducing for domestic fishermen the imbalance created by restrictions placed years ago on the purchase of foreign vessels for fishing purposes. The "relief" afforded fishermen by this act was further reduced by limiting funds to vessels of larger size and more advanced design than those operating in the fisheries. By inadequate funding, the legislation failed to provide for even these limited classes.

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10. See Chapter 11, p.643.

11. The United States Fishing Fleet Improvement Act, See p.642.

In general, various levels of government as well as industry have failed to recognize the potential of renewable marine resources for food, pharmacology and industrial applications; to develop adequate technical information, and to evolve a program for implementation.

Scope of the Industry

In 1969 the State of Maine issued more than 13,000 licenses for various fishing, processing, retailing, and wholesaling operations in renewable marine resources. Among these were nearly 6,000 licensed lobster fishermen who caught somewhat less than 20 million pounds of lobsters for the year. Since less than a third of these license holders could be considered full-time fishermen, it is obvious that there are a great many more license holders than are necessary to produce a typical annual catch of lobsters in Maine. In all probability a thousand full-time fishermen could catch just as many lobsters as 6,000. Spreading employment, which may be politically desirable, generally results in misuse of a resource, and the lobster does not appear to be an exception.

Recommendations For Limited Entry

Economists have for years recommended a reduction in the number of participants in the fisheries, using as an argument the fact that spreading employment is not economically desirable since it does not provide an incentive to good management nor to efficient use of the resource. It dilutes the profitability for those who are competent fishermen and generally results both in misuse of the resource (for example, the high mortality rate associated with repeated capture of nonlegal stock), decrease the efficiency of the fishing operation, and produces other associated undesirable practices.

Development of Aquacultural Economy

Limited entry undoubtedly has its merits: a license to carry on a selected fishing operation becomes an asset with a distinct value in the market place. A reduction in participation obviously is an incentive to the remaining participants to take a personal interest in the present and future of the resource they are exploiting.

But even with limited entry, fishing would remain a hunting-gathering activity, unlike the production processes of modern aquaculture. Barriers to entry are at best artificial and are not particularly meaningful in terms of economic expansion nor of food production. Fishermen are still fishermen and do not become marine farmers, or to use the new euphemism, "aquaculturists," Responsibility for the preservation of the renewable marine resources is not assumed by the participants but, in fact, remains with the paternalistic agency responsible for the resource. The only solution, practical and otherwise to this dilemma is the development of a viable aquacultural economy.

Until World War I, Maine was an internationally important source of sea products. Economically depressed between the two world wars, the inefficient industry languished as it threatens to do again, even in the face of mounting requirements for protein and other foods.

Of all man's needs, the greatest is food. As population grows, food resources become scarcer and their value increases. Therefore, the most important industrial development prospect for the Maine Coast is that of producing a continuing and controlled yield of renewable marine resources.

Problems of Aquaculture

There are several man-made problems which have to be solved before this industry can become effectively established. Two of them are social and legal and the third is educational: (1) restrictions based on the Colonial Ordinances of 1641-1647 prohibit private ownership of marine waters and bottoms; (2) the inability of private enterprise to enter the field because of legal restrictions or of lack of incentive, specific how-to-do information, and adequate capital; (3) the lack of trained personnel to carry on the practical aspects of renewable resource production.

Appendix 1 is a copy of the curriculum which was prepared and organized by the writer for Southern Maine Vocational Technical Institute (SMVTI) years ago. This, with modifications, could well serve as a course outline, since most of the people who are knowledgeable in methods of marine resource cultivation are presently employed by either Federal or State Government. Such a program could lead to an entirely new approach to technician training by the University as well as a more effective research approach to the marine environment by the academic community. We would anticipate extensive industrial employment -- from well-trained technicians to sophisticated researchers -- creating the highest average income activity in Maine.

Geological, Meteorological, Hydrological Factors

Sea level has ranged widely in Maine during the past 10,000 years, from approximately 400 feet above to 15 or more below the present level. It is probable that tidal range during the immediate post-glacial period was greater than the present 8 to 25 foot range because of former confor

mation of the bottom and shoreline.

Although many geologists consider Somes Sound to be the only fjord-type estuary in Maine, there are other estuaries of proportional dimensions and comparable characteristics. A few of these are shown below.

Name of Estuary	Basin Depth (feet)	Sill Depth (feet)	Shore Elevations (feet)
Somes Sound	167	33	650 to 840
Damariscotta River	121	46	98 to 320
Taunton River	79	20	160 to 220
Skillings River	72	26	120 to 180
Dyer Bay	65	20	140 to 235
Salt Pond (Blue Hill)	52	7	130 to 180
Benjamin River	49	20	150 to 235

Baird and Flagg (personal communication) have found that alewives from cold water estuaries are generally smaller than those from relatively warm water areas.

Name of Estuary	Mean Length (inches)
Bagaduce	10.2
Damariscotta	11.5
Sheepscot	11.5
St. George	11.7

Since 1874 the U.S. Weather Bureau's annual records of three stations (Portland, Bar Harbor, and Eastport) indicate a wide range in precipitation for the Maine coast. The annual average of the three stations for the period is 43.4 inches; with 48.0 inches at Bar Harbor, 42.5 inches at Portland, with 39.0 inches at Eastport. The lowest annual mean of one station for the period is 22.8 inches at Eastport in 1894; the highest, 62.6 inches at Bar Harbor in 1953. The lowest three-station mean was 29.1 inches in 1941, and the highest, 56.7 inches in 1954.

The available supply of freshwater in estuaries is an important factor, possibly the major factor, in the egg survival of Atlantic smelt. Temperature and the amount of freshwater flow are critical factors in the migration of Atlantic salmon from the estuary to the spawning areas of the river. Alewife larvae and juveniles are also dependent upon adequate precipitation and runoff.

Living populations of blue mussels (Mytilus edulis) in the Royal River estuary of Casco Bay have been observed to vary in growth characteristics within and outside the influence of thermal seawater discharge from a power generation plant.

Maine estuaries vary seasonally in some hydrographic characteristics. With spring melt-water runoff, turbulence and mixing in the estuary are greatly increased. Pesticide residues and coliform bacteria also increase during this season. Greater penetration of saline water into the estuary is associated with summer drought conditions. Heavy ice reduces river flow and, with removal of fresh surface water by freezing, also increases the salinity of the underlying water. Ice frequently determines the type of fishery that can be operated in an estuary.

Yields

General categories may be used to classify commercial harvests of renewable marine resources: (1) traditional hunting methods, modified by folklore-based restraints and manipulated for personal advantage, account for nearly all volume; (2) limited public management of several species where life history studies have identified major environmental problems; and (3) varying degrees of aquaculture.

From 1947 - 1954 the Department of Sea and Shore Fisheries conducted commercial scale clam and quahog management experiments with Wells, Scarboro, Islesboro, Brunswick and Harpswell at a cost of $20,489.44 (estimated to be equivalent to the landed value of the resource under normal harvesting practices). Actual value of these experiments was computed to be $238,617.50, an elevenfold return. During this period the landed value of the regular fishery annually averaged $15.8 million. If effective management practices could have been applied to all these resources, and the same increase maintained, the value would have been $173.8 million. Applied to today's values, based on 1969 unmanaged fishery, it would be $287.98 million.

The Scarboro River produced 1.4 million pounds of clam meats worth one-quarter of a million dollars in 1946, from what has been estimated to have been the 1941 year-class. Yield was estimated to have been between 500 and 700 bushels per acre, at current values worth from $6,000 to $8,400 per acre. In October 1946, a tributary of the Scarboro which drains the marsh behind Old Orchard Beach via Little River, was closed to shellfishing because of unsatisfactory sanitary conditions. This area illustrates well some of the management problems which must be solved before estuary productivity can reach its optimum level. It had not been dug commercially for several years because of the poor quality of clams. Later investigations produced evidence that excessive amounts of fresh water reduced the feeding time to the point the clams were literally starving.

Improved sanitary conditions permitted opening the area in 1950. Growth and meat quality recovery of the clam population after 1947 was associated with improved food and environmental conditions. Although seawater temperatures had been favorable until the late 1940's, data on precipitation reported by the U.S. Weather Bureau at Portland suggest why growth had been poor until toward the end of the decade.

Precipitation at nearby Portland had averaged 50 inches a year for the five years preceding 1941, the presumed principal year-class. In 1941 precipitation was 25 inches, one-half the average of the preceding period. From 1942 to 1945 precipitation averaged 45 inches annually and appears to account for the very poor growth of the clams during this period. Beginning with 1946, precipitation declined, and for the next five years averaged only 36 inches per year.

Apparently the decline in fresh water from precipitation run-off reduced the concentration in the headwaters of Little River to the point that increased feeding activity was possible, because of either increased supplies of food or an increase in siphoning attributable to higher salinity.

Across the Scarboro River from Pine Point is Western Beach, a shellfish area with an entirely different aggregation of problems from that of Little River. The population of this 136 acre flat was estimated, from sampling done during the winter of 1947-1948, to be 11,293 bushels of clams averaging one-half inch in diameter, and consisting of one billion, one hundred and thirty-eight million individual clams.

Quantitative measurements of clams surviving in the area over the four-year period from 1947 to 1950 indicated that total survival from the time they were one-half inch in diameter until they reached two and one-half inches ranged from .003 per cent under the most favorable conditions to a .0004 per cent under the most unfavorable conditions.

Results of the research carried on in this area suggest that between 90 and 95 per cent of the clam population reduction can be attributed to a combination of geological, hydrographic and meteorological factors.

Had it been possible to stabilize the sediments, the yield of the resource might very well have been more than 1,300 bushels per acre, with a current value of $15,600 per acre for the four-year period.

Studies of this sea beach and the adjacent river area indicate that geological changes of considerable magnitude may go undetected unless detailed measurements and frequent observations are made. The effect of these changes may be important to faunal distribution and survival.

Measured changes include three general types:

1. Continuous minor modifications in the form of surface rippling, sediment deposition and redistribution, erosion and low relief sandbar migration.

2. Irregularly periodic changes associated with seasonal meteorological influences.

3. Cyclic changes, consisting of major alteration of beach and adjacent shore lines; changes in surface elevation in the order of yards as contrasted with feet in (2.) and inches (1.) above. Major changes appear to occur cumulatively over a period of years.

Causes of major cyclic alterations have not been determined. Two factors of record may have contributed: (1) the Corps of Engineers carried out a river channel dredging project in 1956, and (2) average annual seawater temperature declined 6.4°F between 1953 and 1965.

The dredging operation was improperly executed with respect to the disposition of spoil. The spoil site was located in the open ocean southeasterly of the beach and provided an increased supply of sand for water transport onto the beach.

The decline in mean annual seawater temperature may be indicative of increased storm and ice activity with consequent effect upon major beach features.

Pollution

The 1967 soft shell clams in Maine growing areas permanently closed because of pollution amounted to a survey estimate of 7,726,000 pounds of shucked meats with a landed value of $3,098,126.

Based on the 1969 Maine market, 70% of 5,408,200 pounds would have been shucked at a primary wholesale value of $6,422,350, and 30% or 2,317,800 pounds would have been sold as steamers with a primary wholesale value of $1,545,200 or a total primary wholesale value of $7,967,550.

The retail value of the resource based on FWPCA reported data would be $19,735,063 for shucked clams and $19,518,194 for steamers or a total for the resource of $39,253,257.

Temperature

Recent studies have demonstrated that major fluctuations in abundance among several intensively exploited marine and estuarine species are associated with fluctuations in seawater temperature. Water temperature differences, and possibly other conditions, between adjacent and nearby estuaries, the Sheepscot and Damariscotta (which in places are separated by less than 10 miles), and the Damariscotta and St. George, which are less than 15 miles apart, appear to be major limiting factors in faunal growth rates and distribution.

Some prehistoric kitchen middens with alternating layers of soft (Mya arenaria) and hard (Mercenaria mercenaria) clam shells suggest that fluctuations in seawater temperature may have abruptly altered the abundance of the two species, as occurred between 1949 and 1958 when soft clam populations were replaced by hard clams and between 1959 and the present when hard clams were, in turn, replaced by soft clams. When mean annual temperature continues at 48°F or higher, as measured at Boothbay Harbor by the Bureau of Commercial Fisheries, clam abundance is likely to decline 50 per cent or more. Associated with these high temperature levels is a marked increase in predator populations, especially that of the green crab (Carcinus maenas), and in the length of time during the year when predation activity is intensive. Survival of soft clam populations during their first year is directly related to post-setting predation.

In the decade 1939-1948, annual average production of hard clams was 100,000 pounds. During the next decade, 1949-1958, annual average production was 385,000 pounds; since 1958 annual yield has averaged less than

20,000 pounds. Production fluctuations appear to be directly the result of changes in seawater temperature. The mean temperature for the 1939-1948 period was 46.2°F; for the 1949-1958 decade it was 49.8°F, and for the years since, 46.8°F; as measured at Boothbay Harbor.

An isolated population of hard clams (Mercenaria mercenaria) in the Union River estuary during the early years of this period increased in magnitude, but in 1950 and thereafter declined rapidly because of much greater predation by green crabs.

Favorable sea temperature ranges for those species of greatest value cover nearly the entire spread of temperature associated with climatic trends occurring since 1935 (Table 2). Apparent optimum temperature of these same species span a range of only 4.5°F, suggesting that modification of growing area temperatures by species for maximum yield would not require drastic manipulation. At the extremes of the temperature column peripheral species have undergone major population fluctuations; Northern shrimp in the order of 20,000 to 1, hard clams 18,000 to 1, and Eastern oyster approximately 15,000 to 1. These data suggest that the greatest total abundance for all species would occur at about 48.0°F.

Studies of seawater temperature, precipitation, surface water runoff, and other environmental factors have indicated that total landed value for the more important commercial species has remained fairly stable. Only at the extremes of the historic temperature range have there been significant declines in value.

Wide fluctuations in the abundance of individual species have occurred, but generally when one species has declined in abundance because of unfavorable environmental conditions, some other species is increasing in population and tends to equalize the total value of all landings.

Table 1

Approximate Favorable and Optimum Sea Surface Temperatures by Species as Measured at Boothbay Harbor

Species	Optimum Temperature °F	Favorable Temperature Range °F
Oyster (Crassostrea virginica)	50.4	48.6 - 52.0
Hard Clam (M. mercenaria)	50.2	48.2 - 51.4
Lobster (H. americanus)	48.8	47.9 - 50.0
Sandworm (Neanthes virens)	47.9	45.8 - 48.8
Bloodworm (Glycera dibranchiata)	47.1	46.6 - 48.8
Sea Scallop (Placopecten magellanicus)	46.6	45.3 - 47.1
Soft Clam (Mya arenaria)	46.1	45.3 - 46.6
Northern Shrimp (Pandalus borealis)	45.8	44.6 - 46.9

Table 2

Mean Annual Sea Surface Temperature at Boothbay Harbor and Corresponding Production of Marine Species

Year	Sea Surface Temperature °F	Lobster Catch Metric Tons Same Year	Scallop Catch Metric Tons 6 Years Later	Soft Clam Catch Metric Tons 5 Years Later	Sandworm Catch Metric Tons 3 Years Later	Hard Clam Catch Metric Tons Same Year	Oyster Catch Metric Tons 3 Years Later	Shrimp Catch Log of Metric Tons 4 Years Later
1935	46.7			2,707				
1936	45.5			3,103				
1937	48.2			2,737		5		
1938	45.2			2,145		25		
1939	43.5	3,005	48	1,528		0		2.12
1940	44.6	3,467	62	2,641		2		2.25
1941	46.1	4,054	230	4,450		54		2.40
1942	46.6	3,812	206	3,583		56		1.86
1943	45.3	5,202	231	4,068		36		1.95
1944	46.4	6,376	232	3,911		14		1.08
1945	47.1	8,677	171	3,119		137		.70
1946	47.3	8,517	142	2,323		76		.48
1947	48.6	8,290	110	2,505		44		1.30
1948	46.7	7,223	65	1,881		131		1.67
1949	50.1	8,742	99	1,688	71	268		1.23
1950	49.3	8,324	148	1,189	111	228		--
1951	51.4	9,415	111	1,141	129	258		--
1952	50.2	9,087	49	891	81	192	1.4	--
1953	52.0	10,112	49	741	128	152	2.0	--
1954	50.3	9,818	33	658	132	132	2.6	.30
1955	50.0	10,302	63	941	122	113	1.5	.70
1956	48.6	9,316	70	837	244	131	1.6	1.61
1957	48.8	11,068	79	899	278	164	1.2	1.46
1958	47.4	9,665	106	831	292	115	1.3	2.19
1959	47.0	10,126	135	816	307	73	.4	2.38
1960	47.9	10,889	123	891	369	29	.8	2.61
1961	47.3	9,485	92	1,365	350	6	.7	2.97
1962	46.6	10,013	273	1,441	325	1	.4	3.22
1963	47.9	10,344	164	1,528	361	1	1.9	3.48
1964	46.9	9,713		1,577	320	1	1.8	3.75
1965	45.8	8,556			316	1	.2	4.05
1966	45.7	9,034			298	0	0	--
1967	45.1	7,479				0		
1968	46.6	9,300				0		
1969	48.0	8,800				4		

POTENTIAL FOR AQUACULTURE

Uniqueness of Maine's Coast

The Maine coast has several physical features, that do not occur elsewhere, which appear to be essential to a sound aquacultural program. Intertidal and subtidal rock contains a wide range of minerals and of durability. The rocks themselves are sedimentary, igneous and metamorphic. Over many of them lie glacial sand, gravel and till, boulders, clays and silts. Even the rock under estuaries has similar overburden.

Bedrock and overburden, together with geographically variable tidal conditions (height, stratification, flushing rates, laminar flow, mixing, and the like) serve to provide circulation systems, both vertical and horizontal, ranging from nearly open to virtually closed, and in terms of physical structure from fjord-type to bar built tributary estuaries. Water depth, temperature, circulation and possibly other factors contribute to a range from boreal to virginian ecological conditions.

One of the most important features of the Maine coast is the fact that it is oriented east and west, and most of the important coves, bays, and harbors open to the south. Since we are in northern latitudes, this is significant in terms of solar radiation and its effect upon the generation of food bases as well as renewable marine resources utilized by man. Geographical location, configuration of the shoreline, conformation of the bottom, tidal range and the general circulation system of the Gulf of Maine combine to make this one of the outstanding places in the world for the development of aquaculture.

During the period of high sea surface temperatures of the late 1940's and early 1950's there were several significant quahog sets in the Casco Bay area. Nearly all of these occurred in those coves and bays which opened to the south. A few which opened to the west or to the east did not have important quahog populations.

"Best" Uses For Maine Coast

To arrive at an intelligent and reasonable evaluation of marine aquaculture in Maine, we must consider it in proper relation to other actual or potential economic activities along the coast. What, ultimately, are the "best" uses for the Maine coast -- tourism, deep water ports for supertankers or for heavy industry, outdoor recreation, mining, or as has been frequently suggested, aquaculture? Several of these uses are not compatible with aquaculture. In cases of incompatibility, what economic justification can be made for aquaculture? Are economic justifications for aquaculture mutually compatible with other renewable resource uses, as sound and as defensible as non-compatible uses?

High yields naturally occurring in some Maine growing areas suggest the bloodworm, the Eastern oyster, the European oyster introduced to Maine waters in 1949 by the Department and the U.S. Fish and Wildlife Service, the quahog, and the blue mussel should comprise the first group of marine species used in Maine for controlled environment production. The second group includes the lobster, the soft clam, the sandworm, Irish moss, the winter flounder, the smelt, Atlantic eel and the alewife.

Species	Area	Size of Area in Acres	Annual Yield in Pounds per Acre	Number of Years
Bloodworm	Cod Cove	20	3,800	21
Hard Clam	Brighams Cove	3	6,600	10
Soft Clam	Scarboro River	670	2,100	6
Irish Moss (wet)	Casco Bay	1	58,080	3

The value of these crops, based on current prices paid fishermen, suggests what can be accomplished when technological competence becomes adequate to expand geographically yield rates of the size of natural crops throughout the estimated 4 million acres of Maine's territorial waters.

Species	Landed Value per Pound - 1968 Rate [12]	Annual Landed Value per Acre	Projected Annual Total Landed Value Billions of Dollars for Entire Maine Coast
Bloodworm	$ 1.26	$ 4,788	$ 19.1
Hard Clam	.85	5,610	22.4
Soft Clam	.42	882	3.5
Irish Moss (wet)	.03	1,742	7.0

12. Bloodworms sell for approximately 3 1/2 cents apiece. This figure is based on approximately 40 bloodworms per pound. At the time the pound/number radio was established by the Bureau of Commercial Fisheries for statistical reporting, harvested worms were generally larger. The pound/number equation still persists despite the fact that an actual pound usually numbers 120 worms, making a per pound value of $5.00. See p. 733.

It is highly improbable that the entire four million acres can be used continuously to produce one or more of these species at the population density which has at times occurred naturally in small areas. It is quite probable, however, that a considerable portion of the total area, ten per cent or more, can be used for intensive aquaculture at levels equal to or even greater than natural yields; as little as ten per cent of the projected potential value of either bloodworms or hard clams would be virtually identical to the total manufactured product value of all Maine industry in 1968, $2.3 billion.

It is also very probable that several additional species: European and American oysters, mussels, sea scallops, herring, anadromous species, lobsters, and possibly others can be raised in the same area (as occurs in nature) with each species occupying a different level of the water column and of the substrata to increase total area yield and value well above the amounts observed and inferred.

Aquaculture may range from complete control of the environment for the animal from egg to consumer; or it may include only a fragment of that period, for example, by holding legal minimum-size lobsters in a holding pound through a subsequent moult and the entry of the animals into a higher per pound value category. This has been done on occasion accidentally by pound operators and by intent as well. Results have been highly variable. Depending upon naturally occurring environmental conditions, the only control exercised over this type of experiment was the reduction in predation by other species.

Lobsters

The Department of Sea and Shore Fisheries commenced rearing lobster larvae after construction of a building at Boothbay Harbor in 1939. Complementary hatching operations were conducted by the U.S. Fish and Wildlife Service Station adjacent to the State facility. It was learned early in the operations that survival could be improved seasonally by heating seawater up to 10°F above ambient. In fact, lobster larvae which hatched prior to about mid-June did not survive to the fourth stage at all unless rearing water was heated. Optimum temperature appeared to be 68-70°F for survival to fourth stage in about two weeks. Without a heat exchanger or baffles, super-saturation of seawater with nitrogen and oxygen resulted in virtually 100 per cent larval mortality.

Obvious deficiencies in the rearing procedure led to a controlled evaluation of the operation in 1947 and 1948. In this two-year period it cost $33,636.45 to carry on the rearing operation alone, without consideration to the U.S. Fish and Wildlife hatchery operation which supplied first stage larvae to the State for rearing to fourth stage (post-metamorphic). During the two years, 114,101 (by actual count) lobster larvae were reared to fourth stage, representing 4.4 per cent survival. The average rearing cost was 29 1/2 cents each. Since experimental laboratory survival was considerably higher both in Maine and elsewhere, it was estimated that 30 per cent survival could be expected with trained personnel and under improved sanitary and management conditions. Four and one-quarter cents each for fourth stage larvae on the basis of 1947-48 values does not seem to be an unreasonable cost estimate.

Survival of fourth stage larvae to the following year, under the semi-natural conditions of an abandoned lobster pound, was estimated by Taylor and Baird to be about 10 per cent. With protection from predators survival can be improved. At the survival rate observed, from egg to approximately 15 months of age, .44 per cent, the cost (1947-48 values) would be about $2.95 each. On the basis of experimental results, the cost could be lowered to about 42.5 cents each.

Under the conditions of the year-round trap fishery, natural mortality from the largest sublegal group to the first legal size class appears to range from approximately 25 per cent to about 35 per cent, although it is likely that much of the loss to this size group is related to the return of sublegal lobsters to the ocean bottom by the fishermen.

The lobster is relatively slow growing, about five years to minimum commercial size (as compared with four years for Northern shrimp and six years for sea scallops) and requires adequate cover for protection against predation. It is assumed that the growth rate of the lobster can be considerably increased by providing a longer period of the year in which the lobster will feed. Declines in feeding activity associated with lower seawater temperatures have been dramatically indicated by recent trends in moulting behavior, the index of growth, and in recruitment, relative abundance and catch, representing more than 99.5 per cent of the North America lobster supply.

To compensate for the decline in natural abundance and the increase in the market for lobsters, methods will have to be developed to produce lobsters under modified or controlled environmental conditions. Based

on temperature records and corresponding lobster landings for the past 60 years or more, it is likely that natural landings in which 90 per cent of the available supply is used will range from about 15 to 25 million pounds in Maine annually, and actual abundance from 17 to 28 million pounds annually. In view of the market for lobster, this is a relatively modest contribution. Prices paid suggest that the supply could be economically increased several-fold. Data on seawater temperature and lobster abundance indicate that this is the principal area of environmental modification in order to increase the supply. As we are now in a period of relatively low seawater temperature which it has been predicted will continue until the next century, there is obviously need for some means of heating seawater to a more favorable level.

It is likely that a modest annual increase in temperature, perhaps no more than 2 to 3°F above the all-time Boothbay Harbor average would be adequate to provide optimum growth and yield conditions. It is also likely that seasonal application of this increment (for example, spring or fall) would be more effective than even distribution throughout the year.

Since knowledge essential to the accurate prediction of future lobster abundance does not solve the problem of supply, some other type of solution must be developed. The most promising long-range solution appears to be that of establishing a growing area in which critical environmental factors can be controlled within those limits which would permit the economically feasible production of lobsters on a commercial scale. Yield of the better growing areas in Maine did not exceed 90 pounds per acre per year during the more optimum temperature years, and the average

for Penobscot Bay and adjacent areas was only about 15 pounds per acre per year for a twenty-year average. In order to raise lobsters commercially, populations will have to be concentrated.

Parallel increases and declines in species abundance and seawater temperature indicate (1) the influence of optimum environmental conditions on supply, and (2) the limited natural supply of lobster and other commercially important marine species. It is equally obvious that the development of cultural techniques to increase species abundance will require methods of controlling seawater temperature at or near optimum levels.

The high cost of heating seawater, experienced by the Department of Sea and Shore Fisheries during the 1939-1948 decade when lobster rearing experiments were conducted in an onshore facility, demonstrated the economic impracticability of such a venture.

Utilization of Thermal Discharge

Thermal water discharge from electrical generation and other industrial plants offers a supply of heated water to use in modifying discrete marine environments, even within a single general area, in order to provide optimum temperature conditions for a variety of species requiring, collectively a relatively wide range of optima.

The principal objection at the present time to the use of thermal water discharge is twofold: (1) engineering problems of managing the heated water and using it efficiently in relation to the supply of receiving water, and (2) the poor quality of the heated water at times. The additives toxic to marine life are chlorine, hydrochloric acid,

sulphuric acid, sodium hydroxide, and detergents. Condenser tubes and other inplant equipment can also be highly toxic to aquatic life because of the materials used in such equipment. The most lethal is copper, but zinc, aluminum, lead, and stainless steel are also toxic. The discharge of fly ash from fossil fuel plants is highly deleterious to the marine environment.

Mixing of water stratified by temperature and salinity has been consistently accomplished elsewhere by departmental research personnel using an air compressor and plastic hose in which small holes had been drilled. The purpose of this procedure initially had been to provide better water circulation in lobster holding pounds. Later it was used to eliminate ice cover and to mix oxygen saturated surface water with oxygen depleted bottom water. Temperature differentials between surface and bottom have usually been limited to less than $5^{o}F$.

This experience suggests the possibility that compressed air might provide a comparatively inexpensive means, where supplies of thermal water are available, of regulating seawater temperatures for cultural purposes in coastal embayments and other nearly closed, semi-closed, and nearly open circulation systems.

At the present stage of knowledge, the principal problems appear to be those of engineering: how to mix waters of widely differing temperatures and transport them to selected sites within the cove, and how to reduce to tolerable levels for lobster the wide diurnal variations in temperature associated with tidal changes and power demand in the amount of dilution water available.

Oysters, Mussels, Quahogs

Another method of raising seawater temperature is that employed in Norway for the cultivation of European oysters. Natural semi-enclosed basins comparable to some Maine coves and estuaries are used. Solar radiation is absorbed by and heats underlying saline waters after passing through a lens of less saline overlying water. Examples reported for Norway are:

Depth in Feet	Salinity o/oo	Temperature °F
3	22.2	61.7
6	30.0	71.6
9	30.8	67.1

The use of inflatable dams and available supplies of surface runoff waters would permit duplicating these conditions in many areas of the Maine coast. The introduced European oysters as well as the native Eastern oysters and hard clams undoubtedly would benefit from this type of controlled growing area.

Shipments of European oysters have been planted in Maine waters in 1949, 1954, and 1955. Plantings were made in Boothbay Harbor, Harpswell, and Franklin.

Among the three areas, Franklin appears to have been a failure, some setting and survival has been observed in Harpswell, and somewhat greater setting and survival have been documented in Boothbay Harbor.

Ostrea edulis appears to survive better in cold, high saline waters than does Crassostrea virginica. This probably reflects a greater tolerance to cold and resistance to predators, because the American oyster

does occupy high saline waters further south.

Although the north European coastal climate is much milder than that of Maine, there is a seawater temperature range more characteristic of the Gulf of Maine and Bay of Fundy than of that seaward and southerly of the Georges-Brown Bank shoals.

Naturally occurring population densities of O. edulis appear modest in their native waters, but intensive cultural practices provide a high yield from limited areas. The product is a highly valued luxury item throughout Europe.

The blue mussel (Mytilus edulis) is considered one of the most desirable shellfish in Europe. It has been cultured there for many years. Although this fishery produces in excess of 60 thousand metric tons per year, it does not satisfy the European market.

Maine waters provide the combination of factors ideal for mussel growth -- fast moving water, relatively low temperature, high salinity, and rich nutrients.

Two methods of culture are commonly practiced, both of which have been tried successfully in Maine, and require relatively little capital investment. One is the pole method. Poles of 6" to 8" in diameter x 8' are set in the mud flats. Seed mussels are attached spirally to the poles. The other is the raft method in which seed mussels are attached to 1/2" x 30' ropes suspended from a raft anchored in deep water. With both methods, mussels must be thinned periodically and will produce a marketable crop in 12 to 18 months.

Our experience at Spinney Creek, a grossly polluted tributary of the Piscataqua River, indicates the value of crops produced under a program of partially controlled environment. In these experiments, using the raft culture method, seed oysters with an average diameter of 1.3" were produced at the rate of 4.3 million per acre in an experimental area. Extrapolating this population on a conservative estimate basis of ten per cent annual mortality, three years to market size, and an assumed size range which would yield a maximum of 400 oysters per bushel to a minimum of 250 oysters per bushel, the total yield per acre for the crop would range from 30 to 48 tons of meats. At the current landed price of $10 per bushel, the income would range from $30,000 to nearly $50,000 per acre per year.

If we project the Spinney Creek yield per acre per year to the 10 per cent of Maine's territorial waters, which amounts to 400,000 acres, then aquacultural yield at the rate of Spinney Creek ranges from $12 billion to $20 billion per year.

Spinney Creek also points up the need for managing fecal pollution. The excellent growth of oyster larvae can be, in major part, attributed to the grossly polluted condition of the area. These nutrients, if sterilized and properly managed, could contribute to the natural productivity of the estuary and assure a continuing high yield of luxury seafoods. Comparable use of nutrients should be made elsewhere in the Gulf of Maine since natural productivity needs to be enhanced to insure maximum yield of renewable resources.

Sets of quahogs of commercial importance have occurred in Casco Bay in 1937, 1947, and 1952. Small scattered sets also occurred in other years but were of limited commercial importance.

The initial increase in the quahog population of commercial size in the late 1940's appears to have been the direct result of more favorable sea temperature, but the continued high temperatures through the middle and late 1950's which resulted in token survival of year-class populations also provided optimum conditions for two major predators, the green crab (Carcinus maenas) and the rock crab (Cancer irroratus). Both species multiplied rapidly and preyed extensively on the available supply of quahogs. Survival of the 1952 year-class to commercial size was proportionally much less than that of the two previous major spawning years for reasons of crab predation and winter mortalities.

Laboratory hatching of quahogs was conducted by Departmental biologists in 1950 and 1951 but was not continued because of lack of funding. This technology has been developed to a reasonably reliable routine and would serve to support an aquacultural economy based on this species. Artificially reared juveniles have been planted in growing areas during the past year. Intertidal sets have been protected by fences against predation. Holding of juveniles in subtidal waters to provide protection from freezing appears to be a necessary procedure.

There are excellent prospects for using a growing area for the culture of several species; for example, blue mussels by rope culture, Eastern oysters in trays suspended from rafts, and hard or soft clams in the substrate.

Outlook for Maine

Aquacultural practices have been applied successfully for many years in other countries using European and Portuguese oysters, edible mussels, shrimp, and several species of clams. With the broad and extensive experience of the Department of Sea and Shore Fisheries in the culture of several species over many years and with supporting background and related research, there appear to be no untoward reasons for not undertaking some commercial pilot scale operations.

Species recommended for aquaculture include some that have not been utilized elsewhere; but, in general, efforts in Maine will simply be carrying out cultural programs which have been developed and established elsewhere -- in France, Spain, Portugal, The Netherlands, Norway, Japan, and other advanced nations where such practices have been in effect for many years.

The development of an aquacultural industry, even at a level which would produce raw materials valued at $20 billion a year, would not be incompatible with many other coastal activities, nor would it interfere with the continued use of the wild resource for recreational and subsistence fishing, nor even for limited commercial fishing as, for example, the resource is used at the present time. An aquacultural industry in effect simply develops a viable food, pharmaceutical, and light industrial complex based on the use of naturally occurring resources which are then increased in yield through such means as selective breeding and modified or controlled environment. It is in effect divorcing the coastal food industry from the concept of welfarism, the public domain, and primitive hunting practices.

The fact that renewable marine resources were essential to colonists prior to the time that they were able to develop a reliable agricultural economy and later an industry engaged in the manufacture of other commodities, does not make it necessary to place these renewable marine resources in a sort of welfare sanctuary.

APPENDIX 1.

VISITING LECTURER PROGRAM AT S.M.V.T.I.

THEORY AND PRACTICE OF MARINE SCIENCE

1. INTRODUCTORY UNIT

Wed. Jan. 10 — A. Importance of the sea, temperature, productivity, natural control of numbers and relationship to research. - (Sindermann (BCF)

Wed. Jan. 10 — B. Major ocean currents of the world. (Theory and cause of currents, major patterns). - Perkins (BCF)

Fri. Jan. 12 — C. Circulation patterns in the Western North Atlantic and the Gulf of Maine

1. Effect of circulation on spawn and other biological factors. - Colton (BCF)

Mon. Jan. 15 — 2. OCEANIC ECOLOGY (the offshore fishing banks) - Edwards (BCF)

3. LITTORAL

Wed. Jan. 17 — *A. Coastal waters and estuarine circulation. - Stickney (BCF)

Fri. Jan. 19 — *B. Ecology. - Hanks (BCF)

Mon. Jan. 22 — C. Bottom sediments. - Dow (SSF)

D. Predation and competition.

Wed. Jan. 24 — 1. Introduction. (The food chain concept) - Harriman (SSF)

Fri. Jan. 26 — *2. Marine invertebrates. (Sampling) - Hanks (BCF)

Mon. Jan. 29 — *3. Identification of plankton. - Hóney (BCF)

Wed. Jan. 31 — *4. Physiological adaptation. - Ropes (BCF)

*5. Plants in the sea. - Rosenfield (BCF)

E. Man's effect on ecology.

Mon. Feb. 5 — 1. Pollution. (Including laboratory time) - Goggins and Hurst (SSF)

Wed. Feb. 7 — 2. Physical changes by man. - Baird (SSF)

Thurs. Feb. 9 — 3. Marine farming and public policy. - Welch (BCF) and Wallace (SSF)

4. MARINE POPULATIONS

A. Definition of population.

1. Fish

Mon. Feb. 12 — *a. Artificial tagging. - Watson (BCF)

Wed. Feb. 14 — *b. Natural tagging. - Sindermann (BCF)

Fri. Feb. 16 — *c. Swimming speed. - Boyer (BCF)

Mon. Feb. 19 — 2. Shellfish. - Richards (SSF)

B. Characteristics

1. Growth and movement.

Mon. Feb. 26 — *a. Fish - Watson (BCF)

b. Shellfish - Wallace (SSF)

C. Influencing factors.

1. Natural mortalities.

Fri. Mar. 2 — a. Disease, predation, pollution, temperature, salinity, food, etc. - Goggins (SSF)

2. Fishing mortalities.

Mon. Mar. 5 — a. Lobsters, etc. - Harriman (SSF)

Wed. Mar. 7 — b. Finfish - Graham and Hennemuth (BCF)

Fri. Mar. 9 — 3. Predator control. - Hurst (SSF) and Hanks (BCF)

Mon. Mar. 12 — D. Predictions - Dow (SSF)

Footnote: Length of time for each class and date and time is amendable to modification to the convenience of the visiting lecturer. SMVTI will adjust its schedule accordingly if so notified. recommended beginning daily time is 10 a.m.

*Class held at Boothbay Harbor

CHAPTER THIRTEEN THE PRODUCTS OF THE SEA AS FOOD*

As far as it has been possible to ascertain, no provision of Maine law is a significant impediment to the exploitation and marketing of marine products as food. (We are not considering , at this point, impediments which may exist to the gathering or cultivation of marine products destined for use as food.)

Even though State law is apparently neutral in this area, however, it has a potential impact on the development of marine-origin food resources which cannot be ignored.

1. Food Law Structure

Enforcement of Maine's pure food laws is, with few exceptions, entrusted to the Department of Agriculture. Ignoring momentarily the substance and effectiveness of those laws, their structure is illustrative of the difficulty experienced by either the researcher or the industrialist seeking a broad overview of those laws.

Title 7, M.R.S.A., sets out the general organization and areas of responsibility of the Department of Agriculture, but among these introductory sections are provisions authorizing the Commissioner to make rules for carrying out some (but not all) of the laws entrusted to his enforcement,[1] authorizing the Commissioner to prosecute civil and criminal actions for the violation of some (but

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* David J. Halperin, Professor of Law, University of Maine School of Law

1. 7 M.R.S.A. 12.

not all) of those laws[2] and, perhaps most important, setting up a notice and hearing procedure in case of apparent violations of any of several enumerated groups of laws.

Although the balance of Title 7 is concerned almost exclusively with farm products, 7 M.R.S.A. 443[3] authorizes the Commissioner to "determine or design brands, labels or trademarks for identifying farm products and sardines packed in accordance with such official grades and standards...." (emphasis added). Since Section 442 authorizes the setting of grades and standards only for farm products, excepting dairy products, it is unclear to what the "such" in Section 443 refers, as applied to sardines. This problem is more apparent than real, however, as the statutes have a built-in redundancy which, indeed, authorizes the setting of grades and standards for sardines, and for marking, branding or labelling them.[4]

7 M.R.S.A. 482-489, prohibiting the manufacture, distribution, sale, etc. of adulterated and misbranded products, specifically including food, would seem to be completely unnecessary in the light of the comprehensive prohibitions in Title 22.

Although dealt with extensively in other Titles of the Maine Statutes, sardines appear again in Chapter 309 of Title 10;[5] the

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2. 7 M.R.S.A. 13.

3. See also 7 M.R.S.A. 445, 446.

4. 33 M.R.S.A. 4157.

5. 10 M.R.S.A. 1701 et seq.

Sardine Council may develop trademarks, and the Commissioner of Agriculture may delegate to it authority to use the State of Maine trademark.[6] The Council may license such trademarks, and their unlicensed use will be a crime;[7] licensees may have their minimum prices set by the Sardine Council,[8] and are subject to other rules and regulations which may be made by the Council.[9] Although a specific procedure is set for enforcement of these provisions civilly or criminally by the Sardine Council,[10] the Commissioner of Agriculture is also mandated to proceed by notice and hearing in case he learns of a violation.[11]

While each of the food quality-control Chapters of the Maine statutes has its own criminal provisions for cases of violation, a completely different set of criminal provisions appears in the state criminal code. The most extreme of these provisions is one making it a felony[12] to knowingly sell "diseased, corrupted or unwholesome provisions for food or drink," or to "fraudulently adulterate for the purpose of sale any substance intended for food, or any wine, spirits or other liquors intended for drink, so as to

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6. 10 M.R.S.A. 1701.

7. 10 M.R.S.A. 1702.

8. 10 M.R.S.A. 1703.

9. 10 M.R.S.A. 1704.

10. 10 M.R.S.A. 1706

11. 7 M.R.S.A. 14.

12. Fine of $1000 or imprisonment of not more than 5 years.

render them injurious to health."[13] Subsequent criminal code provisions deal with specific products, none of which is applicable to this study, except for 17 M.R.S.A. 3462 which prescribes a fine of $5.00 per gallon for scallops artifically expanded by treatment with baking soda or other agents.

Title 22 M.R.S.A., Sections 2151 et seq. constitutes the Maine Food Law, discussed in detail below. Since its authority over all food products is comprehensive, including express power in the Commissioner of Agriculture to make regulations and set standards of identity, quality and fill, it would seem to be the only statute necessary in the area. In fact, however, the urge to redundancy (or mistrust of the administrative regulatory power) has produced numerous overlapping statutes, many of which contain detailed standards for specific food products.

For purposes of this study, the most significant of these is the Maine Sardine Law, 32 M.R.S.A. Sections 4151 et seq. Perhaps its basic provision is the requirement of a license to engage in the business of sardine packing. The Sardine Law will be treated in greater detail below.

2. Maine Food Law.[14]

Maine has a comprehensive pure food law[15] (administered by the

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13. 17 M R.S.A. 3451.

14. 22 M.R.S.A. 2151 et seq.

15. Id.

Maine Department of Agriculture) which was patterned, in important particulars, on the Federal Food, Drug and Cosmetic Act,[16] and has the same potential for thorough regulation on the intra-state level. Among the key provisions are:

> "Food" is defined as "articles used for food or drink for man or other animals, chewing gum and articles used for components of any such article;"[17]
>
> "Adulterated" food is defined to include, not only food products to which substances have been added or from which natural components have been extracted, but also, inter alia, food which is in any way contaminated or "otherwise unfit for food," and, perhaps of the greatest potential significance, food which has been prepared or stored under conditions so unsanitary that it "may have been rendered... diseased, unwholesome, or injurious to health."[18]
>
> "Misbranded" food is defined to include, inter alia, food for which a standard of quality has been established, unless it conforms to that standard or is clearly labelled as sub-standard, as well as more conventional sorts of misleading labelling.[19]

These definitions interact with sections containing general prohibitions (particularly, of manufacturing, selling, holding, or offering for sale any adulterated or misbranded food);[20] authorizing the Commissioner of Agriculture to enter any premises or vehicle used commercially for food, and inspect it and take samples;[21] and authorizing the Commissioner or

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16. 21 U.S.C.A. 301 et seq.

17. 22 M.R S.A. 2152 (4).

18. 22 M.R S.A. 2156 (emphasis added); compare 21 U.S C A. 342.

19. 22 M.R.S.A. 2157; compare 21 U.S.C.A. 343.

20. 22 M.R.S.A. 2155; compare 21 U.S.C.A. 331.

21. 22 M.R.S.A 2164.

his agents to detain or embargo food believed to be dangerous or fraudulent due to adulteration of misbranding and to secure its judicial condemnation.[22] In addition to this general authority as to all foods, there is a special provision as to perishables, specifically including meat, sea food, poultry, vegetables, and fruit, authorizing the Commissioner or his agents to summarily condemn and destroy them if unsafe.[23]

Despite the clear statutory language which includes all food, as well as a specific reference to sea food in connection with summary proceedings against perishables, there seems to be some general impression that the Commissioner of Agriculture has no power to inspect and regulate the quality of shrimp or of fish generally, as opposed to sardines (covered by specific legislation discussed below). This misapprehension is not shared by the Department of Agriculture; the head of its Consumer Protection Division[24] indicated that sea food was regularly included in the spot checks made by their inspectors in, for example, supermarkets. It did appear, however, that such inspections were significantly limited by a shortage of funds and personnel; the Department has three (3) "general" food inspectors, of whom two (2) work primarily on the sea coast inspecting shell fish, and one (1) works primarily in store inspections.[25] This may be compared to the 18-20 inspectors who work on sardines, and

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22. 22 M.R S.A 2159.

23. Id.

24. Interview with Clayton Osgood, Maine Dept. of Agriculture, July 1969.

25. Although there is technically an overlap of jurisdictions, there is an agreement that the Department of Agriculture will leave restaurant inspections to the Department of Health and Welfare.

the 20 or so working in blueberries during the harvesting and packing season. As discussed below, inspection in each of those areas is funded by a special tax which produces dedicated revenue.

Since both sardines and blueberries are produced primarily for shipment and consumption out-of-state, and are therefore covered by the federal law, it may seem surprising that the overwhelming majority of the State's food inspection resources are devoted to these products, instead of filling the gap by providing consumer-protective service for intrastate food products. It is apparent, however, that the producers of certain foods have themselves sought state inspection, and have themselves consented to the special taxes which fund such inspection.

According to the Consumer Protection Division, Department of Agriculture,[26] there is a high degree of cooperation between federal and state food inspectors; this cooperation has official status: to the extent that he goes beyond the general statute and sets specific standards for food products, the Commissioner of Agriculture is directed to conform his regulations as nearly as possible to those promulgated under the Federal Act;[27] the Federal Act contemplates such cooperation by providing that examinations and investigations for purposes of that Act may be conducted through health, food or drug officers and employees of the states who are commissioned as officers of the federal Department of Health, Education and Welfare. We are advised that the Department of Agriculture's inspectors are not generally so commissioned (although

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26. See n. 24.

27. 22 M.R.S.A. 2153; c.f. §2154.

they are commissioned to enforce the Federal Act in specialized fields such as the inspection of animal feeds, medicated feeds, poultry); specifically, they are not federally commissioned for their inspection of sardine canning. There are informal agreements, however, between state and federal agencies (including an agreement covering sardine canning) by which the federal agency indicates that it will basically rely on the state inspection, and conduct only infrequent confirmatory checks. Since the Maine Department of Agriculture is applying essentially the same standards as those prescribed by federal law, and attempts to interpret those standards in the same way as the federal agency would, the existence of such agreements suggests that in those areas, the responsible federal officials are satisfied with the effectiveness of state inspection.[28]

Although the Commissioner of Agriculture is empowered to issue regulations to implement the state Food Law, including regulations setting standards of identity, quality, and fill,[29] the Maine Department of

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28. Despite general criticisms of "dedicated revenue," particularly as applied to an area such as food inspection, it may be noted that in part, federal law uses the same device. For example, 21 U.S.C.A. §372a authorizes inspection of sea food packers at their request, so that they can then mark their products as federally inspected. But such service "shall be rendered only upon payment by the applicant of fees... in such amounts as may be necessary to provide, equip, and maintain an adequate and efficient inspection service. Receipts from such fees... shall be available for expenditures incurred in carrying out the purposes of this section..." Query whether the voluntary application of such a provision is significantly different from a tax uniformly applicable to all producers of a single product, most of whom apparently sought it in order to secure the inspection service throughout the industry.

29. 22 M.R.S.A. 2153-54.

Agriculture has followed a deliberate policy of not generally issuing such regulations, on the theory that the general definitions of adulterated and misbranded food are so broad that any undesirable situation can be proceeded against on those bases, rather than on the basis of violation of specific regulations. The Department also believes that this facilitates enforcement since their inspectors can explain to food processors and dealers the danger to consumers of specific situations, and secure compliance by relying on "common sense," rather than on the details of regulations whose purpose may not be understood. The Department does, however, promulgate "GMP's"--"Good Management Practices"--which are apparently designed as informal[30] guidelines for food processors. The Department is working on developing GMP's for the shrimp industry.

In addition to its extremely broad authority over all food products, the Maine Food Law deals specifically with frozen foods, requiring suitable refrigeration throughout their transportation and storage in the state. The Commissioner of Agriculture is authorized to set standards on such matters as temperature control.[31]

Following the pattern previously noted, the Food Law contains a provision whereby any food packer or processor may apply for continuous inspection of his plant, upon payment of a fee approximately equal to the cost of providing such inspection.[32] Such a packer may mark the products

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30. I.e., informal in the sense that violation of them would not per se be a violation of law, as would be the case for a violation of a regulation.

31. 22 M.R.S.A. 2161.

32. 22 M.R.S.A. 2162.

of the plant as having been inspected and passed under the Maine Food Law. The ability to so label products may yield some sales advantage, and the inspection service would seem a good protection against a surprise claim that the product does not conform to law. Being optional, it is clearly no impediment to processors who do not elect to utilize this service.

The Food Law is enforceable by the broadest possible range of legal sanctions. In addition to the authority mentioned above to detain and embargo offending food products, and secure their judicial condemnation (or, in the case of perishables, to summarily seize and destroy them), the general prohibitions of the law[33] are enforceable by civil injunctions[34] and criminally.[35] This legal arsenal is, however, rarely brought into play. The Department has, probably wisely, concluded that the threat of legal action is more effective in securing compliance than the actuality. As a result, the most recent enforcement action was some four (4) years ago. There has probably never been an injunction action to secure enforcement.[36] Where threat is ineffective, or in case the product is actually dangerous to health, the Agriculture Department uses the provisions for detaining and embargoing the goods to get them off the market; this procedure is followed fairly frequently, and it is apparently seldom necessary to proceed with the final step of filing a libel for condemnation

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33. Contained in 22 M.R.S.A. 2155.

34. 22 M.R.S.A. 2165.

35. 22 M.R.S.A. 2166 providing for fines; see also 22 M.R.S.A 2161 prescribing slightly different fines for violation of the frozen foods section.

36. Interview with Clayton Osgood, July 1969.

of the goods (perhaps because the processors do not want the unfavorable publicity). The manufacturers are said to submit to the "red tag" (marking as detained) pretty well.[37]

It seems probable that even the "red tag" procedure for detaining goods is secondary, as a device for enforcing the general Food Law, to enforced education of processors. If less formal methods are ineffective, the Commissioner can give the food processor or handler notice of a violation and set the matter for hearing, pursuant to 7 M.R.S.A. 14. In the experience of the Department, those receiving such notices almost invariably appear for the hearing. What follows is apparently more of an informal discussion of the problem than a formal hearing. This procedure again reflects the point of view that once the food industry understands the consumer-protection reasons for certain standards, it will voluntarily comply.

3. Labor Relations

Title 26 of Maine Revised Statutes Annotated is entitled "Labor and Industry," and is generally devoted to labor relations, and more particularly, labor, health, and safety matters.

Sections 491 through 555 of Title 26 had established a wage board and related procedures for the employment of women and minors in "the industry or business of packing fish and fish products in oil or mustard or

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37. It is the availability and use of this procedure which distinguishes the general "no prosecution" policy under the Food Law from a similar policy of the Attorney General's office under the water quality laws. The Department of Agriculture is able to abate--immediately--an unsatisfactory food situation which comes to its attention, and embargoed food hurts the processor financially. "Working things out" with the pollutor neither corrects the pollution nor imposes a financial burden on he who "gets caught."

tomato sauce"--i.e. sardine packing. The statutory rationale was that employment in this business is special because of the seasonal and unpredictable nature of the run of the fish, and thus required special regulation for the protection of the employers and employees. This provision was repealed in 1965.[38]

This would seem to leave workers in sardine canning plants subject to the general State provisions concerning the payment of minimum wages,[39] and employment of women and children.[40] The State minimum wage as of October 15, 1969 has been $1.60 per hour.[41] It is doubtful whether this wage requirement is a significant problem in fish canning. The same section of the Maine statutes imposes a 48 hour work week, with time-and-a-half for overtime, but:

> The overtime provision of this section shall not apply to the canning, processing, preserving, freezing, drying, marketing, storing, packing for shipment or distribution of herring as sardines, of perishable foods, of agricultural produce, and meat and fish products, nor to the canning of perishable goods....[42]

Making the fish canning industry subject to the general minimum wage law, seems a reasonable simplification of the law, while exemption

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38. P.L., 1965, c. 176

39. 26 M.R.S.A. 661 et seq.

40. 26 M.R.S.A. 701 et seq. Note that sardine cannery employees were and are, in any event, covered by the federal minimum wage law, 29 U.S.C.A. 206 (1970 Supp.); under 29 U.S.C.A. 213 (b) (4), employees "employed in the canning, processing, marketing, freezing, curing, storing, packing for shipment, or distributing" of fish and shellfish are exempt from the maximum hours provisions of 29 U.S.C.A. 207 (but this exemption does not include off-season maintenance workers, Durkin v. Stinson 119 F. Supp. 268 (D. Me. 1954), vacated on other grounds, 217 F 2d 210). The latter exemption is apparently in recognition of the need to get a perishable product into nonperishable condition quickly.

41. 26 M.R.S.A. 664 (1970 Supp.).

42. Id.

from the overtime provision is a correspondingly reasonable accommodation to the exigencies of a large run of fish; and as pointed out in n. 40, brings Maine into conformity with federal law.

As opposed to on-shore canning, most of the fishing industry is free from State minimum wage or hour requirements. The definition of employee[43] excludes:

> G. Any individual employed in the catching, taking, propagating, harvesting, cultivating or farming of any kind of fish, shellfish, crustacea, sponges, seaweeds or other aquatic forms of animal and vegetable life, or in the first processing, canning or packing such marine products at sea as incident to, or in conjunction with, such fishing operations, including the going to and returning from work and including employment in the loading and unloading when performed by any such employee. (Emphasis added.)[44]

Maine Revised Statutes, Title 26, Section 701 et seq., contain typical provisions concerning the employment of women and children. Section 703 contains a general exemption from most of the record keeping provisions, and most of the maximum hour limitations applicable to women, in the case of:

> ... any manufacturing establishment or business, the materials and products which are perishable and require immediate labor thereon to prevent decay thereof or damage thereto.[45]

There is, therefore, no maximum hour limitation for female employees in the fish processing industry. It would seem that the limitation on hours

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43. 26 M.R.S.A. 663 (3) G, (1970 Supp.).

44. 2d. The same exemption, in haec verbae, appears in the federal Wage and Hour Law, 29 U.S.C.A. 213 (a) (5).

45. 26 M.R.S.A. 703.

of employment of minors would be applicable, as would the requirement of work permits, if the fish packing industry is deemed to be one which offers "continuous, year-round employment."[46]

State labor law thus imposes no cost impositions whatsoever upon the taking of marine products usable as foods. The potential cost imposition on on-shore processors is minimal; and in view of federal law, even the potential impact of State law is vitiated.

4. Maine Sardine Law, 32 M.R.S.A. 4151 et seq.

The business of packing sardines is regulated and licensed in the State of Maine.[47] "Sardine" is defined to include "any canned, clupeoid fish, being the fish commonly called herring, particularly the clupea harengus."[48]

Licensing, and the entire regulatory scheme, are committed to the Commissioner of Agriculture. He is to be assisted in general by an unpaid Sardine Industry Advisory Board.[49] The Commissioner is given general quality control authority, including the authority to be sure that Maine sardines comply with the Federal Food and Drug Act, and is given broad rule-making authority.[50]

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46. 26 M.R.S.A. 774 and 775.

47. 32 M.R.S.A. 4153 (1970 Supp.) for licensing; §4151 et seq. generally, for regulation.

48. 32 M.R.S.A. 4151 (3).

49. 32 M.R.S.A. 4152. See Vol. I, p. 124.

50. 32 M.R.S.A. 4155, first paragraph.

The statute requires that the Commissioner have an "Assistant Chief of the Division of Inspection for Sardines." As has been noted previously in this chapter, during the sardine season numerous inspectors are employed: sardines are inspected by production lot, and there are statutory requirements for records of lot number codes, presumably so that defective sardines discovered at a subsequent time can be traced back to a particular inspection lot. In case of sardines being packed under conditions which violate the law, or in case the finished sardines do not meet standards, there are provisions for detaining or embargoing the sardines and, subsequently, for bringing a court action for their condemnation.[51] There is a statutory inspection fee of 3 cents to 8 cents per case.[52]

The statute prescribes in tedious detail the objective standards which sardines are required to meet: e.g., the number of fish in each size of can commonly used, the characteristics of the vegetable salad oil used in oil-packed sardines, and so forth. "Broken fish"[53] may not be used, and all fish are required to be free from defects.

These detailed specifications of quality, all of which are contained in 32 M.R.S.A. §4157 (1970 Supp.) are ambiguous, in the sense that the primary statutory purpose seems to be to protect the reputation of "Maine sardines", rather than to protect the consumer, although the latter purpose is partially accomplished, whether or not intentionally. For example, fish which do not comply with the packing requirements of Section 4157 or with the standards of the Commissioner of Agriculture may not be

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51. 32 M.R.S.A. 4155.

52. 32 M.R.S.A. 4156; now at 8 cents.

53. 32 M.R.S.A. 4151 (1).

sold in the United States unless the word "sardine" is deleted from all labeling, and the word "herring" appears on all labeling; substandard grade sardines may be sold in the United States if they are clearly labeled as such; and sardines are exempt from all quality and grading standards (except the bare minimum standards of the Food Law) if they are expressly designated and labeled "for export only."[54]

The Commissioner of Agriculture is authorized, upon notice and hearing, to set higher grades and standards than those set out in the statute.[55]

An unusually interesting section[56] of the Sardine Law seeks to protect herring for the sardine industry: it makes it unlawful to sell, offer for sale or transfer herring taken in the coastal waters of Maine for any purpose other than human consumption or bait, unless the herring are not desirable for processing for human consumption, or unless there is no market for them at the time; specifically, herring may not be canned or packed except for human consumption. A criminal penalty is provided for violation of the Sardine Law.[57]

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54. 32 M.R.S.A. 4157 (A) (1970 Supp.), which also requires bonding or other procedures to make sure that sardines "for export only" are in fact exported and will not be reimported.

    The same sort of provision appears in 32 M.R.S.A. 4155, which authorizes the release, for export only, of sardines which are subject to judicial condemnation proceedings. Interestingly, the previous law specifically permitting exemption of "for export" sardines from the grading and quality requirements of Section 4157 had required that the sardines intended for export be in accord with the specifications of the foreign country to which it was intended they be exported. (Former §4157, last paragraph.) Those requirements were deleted in a 1965 amendment of Section 4157, at which time §4157 (A) was enacted, also omitting any such requirements.

55. 32 M.R.S.A. 4157, last two paragraphs.

56. 32 M.R.S.A. 4159.

57. 32 M.R.S.A. 4160.

The Sardine Law is clearly an example of statutory regulation sought by the industry, and for purposes of assisting the industry. As already mentioned, the primary purpose of the Act is to preserve the reputation of Maine sardines; going a step further, its purpose is to protect that reputation in the United States domestic market. The industry is willingly paying a rather small additional cost to make sure that all producers conform to a standard which has, again fairly obviously, been set by the industry itself.

The actual procedure followed by the Department of Agriculture conforms closely to the statutory image. There is a plant inspection at the time of licensing and renewal of licenses; during the sardine season, there is a resident inspector at each plant, who inspects the fish on board ship before they are off-loaded, and then follows through with the same fish through the entire canning process. He then takes samples from each coded lot of fish. These sample cans are sent to a laboratory in Brewer, Maine for grading. If the fish are graded as substandard, the packer can ask for a reinspection, and if they are still not passable, they are marked for export or as substandard. In practice, every single lot is graded, whether or not a specific request for such complete grading has been made pursuant to the apparently optional provision of 32 M.R.S.A. 4155, 3rd paragraph.[58] The inspection fee has been raised to the statutory maximum, 8 cents per case, and is deemed adequate to cover the cost of the inspection.

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58. That paragraph says that a grading certificate shall be issued only to those packers who specifically request certificates for the entire seasonal output of the packer.

The Department of Agriculture has a score sheet for grading each standard type of pack for sardines, which takes into account a variety of objective factors, such subjective characteristics as odor, taste and flavor, and texture. The Commissioner of Agriculture has apparently never exercised his statutory authority to modify upward (or clarify) the statutory standards of sardines; the score sheet for grading assigns various point values for the criteria used in grading, so that the final "score" is a weighted average of the scores received on each of the criteria; in the absence of specific regulations, it is not clear to the writer where the authority to call a particular point-score "sub-standard" comes from. The only regulations promulgated under the Sardine Law are directed almost exclusively toward plant conditions of cleanliness and sanitation.

4.a. Promotion -- The Sardine Council.

To promote the interests of the Maine sardine industry, Maine has by statute[59] created a Maine Sardine Council[60] composed of seven sardine packers.

The statute imposes an excise tax of 25 cents per case of sardines packed;[61] this tax is backed up by typical reporting and enforcement provisions. All funds generated by the Sardine Tax are under the control of the Sardine Council; they are dedicated to the promotion of the sardine industry:

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59. 36 M.R.S.A. 4691 et seq.

60. 36 M.R.S.A. 4693. See Vol. I, p. 121.

61. 36 M.R.S.A. 4695 (1970 Supp.).

62. 26 M.R.S.A. 4699 (2) (A-D) (1970 Supp.).

A. For merchandising, advertising, and promotion;

B. For research on the fish;

C. For research on packing methods, grading, and quality of packed fish;

D. For inspection (supplementing the funds generated by the 8 cents per case inspection fee).

The most recent major effort on behalf of Maine sardines was an effort to have the import duty on foreign sardines increased, on the theory that Maine sardines are at a competitive disadvantage due to the higher wages paid here than in the major exporting countries. The effort was unsuccessful; the basic reason can be discovered by a visit to any well-stocked grocery store: in general, Maine sardines are not suffering by price competition with a cheaper foreign product; the foreign product is generally higher priced.[63]

Several sources of information suggest that the primary problem of Maine's sardine industry has simply been a shortage of desirable fish off Maine's shore; there is no reason assigned to this change in supply conditions. It also seems true that for a period of time, Maine sardines acquired a bad reputation due to non-standardized quality; the licensing and well-financed inspection and grading system is apparently improving that situation.

5. Shrimp.

There are no particular statutory provisions directed toward shrimp. The Department of Agriculture has taken some samples under the general

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63. For a complete review of the problem, see "Canned Sardines," United States Tariff Commission, T.C. Publication 291 (July 1969), including a careful review of product differentiations between Maine and various imported sardines.

food law, and it is clear that there is an adequate statutory authority for broad regulation of the shrimp packing industry under that law.

As noted in the discussion of the general food law, the problem is one of adequate personnel; under present State policy only the industries whose license and inspection fees generate a source of dedicated revenue for inspection purposes can be completely policed, since general revenue funds are not provided for adequate inspections.

6. Product Development.

There does not seem to be any statutory or other governmental provision for developing and significantly expanding the use of sea products as food. The University of Maine has a Department of Food Technology, but an interview with two of its senior personnel indicated that it operates primarily as an industry-servicing agency, assisting in the solution of specific narrow processing problems, rather than in product development.

Conclusions

As stated at the outset, there is indeed no significant obstacle under Maine law to the utilization of marine resources as food. What regulations exist are health- and quality-control measures, and particularly in the case of sardines, have been sought by the industry itself.

Federal regulation under the Food and Drug Act and in other matters is regarded as far more significant, for example, to a processor of frozen ocean perch than are the State regulations.

Except for the luxury seafoods, the biggest problem clearly is market acceptance and consumer taste, and not State regulation or the lack

of it. For example, in the case of Maine Shrimp, a major obstacle was developing a taste for these different type of shrimp; in part, the obstacle was overcome by the industry developing and circulating cooking instructions particularized for these shrimp.

Where the problem is competition with foreign producers, as in the case of ocean perch,[64] the problem is clearly of federal magnitude.

On the other hand, given Maine's historic and continuing close relationship with marine food products, it would seem that a greater expenditure of effort in new product development might be expected.

As has been suggested elsewhere, the structure of the statutory law itself might create some problems for the uninitiated: a developer of a new seafood product might have some difficulty in determining all the statutory provisions to which he is subject. Certainly, the law could be consolidated and simplified; but this problem is probably more apparent than real.

Again, at least theoretically, the reluctance of the State regulatory agency to use its full rule-making authority creates an aura of doubt which might create some problems. Compare the detailed product-by-product federal standards for food. But this very lack of specification could operate in favor of one seeking to introduce a new seafood product, since the only objection to it would be on the basis of the general

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64. In 1945, slightly over 92% of 63,000,000 pounds of ocean perch came from domestic production; in 1968, only about 21% came from domestic producers; in each case, over 60,000,000 pounds were consumed.

statutory requirements of wholesomeness and preparation under good conditions, rather than a regulatory standard which might be applied, though inappropriate.

The successful introduction of Maine shrimp, and the growth of that industry, tends to confirm that when supply conditions are favorable and marketing problems can be overcome, new food products can be introduced without impediment.

CHAPTER FOURTEEN MAINE MINING LAWS*

> So we fishery people welcome the miners aboard and into that 70% of the world where some freedoms and responsibilities remain. We only pray that they just work hard and make money and don't bother about the law. This generation of fish people has had a sufficiency of international conferences on the law of the sea and it's reasonably satisfied to maintain the status quo, whatever that is.[1]

INTRODUCTION

One of the basic questions to be answered by the Sea Grant inquiry is: How should the shore, the bottom, the waters, and the surface of the sea be controlled for the optimum utilization of Maine's marine resources? One facet of the larger question is: What state entity is now responsible for prospecting and mining mineral wealth from the sea? What entity should be? Closely interrelated is the question of responsibility for the exploitation and conservation of living resources from the sea.

The Maine Mining Bureau has been thrust into the forefront of the State agencies concerned with the development of marine resources by virtue of its grant of oil and gas exploration rights in the Gulf of

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* Harriet P. Henry

1. Remarks by Wilbert M. Chapman made in 1963 in discussing possible modification in the law of the sea to encourage deep sea mining. (Mero, the Mineral Resources of the Sea, 1965, p.293).

Maine to King Resources.[2] This is particularly ironic because the Bureau is ill-equipped by jurisdiction, composition, staff, and appropriations to be operationally (as opposed to administratively) responsible for any large scale operation, much less one of the most glamorous and potentially profitable of all ocean endeavors. The laws administered by the Mining Bureau for the prospecting and mining of hard minerals are limited in their application to land owned or held in trust by the State.[3] (The Bureau's authority under the Oil and Gas Conservation and Development Control Act, however, apply to all land in the State.)[4] Thus the bureau has no control over mining activity on privately owned lands. Prior to the 104th Legislature's creation of the Maine Mining Commission,[5] mining activities on private

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2. The spotlight was focused on the Maine Mining Bureau with the announcement that a license to prospect for oil had been granted to King Resources for a fee of $333,760. The company was granted rights to a claim covering 3.33 million acres off the Maine coast in an L-shaped section running roughly from Kennebunkport to Bar Harbor. At the closest point, the area is 11 miles from shore and at the furthest 80 miles. (Portland Press Herald, May 1, 1968, p.1) A lease has been drawn up, but activity has been held in abeyance pending the resolution of Maine's challenge to the Submerged Lands Act of 1953 (43 U.S.C. 1301-1315) with regard to the State's jurisdiction to grant rights on the continental shelf beyond the three mile limit. Maine, along with other Atlantic coast states, is claiming up to a 100 miles seaward boundary on the basis of 16th and 17th century grants by the English crown. The United States has instituted a suit to quiet title to these submerged lands. For the government's complaint, see 8 I.L.M. 850 (1969); the Supreme Court accepted jurisdiction of the case on June 16, 1969, 89 S.Ct. 2095.

3. 10 M.R.S.A. 2101 as amended by P.L. 1969, c.508.

4. 10 M.R.S.A. 2155 as added by P.L. 1969, c.301.

5. P.L. 1969, c.472.

land were subject only to regulations and supervision in accordance with the general laws of the State, i.e., essentially unregulated.

The past inadequacies of the mining laws have worked no hardship on Maine or on mining companies. Mineral exploration and mining in Maine have been extremely limited in extent; when problems arose, the law has been repeatedly amended on an ad hoc basis to fit the peculiar circumstances and requirements of a particular corporation or individual. The limited scope of the industry may explain, or at least rationalize, the failure in the past to restructure the Maine Mining Bureau or develop comprehensive mining legislation; but another factor is probably the ability of the administrator to make a poor law work.[6]

Although extremely important insofar as it affects pollution of tidal areas and utilization of shore front property,[7] the regulation of land-based mining as such is secondary to the main purposes of this study. What happens with regard to mineral exploitation on the submerged lands is of paramount importance. Since the statutes do not necessarily draw this distinction, however, much of the law discussed deals with both land- and sea-based mining.

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6. The pre-104th Legislature law was described as a "broken crutch" by Roberg G. Doyle, State Geologist and administrator of the Maine Mining Bureau, in an interview November 6, 1968.

7. See Dow, R.L., Groggins, P.L., and Hurst, J.W. Jr., "Hazards of Coastal Mining Operations to Marine Resources," September 1963; Maine Times, October 11, 1968 p.3 re increase of presence of copper and zinc in the Bagaduce estuarine waters.

The 104th Legislature in 1969 declined to perform major surgery on the statutes covering the Maine Mining Bureau. The Legislature did, however, give the Maine Mining Bureau jurisdiction to operate in the ocean for hard minerals, but at the same time, perhaps inadvertently, the Bureau was deprived of the right to lease and license ocean areas for the exploitation of gas and oil. The creation of a Commission[7a] with a major conservation role in controlling land-based mining has indirect implications for the ocean.

A better understanding of the present mining laws may be enhanced by a brief description of their evolution, followed by analysis of the present law as modified in 1969.

I EVOLUTION OF MAINE MINING BUREAU

The Maine Mining Bureau was first established in 1903. It was composed of the Land Agent (Forest Commission), the Commissioner of Agriculture,[8] and the Commissioner of Industrial and Labor Statistics. It was charged with collecting information on mining deposits in the State that are "supposed to exist in quantities sufficient to justify the development of such properties...," exhibiting samples of such specimens in a metallurgical cabinet in the State House, publish biennially a pamphlet concerning mineral resources of the State, and "to distribute at least one thousand copies....among the businessmen and

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7a. Maine Mining Commission, see supra Vol. I, p.100, infra p. 839.

8. P.L. 1903 c.227 §1-2.

capitalists of other states."[9]

Although included in the 1916 Revised Statutes[10] the Maine Mining Bureau was abolished in 1919.[11] The exhibiting of mineral specimens in the State House was delegated to the Commissioner of Inland Fisheries and Game. The elimination of this Bureau apparently caused no inconvenience, for it was not until 1929 that provisions were made for the appointment by the Governor of a State Geologist. His duties were the the investigation of mineral deposits and the promotion of same — basically the duties assigned to the 1903 mining bureau.[12] The awesomeness of his burden is illustrated by the fact that authorization was given for his employment by, and assignment of teaching duties at the University of Maine, where he maintained his headquarters.[13]

The basic structure of the present minerals prospecting and claims law was set in an act passed in 1935. It authorized any resident of Maine who was a citizen of the United States to prospect for minerals upon "any public or reserved land[14] in any unorganized township in this state...."

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9. P.L. 1903, c.227 §3-5.

10. R.S. c.44 §41-44 (1916).

11. P.L. 1919, c.201.

12. P.L. 1929, c.183.

13. Id.

14. Reserved land for public purposes had its origin in the Acts of the General Court of Massachusetts of July 9, 1784 as modified on March 26, 1788. The Act was continued in Maine through the Articles of Separation, Section 1, Point 7, June 19, 1819. (See Ring, Petitioner, 104 Me. 544, 72 A. 548 (1908). Briefly, the law provided for (Cont'd)

Provisions were made for recording claims and establishing the right of possession to mine. A license fee was established, and a minimum of $100 in labor or site improvement had to be expended annually to maintain a right of possession. The Secretary of State was empowered to issue licenses and collect fees. Any person who located a claim had the right of way across any land to and from said location. He was obligated to pay to the State 5% of the net profits derived from the operation of the mine... "which shall be used in the same manner as are the proceeds derived from lumber and grass sold from the public reserved land."[15]

In 1940 the first authorization for mining on submerged lands was passed. The scope of this "Act to Encourage Development of Marine Resources" was limited in that it made no mention of authority to prospect or establish a new claim under public waters, but rather authority "to follow the vein or lode whenever it is discovered that a vein in a lode in a mine continued from under the land to under

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14. (Cont'd) reservation of land from each land grant by the State (Maine or Massachusetts) to provide for public service i.e. education, church support, hire minister. Revenue from the cutting of timber and grasses was to be applied toward these functions in the unorganized territories. The State was responsible for this reserved land until such time as towns became incorporated. If upon incorporation, reserved land had not previously been designated, procedures were set forth to accomplish this. The reserve lot is "to average in quality, situation and value as to timber and minerals with other lands therein." (30 M.R.S.A. 4151) A water area could not be made a part of a public reserved lot because it would fail to meet the "average in quality, situation and value" test. (In Ring, Petitioner, supra, p.553). The same criterion protected proprietors of unorganized townships and mining companies from having the Forest Commissioner locate a public reserve lot on a mineral deposit. (1961-2 Attorney General Report, p.57) See also Report on Public Reserved Lots, State Forestry Department, 1963.

15. P.L. 1935, c.153.

water." Under this section the 5% royalty was to be paid to "the state" without the explicit dedication for the same purposes as the proceeds from grass and timber.[16]

Like many other laws concerning natural resources, this Act was rushed through as emergency legislation[17] in an effort to assist a specific business enterprise.[18] It differs from many such acts in that it was passed as a public law rather than as private and special legislation. The expression in the preamble of the underlying desire for the economic and industrial development of the State is re-echoed in much subsequent legislation, and is thus the "perpetual emergency"

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16. "Sec. 63 Mining Under Water. Whenever it is discovered that a vein or lode in a mine continues from under the land to under water, where the title to the land underneath the water is in the state, the owner or owners of the mine shall have the right to follow the vein or lode, and claim the property rights thereto, and to conduct such operations as are necessary to develop and mine the said continuation of the vein or lode, and shall be obligated to pay to the state 5% of the net profits derived from the operation of that portion of the vein or lode that is in the land owned by the State." (P.L. 1939, c.304).

17. It would be hard to objectionably rationalize the emergency nature of such legislation under M.R.S.A. Const. Art. IV, Pt. 3 §16, but the Legislature had no such inhibitions. The existence of a fact expressed in an emergency preamble and whether such expression of fact constitutes an emergency are questions of fact under the exclusive province of the Legislature and are not subject to review by the Supreme Judicial Court. However, in examining the sufficiency of an emergency preamble of a statute, the question whether the Legislature has expressed the fact or facts and whether such alleged fact or facts can constitute an emergency within the meaning of the section, are questions of law which are subject to review by the Supreme Judicial Court. (Morris v. Goss, 147 Me. 89, 83 A. 2d 556 (1951)).

18. The "crisis" in this instance was that one of the country's largest industrial concerns, who had $25,000 in hand, refused to proceed under the then-existing laws of Maine which would prevent (Cont'd)

with perhaps "aid to the defense program" merely catalytic.[19]

In 1941 most of the 1935 act was repealed and the present Mining Bureau was established, or re-established, composed of a member of the Department of Agriculture, the Department of Forestry, and the Deputy Secretary of State. The State Geologist was to be a consultant. U.S. citizenship was retained (but Maine residency was removed) as a qualifying requirement for prospecting and mining. Authority to go across or upon privately owned land was maintained. Operational matters of the Bureau were to be adjusted according to the Code of Mining Practices and Safety established by the U.S. Bureau of Mines.[20] The section on underwater mining was not affected.

A 1951 Act[21] raised the number of members of the Mining Bureau to five, so as to include the Executive Director of the Maine Development Commission and the State Geologist. Three new sections were added to the chapter[22] which extended to Maine citizens the authority to prospect

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18. (Cont'd) it from carrying its workings out under waters controlled by the State. The locale was Cape Rosier in the Blue Hill mining area. The Cape Rosier mine had been last worked for zinc in the late 1920's. Commercially exploitable deposits of copper, zinc, lead, manganese and beryllium were thought to exist in the area. These were strategic metals in the period of World War II. (Legislative Record 1940, May 24, 1940, p.55, 89).

19. P.L. 1939, c.304.

20. P.L. 1941, c.242.

21. P.L. 1951, c.298.

22. R.S. c.36 (1944).

not only on public and reserved lots, but upon State owned land, including land held in trust when the trust was such as to be consistent with mineral development,[23] and upon private land with written permission of the owner. In event of a discovery the Maine Mining Bureau was to be notified, the claim was to be recorded in the county registry of deeds, and the owner of the land was to be notified.[24] Under these new sections the prospector was to have a vested interest in the deposit for 20 years.[25]

In 1955 a major revision of the Maine Mining Law was enacted.[26] The new law for the first time spelled out that, "The jurisdiction of the [Mining] Bureau shall be confined to land owned or held in trust by the State.[27] License qualifications for prospecting and mining were liberalized to "any person over 18 years of age or any corporation." Prospecting for water, sand, or gravel was specifically excluded from the general category of valuable metals and minerals under the juris-

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23. R.S. c.36 Sec. 12 (1944) as amended by P.L. 1951, c.298.

24. R.S. c.36 Sec. 13 (1944) as amended by P.L. 1951, c.298.

25. Sec. 14. Prospector to have vested interest. The discovery of a deposit, and the filing and recording and giving notice, as required by Sec. 13, shall vest in the prospector, his heirs and assigns an interest in the deposits to the extent of 5%, unless otherwise agreed, of the net profits derived by any person, firm or corporation who shall mine the deposit. This claim shall expire in 20 years from date of filing of claim unless a new agreement is made. (R.S. c.36 Sec. 14 as amended by P.L. 1951, c.298).

26. P.L. 1955, c.409.

27. See Vol. II, p.179 for text of 1958 ruling by the Attorney General of Maine that the State's jurisdiction extended three miles seaward.

diction of the Maine Mining Bureau, and control over them was given to the Forestry Department;[28] the number of claims that a person could locate in any unorganized township in one year was increased to 3; the annual expenditures to maintain a claim was raised to $200; and the right of way given claimants for access to claims was limited to land owned or controlled by the State. The Section in P.L. 1951 c.298 that had vested a 20 year interest in mineral deposits was eliminated; but the old section would control as to any deposit discovered and properly filed and recorded during 1951-55.[29] A significant omission in the new law was the elimination of any provision for royalties to the State or the fund of the unorganized territories.

The statutory aberrations produced by the 97th Legislature in 1955 were corrected by the enactment of an entirely new chapter in 1957.[30] Most of its provisions are included in the present law. Charges for royalties, rentals and license fees and permit fees were reinstated. More detailed provisions were made for obtaining permits, licenses, recording, marking claims, etc. Changes from previous legislation include: prospectors' permits were to apply to "state owned land throughout the state;" for the first time, it was required that "prospecting

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28. See 12 M.R.S.A. 514 (Supp.). It is still necessary for the Mining Bureau to approve the issuance of such permits by the Forestry Department.

29. See fn.25.

30. P.L. 1957, c.293.

pits, trenches, or other openings shall be filled or otherwise repaired prior to abandonment, so that the public safety may not be jeopardized and the original land value may not be impaired;" directions were given for marking claim corners which fall in a body of water (although most of the location and staking provisions were applicable only to land operations). Such provisions clearly did not envisage the complete claim under water.

Rights of a discoverer of a claim were spelled out in Section 3 V:

> Any person or corporation who has located and recorded any claim or claims shall, subject to the provisions of this chapter, have the right of possession of the premises covered by said claim or claims, for the purpose of conducting thereon mining operations and shall own any minerals or metals found therein except water, sand and gravel, and shall have the right to remove the same, and shall have the right to use such water, sand and gravel found on said premises for mining and processing operations. Such rights of possession and such ownership shall be alienable in the same manner as real estate.[31]

A significant addition was made in Section 4 IX, which now requires a claim holder to have a ruling from the Maine Mining Bureau that "operations can be carried out consistent with any prior or proposed other use by the State or any agency or instrumentality thereof. Such ruling shall be made within 90 days of the date of such application and when obtained shall be binding and irrevocable."[32]

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31. Id.

32. Id.

The 1957 Act made two additions to the provisions of Section 9 on underwater mining. One specified that the rental provisions of Section 5 should not apply to areas covered by water. The second authorized the Mining Bureau to permit the diversion of a stream or draining of a lake where necessary for the efficient working of minerals located in the bottom[33]

In 1959 the Mining Bureau was expanded to include representatives from the Department of Inland Fisheries and Game and the Water Improvement Commission;[34] the limitation on number of claims was eliminated; the necessary expenditure to maintain a claim was raised to $500 or 200 manhours. Claims were to be recorded with the Maine Mining Bureau rather than the Land Agent, but forfeiture of claims was still to be made on the record of the State Land Agent. A major change was made in the underwater mining authorization by eliminating the language about continuation and following of a vein or lode from under the land to underwater. The revised section read:

> The same royalty as provided in Section 5 shall be paid to the State on all mineral or metal commodities produced from mineral deposits situate beneath bodies of water, where the title to the land beneath the water is in the State, but no annual rental charges as specified in Section 5 shall apply to such areas covered by water.[35]

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33. Id.

34. P.L. 1959, c.135 §1.

35 P.L. 1959, c.135§6.The Section still included the sentence about diverting water referred to above.

Several 1961-3 amendments to the Mining Act dealt with administrative and judicial review of rulings of the Maine Mining Bureau.[36] Another 1963 amendment[37] provided that expenditures in excess of the annual minimum required to maintain a claim could be credited to requirements for following years within the 5 year claim period. It also provided that the 5 year claim period could be extended for an additional 5 years by the Maine Mining Bureau. Special provisions were made for accounting of expenditures when the normal exploration plans on overwater claims required an ice cover.

A 1964 Act[38] diverted royalties from educational purposes to Maine Mining Bureau purposes:

> All fee, rental and royalty moneys accruing from operations under prospectors' permits the license to mine or mining lease shall be paid into the Maine Mining Bureau for administration and control of all prospecting, development or mine activity conducted in areas administered by the Bureau. Such fund shall be nonlapsing. The Bureau may, with the approval of the Governor and Council, assign such sums as it deems proper to other state agencies for preservation, development or replacement of natural resources.[39]

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36. P.L. 1961, c.317 §81a, 82-3; c.394 §20; c.417 §119; P.L. 1963, c.412 §23.

37. P.L. 1963, c.28.

38. P.L. 1963, c.420, Jan. 15, 1964.

39. Id.

A 1967 amendment[40] provided that the annual license fee should be $25 per claim included in the license to mine, but not exceeding $500 for coverage of a single mineral deposit held by one licensee. A ceiling was likewise put on rentals; "Property within the terms of a license to mine is subject to an annual rental of $5.00 per acre, payable in advance except as provided by Section 2109, not exceeding $500 for coverage of a single mineral deposit held by one licensee."

Another 1967 amendment[41] provided that the State Geologist should act as administrator and recorder to keep the records of the meetings and activities of the Bureau, and to maintain all prospecting developments and mining records as shall be necessary to the Bureau and the mining industry. The State Geologist in his capacity as administrator and consultant to the Bureau was now to be paid out of the non-lapsing dedicated funds in an amount designated by the Governor and the Council.

II RECENT CASES AND SPECIAL LEGISLATION

As noted on page 813 the first authorization for mining under water was the result of special interest legislation in 1940.

The 1964 Act was passed in direct response to the desire of Denison Mines Limited (of Toronto, Ontario) to mine in the area of Blue Hill in Hancock County. This Act[42] changed the classification of certain waters

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40. P.L. 1967, c.120 Sec. 1-2.

41. P.L. 1967, c.170. This chapter contains no provision for the Maine Mining Bureau to rule on compensation of its member and administrator.

42. P.L. 1963, c.420, Jan. 15, 1964.

in the Blue Hill Area from B-1 to unclassified and authorized Denison Mines or its designee to dump tailings from their mining operations in Hancock County into Second Pond, Blue Hill Township in accordance with standard mining and milling practices. Denison Mines had agreed to control the bulk of these tailings within the present limits of Second Pond.

The willingness of the Legislature to relegate a supposedly coherent system of water standards to a place inferior to a private mining operation has disturbing implications for the future.

In 1966 the Maine Supreme Judicial Court decided the constitutionality of a proposed statute[43] to permit a leasee of the Maine Mining Bureau to construct dams on submerged land owned by the State so as to exclude and divert tidal waters and fresh water from a tidal estuary despite the objections of riparian owners and for the Mining Bureau to take riparian rights by eminent domain.[44] The Court found the legislation constitutional; it reasoned that since the State owned the submerged lands and the submerged mineral resources in trust for the use of the people of the State,

> "In the exercise of its trust, it cannot be seriously doubted that the State had power, and, in fact, the

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43. P.&S.L. 1965, c.243.

44. Opinion of the Justices, Me. 216 A. 2d 656 (1966). As discussed in Vol. II, p.373-4, this case has great significance because of the dominant consideration it places on the interest of the State in the exploitation of State owned resources, even where private rights were significantly infringed upon in the process. Significance might also be attached to the fact that the legislative declaration of the exigency had alluded to the importance of the development of the State's resources in the growth of the economy; the recitation that the removal of minerals from this site was a public use; that the pond was not of significant interest the State with regard to navigation or fisheries; that the proposed mining operation would not adversely affect the development of wildlife in the area and might provide a better environment; (Cont'd)

> duty rests upon it, to use such land for the greatest public good, and where they can be put to productive use, not to permit them to lie waste and unproductive. State v. Longyear Holding Co. (1947 224 Minn. 451, 29 N.W. 2d, 657, 670)."[45]

Since the Legislature had found removal of minerals to be a public use, the Legislature could further authorize eminent domain to acquire the rights necessary to carry out that use, as declared in the emergency preamble of the Act.

III ANALYSIS OF PRESENT LAW[46]

MAINE MINING BUREAU

Section 2101. Composition and Jurisdiction

The Maine Mining Bureau is composed of seven members, one each from the Departments of Agriculture, Forestry, Economic Development, Inland Fisheries and Game, Sea and Shore Fisheries,[47] Environmental Improvement Commission, plus the State Geologist who, by virtue of his office, is consultant to and is the administrator of the Bureau.

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44. (Cont'd) and that it would not present or create a water pollution problem. The Supreme Judicial Court took notice only of the public use, economic growth, and the absence of interference with navigation. See fn.17, p.815.

45. Id. at p.660.

46. 10 M.R.S.A. 2101-2111 (Supp.) as amended by P.L. 1969, c.508 and 10 M.R.S.A. 2151-2166 as added by P.L. 1969, c.301.

47. The composition of the Bureau was modified in 1969 by substituting a representative from the Department of Sea and Shore Fisheries in place of the representative from the Department of State. See Vol. I, p.95.

It is apparent that an effort has been made to build into the Bureau's composition an automatic interdisciplinary review of mining activities, a review also implicit in the requirement that the claim holder secure a ruling that the proposed mining will not be inconsistent with other State use of the land.[48] Since the Bureau has tended to be dominated by the Administrator (the other members having full time responsibilities in their own departments) this scheme is open to question.

The problem is more acute if under-ocean mining is considered. Considering the potential disruption and destruction of marine life through mining operations, it is submitted that, the mere presence of a Bureau member from the Department of Sea and Shore Fisheries does not cure the basic inadequate statutory protection for living resources in the sea. Even if he objected to a proposed activity on grounds of risk to marine life, it is not clear that the Bureau would (or would be authorized to) deny a positive ruling, since fishing, etc., is not a "use by the State."

The most significant 1969 modification in the mining law was the clearcut jurisdiction given to the Mining Bureau over off-shore substrata owned or held in trust by the State. The Bureau was further given "power to make such reasonable rules and regulations as it may deem proper with respect to all sections of this sub-chapter, including

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48. 10 M.R.S.A. 2104 (10).

safety and resource conservation."[49] It is apparent that the Legislature intended to ratify the initiative of the Mining Bureau authorizing offshore oil exploration, eliminating doubt which might have arisen from the general statement of the Bureau's jurisdiction,[50] and an ambiguous statement in the royalty section. 10 M.R.S.A. 2109, which read "the same royalty as provided in Section 2105 shall be paid to the State on all mineral or metal commodities produced from deposits situate beneath bodies of water, where the title to the land beneath the water is in the State...."[51] It was not a question of what the Legislature may do as much as a question of what the Legislature had done. When the Mining Bureau's jurisdiction was defined as all State owned lands in any part of the State,[52] the scope of the law was materially enlarged. Without the 1969 clarification, the problem would have been similar to that faced in Justheim v. McKay.[53] In that case an action was brought for review of a decision by the Department of Interior denying applications for oil and gas prospecting permits or leases under the Mineral Leasing Act of 1920 as amended, and for a

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49. 10 M.R.S.A. 2101 as amended by P.L. 1969, c.508.

50. 10 M.R.S.A. 2101 (Supp.).

51. 10 M.R.S.A. 2109 (Supp.).

52. P.L. 1957, c.273.

53. 229 F. 2d 29, (D.C. Cir. 1956), cert. denied 351 U.S. 933 (1956).

declaratory judgment as to whether the Act applied to submerged coastal lands. The decision turned on whether "public lands" were meant to include submerged lands in the context of the statute, i.e., whether the Congress had in effect granted any rights. Strong evidence that the Maine Legislature had no such intent prior to 1969 may be found in the unsuitability, e.g., of the provisions for erection of monuments to offshore exploration -- an identical point having been ruled on in Justheim v. McKay.[54]

Section 2101-A. Purpose:[55]

This is a new Section which reads as follows:

> It shall be the purpose of the Maine Mining Bureau to administer, regulate and control:
>
> 1. Mineral Development. Mineral development and mining on State lands, inland waters and offshore territory of the State of Maine;
>
> 2. Natural Resource Conservation. Natural resource conservation as it relates to mineral and oil and gas development.

Section 2101-B. Definitions:[56]

This new section includes these definitions:

> 3. Hard Minerals. "Hard minerals" shall mean all naturally occurring all mineral deposits exclusive of oil and gas, coal, and lignite.

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54. 123 F. Supp. 560, 567 (D.D.C. 1954). This argument was made to reinforce the statement referred to from Shively v. Bowlby (152 U.S. 1, 48 (1893) "But Congress has never undertaken by general law to dispose of such lands...."

55. 10 M.R.S.A.2101A as added by P.L. 1969, c.508.

56. 10 M.R.S.A.2101B as added by P.L. 1969, c.508.

5. Mining. "Mining" shall include all the extractive and beneficiative processes necessary to remove and prepare for market a mineral deposit.

6. Ore. "Ore" shall mean any hard mineral or an aggregate of hard minerals which from the standpoint of a mining operator, can be worked at a profit.

7. Prospecting. "Prospecting" shall mean a preliminary examination of an area for the purpose of discovering the possible presence of valuable minerals.

Section 2102. Authority to Prospect:

This section formerly gave authority to prospect on receipt of a prospector's permit from the Maine Mining Bureau "for the purpose of prospecting for valuable minerals and metals, except water, sand, and gravel." This language was changed to read "...on receipt of a prospector's permit from the Maine Mining Bureau for the purpose of prospecting for valuable hard minerals and metals except water, sand and gravel, unless otherwise indicated in this sub-chapter." (Emphasis added) "Hard Minerals" by definition do not include oil and gas, so there is no authority under this section to prospect for oil and gas.

In order to locate a claim a person or corporation must first secure a prospector's permit;[57] in order to obtain a license to mine, a claim must be recorded in accordance with Section 2104;[58] and similarly, to obtain a mining lease one must comply with requirements of his license.[59] Since there is no provision for a license to prospect for oil

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57. 10 M.R.S.A. 2103 as amended by P.L. 1969, c.508.

58. 10 M.R.S.A. 2105 (Supp.).

59. 10 M.R.S.A. 2106 (Supp.).

and gas, the precondition for laying a claim for oil and gas and for obtaining a license or lease for oil and gas is lacking. Neither is there any provision under the Oil and Gas Conservation and Development Control Act[60] which would authorize granting licenses or leases for prospecting or mining for oil and gas. (See comments Vol. I, p.97).

Prior to 1969 the Maine Mining Bureau had no jurisdiction for the mining of sand, gravel, or water. This function was entrusted to the Forestry Commission on State owned land and under great ponds,[61] but there were no statutory provisions for mining these commodities from the ocean. The revised mining law seems to be attempting to give the jurisdiction to the Maine Mining Bureau for mining sand and gravel from the ocean floor, while at the same time telling the Bureau not to use it. Compare the present Section 2102 with the new portion added to Section 2019 to the effect that "no license shall be granted to mine, move deposits of sand or gravel located under the territorial sea except in dredging operations in aid of navigation."[62] This admittedly, is a rather weak mandate, but if the Maine Mining Bureau could lease 3.3 million acres of ocean on the basis of the 13 lines contained in the previous provisions of Section 2109 it is not possible to predict what enlargement of mission will be sought by the Bureau from this language. Provisions in the old Section 2102 with regard to reclamation procedures have been eliminated and this function

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60. 10 M.R.S.A. 2151-2165 as added by P.L. 1969, c.301.

61. 12 M.R.S.A. 514 (Supp.).

62. 10 M.R.S.A. 2102, 2109 as amended by P.L. 1969, c.508.

transferred to the newly created Maine Mining Commission.[63]

Section 2103. Location of Claims and Maintenance Rights:

The amended version of this section retains the size of the claim as no greater than 1500 x 600 feet, but there is no limitation on the number of claims an individual may hold. Neither are there provisions for any competitive bidding nor a method of allocating claims when more than one person or corporation desires to prospect in a given locality. The provisions for staking out claims, recording, etc., clearly indicate the land-orientation of the mining contemplated. The portion of this section establishing rights of ownership and possession of the claim was slightly altered. Formerly, the section read:

> Any person or corporation who has located and recorded any claim or claims shall, subject to this chapter, have the rights of possession of the premises covered by said claim or claims for the purpose of conducting thereon mining operations and shall own any minerals or metals found therein except water, sand, and gravel....Such rights of possession and such ownership shall be alienable in the same manner as real estate.[64]

The relevant portion of this statute now reads:

> ...have the right of possession of the premises covered by said claim or claims, for the purpose of conducting thereon mining operations and shall own any hard minerals or metals found therein, and shall have the right to remove the same....[65]

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63. 10 M.R.S.A. 2201-2213 as added by P.L. 1969, c.472.

64. 10 M.R.S.A. 2103 (Supp.).

65. 12 M.R.S.A. 2103 as amended by P.L. 1969, c.508.

To comply with the provisions of this chapter, a holder of a prospector's license must record his claim according to Section 2104, and must within five years obtain a license to mine and pay the requisite license fee, rental fee and royalties.

Section 2104. Recording of Claims:

This section was left materially unchanged by the 1969 revision, but for the first time it was specified that the prospector who first records with the Bureau a validly staked claim or claims in any area is the claim holder of record. He has five years to establish his claim under the provisions of the Maine Mining Laws. An extension of five years may be granted for good reason. While under a prospector's permit, a claim holder must work not less than 50 man-hours or make an expenditure of $100 per year to retain his claim.[66] Failure to comply with any requirement for renewing claims annually shall act as a forfeiture of such claim or claims; a forfeiture ruling is appealable directly to the Superior Court.[67] Violation of any provision of "this chapter or any regulation of the Mining Bureau" may lead to a forfeiture of a claim, permit, license, or lease after a hearing before the Administrative Hearing Commissioner.[68] Forfeitures are noted with the Land Agent, although claims are filed with the Maine Mining Bureau.

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66. 10 M.R.S.A. 2104 (7) as amended by P.L. 1969, c.508.

67. 10 M.R.S.A. 2104 (8) as amended by P.L. 1969, c.508.

68. 10 M.R.S.A. 2111; See 5 M.R.S.A. Chapters 301-307.

Section 2104. Sub-section 10. Prior or Proposed Use

This section, which was not changed, provides that a recorded claim may make application to the Mining Bureau for a ruling "whether operations can be carried on consistent with any prior or proposed other use by the State or any agency or instrumentality thereof." This prior or planned use apparently has nothing to do with any comprehensive plan for the State.[69] The State Geologist described "the proposed use clause" in the context of environmental control with permission cleared through departments represented on the Maine Mining Bureau.[70] There is no clear cut provision for a municipality to have a "say" in this determination. The irrevocability of the decision "Such ruling shall be made within 90 days of the date of such application and when obtained shall be binding and irrevocable," is particularly disturbing when it is read in connection with the rights of ownership and possession of a mineral deposit. It raises interesting questions as to what would be the status of mining operations either on land or in tidal waters with regard to future regional or municipal plans.

Section 2105. License to Mine:

This section, which describes requirements to obtain a license to mine and sets forth rental and royalty fees, was not changed by the 104th Legislature. A person or corporation must have a recorded claim, must submit a report describing the proposed operations, and an accurate

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69. See 5 M.R.S.A. 3305 (Supp.).

70. Interview with Administrator of the Maine Mining Bureau, Robert G. Doyle, Nov. 6, 1968.

survey of the boundaries accompanied by the required license fee. The license shall be issued if the Mining Bureau rules that there is no conflict, pursuant to Section 2104 (10). The annual fee for a license to mine is $25 per claim. The rental charge within the terms of a license to mine is $5 an acre but a 1967 amendment[71] set a maximum of $500 for license fees and $500 for rental charges for a single mineral deposit held by one licensee. Since there is no restriction as to number of claims that can be held by one licensee and presumably an ore deposit could be quite extensive, it is submitted that this provision should be carefully considered not only for sea-based but for land-based exploitation as well. Royalty payments are to be 5% of the adjusted fair market value of the minerals and metals that are removed from the ground. The formula for calculating royalties, it would appear, was tailored to certain deposits and certain mining operations. The formula may not be relevant to oil and gas on submerged lands.

A license to mine is renewable annually providing "the licensee satisfies the Bureau that he has complied with the terms and conditions imposed by the Bureau in his license."[72] With the exception of fees, conditions are not spelled out in the statutes or any regulations but are peculiar to each individual licensee. Because the right of ownership and possession is dependent on a renewal of the license to mine, objective criteria on such renewal should be established compatible

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71. P.L. 1967, c.120 §1-2.

72. 10 M.R.S.A. 2105 (Supp.).

with the necessary discretionary powers which must be properly exercised by the Maine Mining Bureau. For example, in cases in which a licensee has conveyed his right of possession or ownership, can the Maine Mining Bureau hold the grantee responsible for the sins of the grantor and deny a license renewal? To what extent may additional requirements as to performance be added with each year's license renewal? Another interesting aspect of license renewal is the amount of work or activity demanded under a license. There is nothing in the statutes which would seem to preclude a prospector staking out and recording his claim, fulfilling the requirements and obtaining a license to mine, and then sitting on his claim. This interpretation is borne out in a statement in a pamphlet published by the Maine Mining Bureau for prospective prospectors and miners to the effect "there is no requirement that the work be done on claims held under a license to mine."[73] The State Geologist has indicated that in instances in which no activity was taking place, the license to mine would not be renewed.[74] Such a proviso could only be found in the conditions set forth by the Maine Mining Bureau in granting a license. It is not set forth in any statute or regulation.

Dedicated Revenue.[75] With the exception of the royalties from hard minerals or metal commodities under the territorial seas[76] the Maine

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73. The Maine Mining Law for State Owned Lands, Maine Mining Bureau, 1965, p.10.

74. Interview with Robert G. Doyle.

75. See also dedicated revenue under Oil and Gas Control Act, 10 M.R.S.A. 2162.

76. 10 M.R.S.A. 2109 as amended by P.L. 1969, c.508.

Mining Bureau has a non-lapsing dedicated revenue from all fees, rentals, and royalty moneys accruing from operations under prospecting permits, claims fees, and licenses and leases to mine for the administration and control of all prospecting, development or mine activity conducted in areas administered by the Bureau. The Bureau may with the approval of the Governor and Council assign such sums as it deems proper to other State agencies for preservation, development, or replacement of natural resources.

Part of this revenue is the revenue which was previously dedicated for the purposes of schools in unorganized territories as income from public reserve lots. It is hard to justify the transfer of these funds to the Maine Mining Bureau in addition to placing potentially large amounts of revenue which may be derived from ocean activity beyond the control of the Legislature. The royalties from the territorial seas would be paid directly to the State, but if the $333,760[77] paid by King Resources for claim fees is indicative of future income, the Legislature might want to review this allocation of funds.

Section 2106. Mining Lease:

A mining lease as set forth in this section is negotiated by the Maine Mining Bureau and the leasee subject only to the statutory requirements that the prospective leasee should have a license to mine plus a few additional preliminary requirements. The Bureau may require the applicant for a lease to conduct bona fide mining operations under

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77. See fn 2 p.810.

a mining license for not more than a year prior to granting the lease. This section was unchanged by the revision of the Maine Mining Laws. It is submitted that a maximum number of years for a lease should be written into the statutes of this Bureau, although within the statutory framework, the Maine Mining Bureau should be allowed broad discretionary powers in determining the actual terms and conditions under which the lease should be issued.

Section 2107. Safety Rules and Regulations:

This section relating to safety rules and regulations was repealed and its provisions incorporated in revised section 2101.

Section 2108. Right of Way:

This section was amended presumably to give a claim, license, or lease holder a right of access to any land owned or controlled by the State. The new section reads:

> Any person who has located a claim and has been issued a license to mine or mining lease in accordance with Section 2105 or Section 2106 shall have the right of access to any land owned or controlled by the State to and from said location,..."

"Access to" was substituted for "way across." "To and from said locations" was still left in the text, which is now of dubious meaning.[78]

Section 2109. Mining Under Water:

The implications of the changes in this section were discussed supra under Section 2101 (See p.825-6) and Section 2102 (See p.829).

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78. See Vol. II, p.375-76. Notwithstanding the untidiness of the language, this seemingly minor modification which would seem (Cont'd)

In addition to the ambiguity that remains in the statutes as to the status of sand and gravel, ambiguity still remains in the use of the term "territorial sea"[79] in this section if this term is used in its technical sense as opposed to inland waters.

Section 2110. Annual Reports: Section 2111. Forfeiture:

Section 2110 deals with the requirement for annual reports.

Section 2111 dealing with procedure in event of forfeiture was discussed under Section 2104 supra.

Section 2151-2165. The Oil and Gas Conservation and Development Control Act[80]:

This Act has added new sections to its statutes and new responsibilities to the Maine Mining Bureau. It was designed primarily to regulate oil on the continental shelf and in the territorial sea but it's jurisdiction extends "to all lands located in the State, however owned, including submerged lands on the continental shelf within the territorial seaward boundary of this State, and any lands owned or administered by any govern-

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78. (Cont'd) to make the provision correspond to the law as contained in the 1935 statute. (P.L. 1935, c.153) may have tremendous consequences with regard to shorefront property. In 1935 mining on public land was limited to public reserved lots, none of which fronted the ocean; as of 1969 the jurisdiction of the Mining Bureau has been extended to the continental shelf which encompasses the whole coastline of Maine.

79. "The same royalty as provided in Section 2105 shall be paid to the State on all hard minerals and metal commodities under the territorial sea, produced from mineral deposits situate beneath bodies of water, or title to the land beneath the water is in the State." (10 M.R.S.A. 2109 as amended by P.L. 1969, c.508). See definition of territorial sea, p. 844.

80. P.L. 1969, c.301. See Vol. I, p.97.

ment or any agency or political subdivision thereof over which the State, under its police power, has jurisdiction."[81] As stated in Chapter One on State Government, the main thrust of this Act is to protect the market for gas and oil, and the oil prospectors from each other. It is beyond the scope of this chapter to analyze the Act from this point of view. The Act is not without reference to environmental safeguards and competing demands for ocean use,[82] but the Act is not primarily designed to secure the protection of living resources from the sea.

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81. Section 2155 as added by P.L. 1969, c.301.

82. Pertinent sections read as follows:

Section 2153 (16) Pollution:
"Pollution" means the contamination of the environment by any activities utilized for the development, production or refining of oil and gas.

Section 2155 (1) (E)
That every person who produces, stores, transports or refines crude or untreated oil and gas which originates from within the territorial jurisdiction of the State shall furnish a performance bond with good and sufficient surety, as required by the Mining Bureau for each facility, conditioned for the duty to plug each dry or abandoned well, to remove all obstructions to commercial fishing operation, and to repair each well causing pollution or waste; and shall furnish evidence of liability insurance to indemnify commercial fishermen, riparian owners, owners of boats and shore installations or state resources agencies for damage caused by pollution or waste;

Section 2155 (3) (E)
The operation, abandonment and proper plugging of wells to prevent the pollution of the streams and public bodies of surface water of the State;

Section 2155 (3) (F)
The location and routing of submerged pipelines for the transportation of oil or gas or product to minimize the unnecessary proliferation of pipelines, conflicts between individual producers and fishing interests;

CONSERVATION AND REHABILITATION: MAINE MINING COMMISSION

The 104th Legislature established a Maine Mining Commission[83] to encourage the prudent development of the State's mineral resources while at the same time assuring the optimum conservation and rehabilitation of land affected by mining operations. The exclusion of sand, gravel, or borrow operations from the jurisdiction of the Maine Mining Commission seriously dilutes the importance of this legislation and leaves conservation of this activity still unregulated. The extent of other mining operations in Maine is very limited.[84] The Commission has jurisdiction over both publicly and privately owned land. Its authorizing statutes are written in terms of land mining, but on the basis of the history of the Maine Mining Bureau it cannot categorically be stated that its provisions might not be applied to off-shore mining. There is no statutory prescribed duty for cooperating with the State Geologist and the Maine Mining Bureau, but a close working relationship between these groups is inevitable.[85]

SUMMARY

It would be hard to select a portion of the statutes relating to marine resources which would be more susceptible to improvement than those

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83. 10 M.R.S.A. 2210-2216 as added by P.L. 1969, c.472; See also Chapter on State Government Organization, Vol. I, p.100.

84. 10 M.R.S.A. 2202(5) as added by P.L. 1969, c.472.

85. The State Geologist and Administrator of the Maine Mining Bureau was appointed to the Maine Mining Commission, Portland Evening Express, February 11, 1970, p.5.

covering the Maine Mining Bureau. In the past these statutes have been amended and patched in response to particular needs of a particular enterprise. What is called for is a major overhauling. A paramount recommendation for any such overhauling would be making a distinction in the statutes for mining on land, (possibly to include tidal estuaries) and mining offshore on the continental shelf. In some ways this would be more relevant than the present division between hard minerals and oil and gas. Until the discovery of the existence of operational feasible hard or soft mineral deposits in the ocean, the same capability for designating areas, resolving conflicting uses, granting licenses and leases, maintaining records, and monitoring the actual activity could all be handled by the same agency. The responsibility for establishing regulatory measures for the conservation of the resource being exploited as well as conserving other marine resources in the process seems properly separated from promotional activity. It would seem appropriate, however, to leave the regulation of marketing aspects within the promotional agency. Perhaps some coastal agency or environmental control agency should be assigned some of the functions now entrusted to the Maine Mining Bureau. Although the technical competence possessed by the State Geologist is necessary to all phases of the development and regulation of such ocean activity, it is submitted that one person cannot be all things to all men and if the State Geologist is to have over-all advisory duties with respect to these activities, then he should be relieved of complete responsibility for administrating potentially incompatible functions. A second recommendation would be to establish limitations on areas that could be granted to one individual or corporation. Similarly, limitation on the

period for which a lease or license may be granted should be included with broad criteria for eligibility to renew such lease or license. Statutory guidance for allocating submerged lands between competing or conflicting uses should also be indicated. Statutory safeguards should be drawn up to assure the maximum future use of the ocean. In this connection "irrevocable" under Section 2104 (10) should be just that only when because of environmental or ecological factors the commitment to submerged lands use is irreversible. The Maine Mining Bureau or whatever agency that is to carry out this function should be financed from the general fund. The actual or anticipated income from ocean exploitation should be a guide rather than a substitute for legislative appropriations.

CHAPTER FIFTEEN FEDERAL POWER AS A LIMIT UPON STATE CONTROL OF MARINE RESOURCES *

This chapter deals, in greater detail, with a subject repeatedly mentioned elsewhere in this study: the extent to which the jurisdiction of the State of Maine over surface marine activities and interests is limited by express or implied prohibitions in the Constitution of the United States or, where the Constitution alone does not prohibit State action, by federal law, both statutory and nonstatutory. Problems pertaining to the location of the geographical boundaries within which the State may exercise its jurisdiction, and the title and right to exploit submerged lands within those boundaries, are beyond the scope of this chapter and are dealt with elsewhere in the Sea Grant study.

The State of Maine by legislative act has asserted jurisdiction over:

(1) "all places within its boundaries";[1]

(2) the waters of "the marginal sea to its outermost limits as said limits may from time to time be defined or recognized by the United States of America by international treaty or otherwise";[2]

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1. 1 M.R.S.A. §1.

2. 1 M.R.S.A. §2 (1).

(3) the waters of "the high seas to whatever extent jurisdiction therein may be claimed by the United States of America, or to whatever extent may be recognized by the usages and customs of international law or by any agreement, international or otherwise, to which the United States of America or this State may be party";[3]

(4) "all submerged lands, including the subsurface thereof, lying under" the waters defined in (2) and (3) above.[4]

International Law, as expressed in the Geneva Conventions of 1958, recognizes five overlapping jurisdictional zones, delineation of which will aid in clarifying the Maine statutes:

(1) Internal Waters. The bays, estuaries, and other coastal waters landward of the territorial sea. With one inconsequential exception, a nation's sovereignty over its internal waters is complete.[5]

(2) The Territorial Sea. A belt of waters extending seaward from a baseline delimiting the nation's internal waters. A nation's sovereignty over its territorial sea is complete, except that foreign vessels may exercise the right of innocent passage over it. Since there is no international agreement on its permissible width, the breadth of the belt is generally that claimed by the particular nation. The United States

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3. 1 M.R.S.A. §2 (2). See Vol. II, p. 166.

4. 1 M.R.S.A. §2 (3).

5. Art. 1, 5, Convention on the Territorial Sea and the Contiguous Zone, April 27, 1958, U.N. Doc. A/Conf. 13/L/52.

currently claims three nautical miles,[6] but has indicated it may seek international agreement on a uniform width of 12 miles.[7]

(3) The Contiguous Zone. A belt of waters extending into the high seas no more than twelve miles seaward of the baseline delimiting the nation's internal waters. Within its contiguous zone, a nation may exercise certain limited rights of sovereignty necessary to the enforcement of its internal laws or the conservation of its natural resources.[8]

(4) The Continental Shelf. The seabed and subsoil adjacent to a nation and beyond the boundary of its territorial sea to a depth of 200 meters or to the point to which exploitation of natural resources is possible. Over its continental shelf a nation has the sovereignty necessary to carry out such exploitation.[9]

(5) The High Seas. All waters seaward of the nation's territorial seas. The high seas are free to all nations, subject to the limitations imposed by other provisions of international law, such as the rights of sovereignty allowed within the contiguous zone and on the continental shelf.[10] Although not expressly recognized by treaty, some acts of national sovereignty are tolerated in or over the high seas, for special purposes, e.g., the United States enforces "Air Defense Identification

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6. Art. 1, 6, 14-23. Id. as to the 3 mile limit, see 1 Shalowitz, Shore and Sea Boundaries 25-27 (1962).

7. New York Times,

8. Art. 24, Convention on the Territorial Sea and the Contiguous Zone, n.6, supra.

9. Convention on the Continental Shelf, April 26, 1958, U.N. Doc. A/Conf. 13/L/55.

10. Convention on the High Seas, April 26, 1958, U.N. Doc. A/Conf. 13/L/53.

Zone" far offshore.

The Geneva Conventions were ratified by the United States in 1960 and became effective in 1962 and 1964.[11]

For purposes of this discussion it may be assumed that the term "marginal sea" in the Maine statute includes the area defined as "the territorial sea" by international law and that the term "high seas" bears the same meaning in Maine statute that it carries in the Geneva Conventions. The Maine statute may then be understood as asserting unlimited sovereignty for the State within the marginal sea, and that measure of sovereignty which the Territorial Sea and Contiguous Zone and Continental Shelf Conventions, and other customs and usages of international law, give the United States on the high seas.

That Maine has asserted such jurisdiction does not, of course, mean that the jurisdiction in fact exists in the sense that it is enforceable. Maine's assertion of sovereignty is limited by the Constitution of the United States and provisions of federal law made pursuant to the Constitution. In effect, Maine has claimed, vis-a-vis individuals and other states and nations, all the jurisdiction which the protective umbrella of United States sovereignty can give it; when Maine's claims conflict with constitutionally legitimate claims of the United States or parties claiming under the law of the United States, Maine's claims must give way.

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11. U. S. ratification: 106 Cong. Rec. 11187-96 (1960); 1 Shalowitz, n. 6 supra, at 267-68. T.I.A.S., 13 U.S.T. 2312, effective Sept. 30, 1962; T.I.A.S. 5578, 15 U.S.T. 471, effective June 10, 1964; T.I.A.S. 5639, 15 U.S.T. 1606, effective Sept. 10, 1964.

Although certain constitutional provisions have special applicability, the principles governing federal limitations upon state power over marine matters are in general those that apply in other areas of federal-state relations. The foundation of the federal power is the Supremacy Clause, Article VI, Clause 2 of the Constitution, which provides that:

> This Constitution, and the Laws of the United States which shall be made in pursuance thereof; and all treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the judges in every State shall be bound thereby; anything in the Constitution or Laws of any State to the contrary notwithstanding.

Limitations upon state power thus may be found expressly and by implication in the Constitution itself, in Acts of Congress passed or judicial decisions rendered pursuant to a power granted in the Constitution, and in treaties validly entered into by the federal government. The following discussion deals first with Constitutional limitations and then with limitations imposed by federal statute or treaty. Limitations imposed by the grant of admiralty jurisdiction to the federal courts in Article III, Section 2, of the Constitution are treated separately because of the complexity of the problem.

1. Constitutional Limitations. The Constitution limits State powers both expressly and by necessary implication from express or implied grants of power to the federal government.

a. Express Limitations. There are certain express limitations upon state power contained in the Constitution which apply equally to

maritime and to other matters. These provisions include the prohibitions against ex post facto laws and laws impairing the obligation of contracts contained in Article I, Section 10, Clause 1; the privileges and immunities clause of Article IV, Section 2, Clause 1; and the prohibitions of the 14th Amendment against state action that deprives citizens of the privileges and immunities of the United States citizens, of due process of law, or of the equal protection of the laws. State legislation infringing upon the civil rights of individuals or involving the taxation, condemnation, or regulation of economic interests must meet the same tests under these provisions whether the subject matter is maritime or not.

Express limitations upon state power having special relevance to control of marine activity and resources are the following:

Treaties and Letters of Marque and Reprisal. The states are absolutely forbidden by Article I, Section 10, Clause 1, of the Constitution to "enter into any Treaty, Alliance, or Confederation; [or to] grant Letters of Marque and Reprisal." These prohibitions deal with matters that are necessarily within the scope of the national government, which must carry on both diplomacy and war for the nation as a whole.[12] While it is unlikely that any State would attempt today to send forth a fleet of privateers, the prohibition against treaty-making is of some importance. For example, a State may not enter into an independent treaty with an adjacent foreign nation in regard to such matters as regulation of fisheries or pollution control.

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12. See Barron v. Baltimore, 32 U.S. (7 Pet.) 243 (1833).

Duties on Imports or Exports; Duties of Tonnage. Under Article I, Section 10, Clause 2, the states are forbidden, without the consent of Congress, to "lay any Imposts or Duties upon Imports or Exports" except as necessary for the execution of state inspection laws. This clause, intended to protect the inland states against discriminatory impositions by the shipping states, protects both goods in the process of importation or exportation from or to foreign nations and to a limited extent, the import-export business, from state taxation.[13] Likewise, under Clause 3 of the same section, the states are forbidden without congressional consent to "lay any Duty of Tonnage" -- that is, charges for entry of a vessel into a port not based on services rendered.[14] Under these provisions, not only is the State of Maine limited in the uses it can make of international trade as a source of general revenue, but measures to make international trade pay its way, as for example, a fee or fine system on oil importers connected with anti-pollution controls, would have to be carefully drawn to avoid collision with the Constitution.[15]

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13. See Brown v. Maryland, 25 U.S. (12 Wheat.) 419 (1827); Youngstown Sheet & Tube Co. v. Bowers, 358 U.S. 534 (1959); Richfield Oil Corp. v. State Board of Equalization, 329 U.S. 69 (1946).

14. See State Tonnage Tax Cases, 79 U.S. 204 (1871); Inman S.S. Co. v. Tinker, 94 U.S. 238 (1877); compare Cooley v. Board of Wardens of Philadelphia, 53 U.S. (20 Wall.) 299 (1851).

15. Maine's recently enacted Coastal Conveyance of Petroleum Act, P.L. 1969, c.572, (38 M.R.S.A. 541-557) creates a Maine Coastal Protection Fund to be used for a variety of purposes under the Act, including clean-up of oil spills and payment of damage claims. The fund is to be in part composed of "annual license fees" paid on a monthly basis by operators of oil transfer, processing, or storage facilities at the rate of 1/2 cent per barrel transferred. To the extent that this fee requirement falls upon facilities handling transfer of oil from or to foreign nations, it may raise questions under the Import-Export Clause. For example, compare City of Galveston v. Mexican Petroleum Corp., 15 F. 2d 208 (S.D. Tex. 1926) (oil held for (Cont'd)

Agreements or Compacts with Other States or Foreign Powers. Under Article I, Section 10, Clause 3, the states are forbidden without the consent of Congress, to "enter into any Agreement or Compact with another State, or with a foreign power." As to foreign nations, this prohibition has the same purpose as that of Clause 1 against treaties, discussed above. The Supreme Court has said that the terms "agreement" and "compact" are of broader reference than "treaty", including "every agreement, written or verbal, formal or informal, positive or implied, by the mutual understanding of the parties."[16] Clause 3 apparently does not, however, apply to agreements purely local in nature.[17] Probably any state-level agreement concerning marine resources or activity would tend to affect the national interest and thus not come within the exception for local matters.

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15. (Cont'd) sale under previously concluded contracts remains protected import when pumped into storage tanks ashore), with Mexican Petroleum Corp. v. City of South Portland, 121 Me. 128, 115 A. 900 (1922) (oil held for sale to general public is not protected import when pumped into storage tanks ashore); Richfield Oil Corp. v. State Board of Equalization, 329 U.S. 69 (1946) (general excise tax measured by gross receipts of sale assessed upon delivery of oil to foreign purchaser's vessel held to violate Import-Export Clause), with Canton R. Co. v. Rogan, 340 U.S. 511 (1950) (franchise tax on railroads measured by gross receipts and apportioned to length of lines held not violative of Import-Export Clause when assessed upon railroad that transhipped goods in foreign commerce from vessels to other railroads.)
    For a more detailed discussion, see Chapter 8, Vol. III.

16. Holmes v. Jennison, 39 U.S. (14 Pet.) 540, 572 (1840).

17. See Barron v. Baltimore, 32 U.S. (7 Pet.) 243, 248 (1833); McHenry Co. v. Brady, 37 N.D. 59, 163 N.W. 540 (1917) (agreement between North Dakota county and Canadian municipalities regarding channel of a stream upheld).

As for agreements or compacts between states, the general principles are the same; but the scope given to local regulation has been broader, because the purpose is the narrower one of preventing "the formation of any combination tending to the increase of political power in the states, which may encroach upon or interfere with the just supremacy of the United States."[18] State courts have thus upheld various forms of interstate agreements entered into without congressional consent on the grounds that such agreements were local.[19]

b. Implied Limitations. In certain areas, the Constitutional grant of a power to the federal government may imply a limitation upon the powers of the states to act in the field in question, even in the absence of Congressional legislation pursuant to such grants. Those grants of power directly pertinent to control of marine activities and resources are the power of Congress to regulate commerce, the power of Congress to regulate foreign affairs, and the admiralty jurisdiction of the federal courts.

The Commerce Clause. The federal power to regulate interstate and foreign commerce granted by Article I, Section 8, Clause 3, of the Constitution may prohibit state action on matters as to which Congress has

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18. Virginia v. Tennessee, 148 U.S. 502, 519 (1893).

19. See Dover v. Portsmouth Bridge Co., 17 N.H. 200 (1845) (bridge over Piscataqua River between N.H. and Maine); Landes v. Landes, 1 N.Y. 2d 358, 153 N.Y.S. 2d 14, 135 N.E. 2d 358, app. dismissed 352 U.S. 948 (1956) (agreement under Uniform Reciprocal Enforcement of Support Act).

not acted at all if the matter sufficiently affects the national interest in the uninterrupted flow of commerce without burden or discrimination by individual states. In matters of sufficient national interest, because uniformity of regulation is imperative, the silence of Congress is presumed to be a congressional mandate that such matters should remain unregulated. Matters of local interest are subject to state regulation, however, if the state is not seeking to attain a goal that is itself violative of the Commerce Clause. In Cooley v. Board of Wardens of Philadelphia,[20] the leading case establishing this proposition, the Supreme Court upheld local regulation of pilotage for vessels in interstate and foreign commerce, saying that the nature of pilotage was "such as to leave no doubt of the superior fitness and propriety, not to say the absolute necessity, of different systems of regulation, drawn from local knowledge and experience, and conformed to local wants."[21] A local pilotage regulation that discriminated against vessels in interstate commerce, as by charging higher fees, however, would fail because it obstructs the national interest in a free flow of commerce and serves only the illegitimate local interest in preferring local enterprise.[22]

Two of the many cases decided under the Commerce Clause are indicative of the way in which the Supreme Court has balanced national and

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20. 53 U.S. (12 How.) 299 (1851).

21. Id. at p.320.

22. See I.B. Schwartz, A Commentary on the Constitution of the United States 250 (1963).

local interests and needs. In Foster-Fountain Packing Co. v. Haydel,[23] the Court struck down a Louisiana statute which prohibited the interstate shipment of raw or unprocessed shrimp caught in the State but imposed no bar upon such shipment of shrimp meat that had been processed and packed within the State. Although the ostensible purpose of the act was the conservation of shrimp for the people of Louisiana, the Court found that since 95% of the processed shrimp were eventually sold outside the State, the true purpose was to favor the Louisiana processing industry and that a bar on shipment for that purpose was a burden upon interstate commerce. In Bayside Fish Flour Co. v. Gentry,[24] on the other hand, the Court upheld a California statute which prohibited the use of edible parts of fish in the manufacture within the state of such products as fish meal and fish flour but permitted the packing of fish for food without restriction. Distinguishing the Foster-Fountain case, the Court held that the purpose of the act was the conservation of a food resource, a matter of proper local concern, and that there was no burden upon interstate commerce, presumably because the restriction fell equally on fish products consumed within the State and those shipped to other states.

The United States District Court for the District of Maine in Stavis Ipswich Clam Co. v. Green[25] recently invalidated provisions of Maine's Sea and Shore Fisheries Law, 12 M.R.S.A. Section 4402, 4454, 4456, on Commerce Clause grounds. The statute was a licensing scheme which, as

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23. 278 U.S. 1 (1928).

24. 297 U.S. 422 (1936).

25. 283 F. Supp. 586 (D. Me. 1968).

interpreted by the Commissioner of Sea and Shore Fisheries, in effect prohibited the sale within Maine of lobster meat removed from the shell at locations outside the state. The Court rejected the Commissioner's arguments that the statute was a conservation measure necessary for the protection of Maine's lobster fishery, because the Commissioner failed to show that sale of foreign lobster meat in Maine would encourage violations of the State's size limits that could not be otherwise deterred.

Thus, any state or local regulatory scheme affecting goods, such as oil, that are shipped by sea in interstate or foreign commerce, or that affects marine products that may eventually be shipped in such commerce, must be examined carefully to determine its impact upon the national interest, and whether it serves a valid local interest.

The validity of state taxation measures is decided on comparable grounds, but a large body of case law dealing in detail with different types of taxes makes generalization difficult. In general, it may be said that state taxation is recognized as a legitimate local interest, but that a tax which discriminates against interstate goods or transportation in favor of local enterprise or that falls directly on the process of commerce will fail unless such tax is an incident of some otherwise valid imposition upon commerce. Maine's 1970 Coastal Conveyance of Petroleum Act, which imposes a license fee upon oil measured by number of barrels transferred as a source for a compensation fund for cleaning up oil spills must be evaluated in light of the Supreme Court's Commerce Clause decisions on state tax and license measures.[26]

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26. For the Maine Act, see n.15 above. As to state taxation and commerce generally, see 1 B. Schwartz, n.22 supra at 290-320. (Cont'd)

Power Over Foreign Affairs. Although there is no specific grant in the Constitution, the Supreme Court has held that Congress as a matter of necessity has inherent power to regulate the foreign affairs of the nation.[27] This power, like the Commerce Clause, may bar state action even in the absence of federal legislation. Thus, in United States v. California,[28] decided in 1947, the Supreme Court held that California could not lease oil rights in submerged lands beneath the waters of its territorial sea, because such action was an intrusion upon the paramount rights of the United States in such lands. These federal rights were necessary to the conduct of foreign relations and the preservation of national security

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26. (Cont'd) In general, franchise and privilege taxes imposed upon businesses engaged in interstate commerce have been struck down, although such taxes may be permitted, at least in apportioned form where a business is both intrastate and interstate. See, e.g., Railway Express Agency, Inc., 347 U.S. 359 (1954) (annual privilege tax on express companies measured on gross receipts earned in state on business passing through state held bad as to company doing solely interstate business); General Motors Corp. v. Washington, 377 U.S. 436 (1964) (apportioned privilege tax measured on gross wholesale sales within state upheld). In a line of cases that may be analogous to the Maine Act, however, the Court has permitted states to levy highway use taxes against interstate carriers measured in accordance with such criteria as mileage or volume, so long as such taxes are reasonably related to the costs of highway construction and maintenance. See, e.g., Capitol Greyhound Lines v. Brice, 339 U.S. 542 (1950) (taxes based on vehicle value and passenger miles upheld). See also 1 B. Schwartz, supra at 261-64.

27. Perez v. Brownell, 356 U.S. 44, 57 (1958). The power is implicit in the express grants to Congress of power to regulate foreign commerce and naturalization, to punish piracies and felonies and offenses against the law of nations, to declare war, and generally through the necessary and proper clause to implement all governmental powers vested by the Constitution. See U.S. Const., Art. I, §8. A similar implication may be drawn from the express prohibitions upon conduct of foreign affairs by the states. See U.S. Const., Art. I, §10 and Section 1.a. above.

28. 332 U.S. 19 (1947).

by the federal government.[29] Most potential state conflicts with the foreign affairs power arising out of submerged lands and their exploitation have become questions of statutory interpretation as a result of the passage by Congress in 1953 of the Submerged Lands Act[30] and the Outer Continental Shelf Lands Act.[31] (See Section 2.c. below). State legislation dealing with surface marine activity unconnected with exploitation of submerged lands might run foul of the foreign affairs power, however, if such legislation involved or impinged upon relations with foreign nations or foreign nationals.[32]

In matters of local interests where no paramount federal rights exist, a state may exercise its police power both upon its territorial seas and upon the high seas, if there is no conflict with other Constitutional provisions or Acts of Congress.[33] State legislative jurisdiction on the high seas is further limited by the prohibitions against extra-territorial legislation implicit in the due process clause. Such legislation has been held valid when it regulates the conduct of citizens of the state,[34] and

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29. Id. at p.35-36.

30. 43 U.S.C. §1311 et seq.

31. 43 U.S.C. §1331 et seq.

32. Cf. Zschernig v. Miller, 389 U.S. 429 (1968) (Oregon probate laws regulating inheritance by nonresident aliens on a country-by-country basis held invalid as intrusion upon federal foreign affairs power).

33. See Toomer v. Witsell, 334 U.S. 385 (1948) (state tax on taking of shrimp by nonresidents within three-mile limit did not invade paramount federal rights but was invalid on Commerce Clause and Privileges and Immunities grounds); Skiriotes v. Florida, 313 U.S. 69 (1941) (conviction of citizen of state for taking sponges on high seas with equipment illegal under state statute upheld); The Hamilton, 207 U.S. 398 (1907) (state wrongful death statute held applicable in suit between citizens of state for injury occurring on the high seas).

it may be valid when it deals with other objects or transactions in which the state has a significant and legitimate interest.[35] Otherwise it is beyond state power.

Admiralty Jurisdiction. By virtue of the grant of jurisdiction to the federal courts in "all cases of admiralty and maritime jurisdiction" contained in Article III, Section 2, of the Constitution, the federal courts have the power to declare and Congress has the power to modify and add to a separate body of substantive law that governs maritime affairs. The admiralty grant may bar state legislation on maritime matters in the silence of Congress where such legislation would conflict with or interfere with the uniformity of the federal judge-made maritime law. Where a maritime matter is one of local concern and the nonstatutory maritime law does not cover the point, state law will be allowed to supplement the maritime law. No case has been found in which the admiralty grant barred state legislation of its own force in the silence of Congress, where the nonstatutory maritime law was also silent. For a detailed discussion of the problem, see Section 3 below.

2. Statutory and Treaty Limitations. There are many areas of federal power which, under the Constitution, are not exclusive. For example, the national interest in an interstate commerce matter may not be so

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34. See Skiriotes v. Florida, n.33 supra; The Hamilton, n.33 supra.

35. See George, Extraterritorial Application of Penal Legislation, 64 Mich. L. Rev. 609, 613-14, 627 (1966).

great as to bar state legislation in the silence of Congress, yet Congress has undoubted power to legislate affirmatively on such matters if it wishes. If Congress has not exercised its power, the states are free to act. When Congress does act, however, it has long been clear that by virtue of the Supremacy Clause, "the States have no power, by taxation or otherwise, to retard, impede, burden, or in any manner control, the operations of the constitutional laws enacted by Congress to carry into execution the powers vested in the general government."[36] This doctrine of federal legislative supremacy, today generally considered under the rubric "pre-emption," creates difficult problems of interpretation when applied on a case-by-case basis.[37] The doctrine applies in similar fashion to treaties entered into by the United States.[38] Problems of pre-emption under the admiralty clause are dealt with in Section 3 below.

The Supreme Court has said that the test of pre-emption "in the final analysis" is whether a state law challenged on supremacy grounds "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."[39] The best articulation of this test appears in Florida Lime & Avocado Growers v. Paul, in which the Court stated that a state law might be found to be such an obstacle when there is either "such actual conflict between the two schemes of regulation that both cannot stand in the same area [or] evidence of a congressional design

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36. McCulloch v. Maryland, 17 U.S. (4 Wheat.) 316, 436 (1819).

37. See generally, Note, Pre-emption as a Preferential Ground: a New Canon of Construction, 12 Stan. L. Rev. 208 (1959); Note, The Pre-emption Doctrine and Federal-State Cooperation, 1967 U. Ill. L.F. 656.

38. See Kolovat v. Oregon, 366 U.S. 187 (1961).

39. Hines v. Davidowitz, 312 U.S. 52, 67 (1941).

to pre-empt the field."[40] Such a congressional design may be found either when "the nature of the regulated subject matter permits no other conclusion or [when] the Congress has unmistakably[41] so ordained." The remainder of this decision is organized in terms of the Florida Lime tests, each of which involves a different problem of interpretation.

a. Actual Conflict. In the Florida Lime case, the Court said that actual conflict making "[a] holding of federal exclusion of state law...inescapable and [requiring] no inquiry into congressional design" occurs "where compliance with both federal and state regulations is a physical impossibility for one engaged in interstate commerce."[42] In that case, however, the Court found no such conflict between a California statute imposing a minimum oil-content requirement on avocados marketed within the state and federal marketing regulations based on picking dates and minimum sizes, because there was no evidence that dual compliance was impossible.

An actual conflict was found in the classic case of Gibbons v. Ogden,[43] when the Supreme Court held that New York's grant of a steamboat monopoly was invalid in the face of federal legislation licensing vessels to navigate in interstate commerce. In Huron Portland Cement Co. v. Detroit,[44] on the other hand, it was argued that the same federal

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40. 373 U.S. 132, 141 (1963).

41. Id. at p.142.

42. Id. at p.142-43.

43. 22 U.S. (9 Wheat.) 1 (1824).

44. 362 U.S. 440 (1960).

licensing scheme immunized licensed vessels from the operation of a Detroit smoke abatement ordinance. The Court held to the contrary, distinguishing Gibbons v. Ogden, because the Detroit ordinance was a valid police power measure which did not "exclude a licensed vessel from the port of Detroit (or) destroy the right of free passage."[45] The mere fact that compliance with the state statute is a burden does not cause a conflict with the federal scheme.[46] It is the imposition of inconsistent duties or obligations, making dual compliance impossible, that is the vice.

Furthermore, it is clear that even directly parallel regulation may not give rise to such a conflict as will void state legislation. As the Court said in upholding a state anti-discrimination statute in the face of arguments that the particular field (employment of airline pilots) was pre-empted by various less rigorous federal statutory anti-discrimination provisions, "To hold that a state statute identical in purpose with a federal statute is invalid under the Supremacy Clause, we must be able to conclude that the purpose of the federal statute would to some extent be frustrated by the state statute."[47] In that case, the Court in part relied on the fact that no federal agency was actually enforcing the

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45. Id. at p.448.

46. Of course, as pointed out in Sec. 1 above, a state statute that imposes a burden upon interstate commerce is invalid without regard to federal legislation.

47. Colorado Anti-discrimination Comm. v. Continental Air Lines, 372 U.S. 714, 722 (1963). For a case in which one ground of the decision was the frustrating effect of state legislation upon the federal purpose, see Pennsylvania v. Nelson, 350 U.S. 497, 505-09 (1956), where state antisubversive legislation was struck down, in part because it conflicted with a federal regulatory scheme.

prohibitions against discrimination which Congress had established.[48]

b. Congressional Design to Pre-empt the Field.

(1) Where the Nature of the Subject Matter Demands It. In the Florida Lime case, the Supreme Court suggested that a subject as to which Congress must be presumed to have intended pre-emption was one "by its very nature admitting only of national supervision...[or] demanding exclusive federal regulation in order to achieve uniformity vital to national interests."[49] The Court, in light of these tests, held the determination of the maturity of avocados "to be an inherently unlikely candidate for exclusive federal regulation," one which the Court had "traditionally regarded as properly within the scope of state superintendence."[50] The Court has more succinctly expressed the test as being whether "the federal interest is so dominant that the federal system will be assumed to preclude the enforcement of state laws on the same subject."[51] In Hines v. Davidowitz,[52] the Court found that a dominant federal interest in protecting the personal liberty of aliens required uniformity in the field of alien registration and so struck down a Pennsylvania alien registration law. Similarly, in Pennsylvania v. Nelson,[53] one of the grounds

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48. 372 U.S. at 724.

49. 373 U.S. at 143-44.

50. Id.

51. Rice v. Santa Fe Elevator Corp., 331 U.S. 218, 230 (1947)

52. Note 39 above.

53. 350 U.S. at 504-05.

for decision was the finding of such an interest in the field of subversive control because of the need for an integrated nationwide defense effort.

While the matters involved in the foregoing cases are more clearly of national concern than would be true of many questions arising under legislation based on the Commerce Clause, the Court has found a dominant federal interest in Commerce Clause cases where the subject matter was clearly such as to require a single, uniform national rule.[54] Where the Court finds the matter appropriate for local regulation, however, the opposite result will be reached in the absence of any frustrating effect of the state upon the federal regulation or of any express contrary manifestation by Congress.[55] State laws which fall under the dominant-federal-interest test might well be invalid even in the absence of federal statute by virtue of their conflict with an exclusive federal power under the Constitution.[56]

(2) Express Manifestation of Congressional Design. A congressional intent to occupy the field may be found where Congress expressly provides that its legislative scheme is exclusive. Thus where Congress, in the United States Warehouse Act, had granted exclusive power over licensees

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54. See, e.g., Chicago v. Atchison, Topeka & Santa Fe Rwy., 357 U.S. 77 (1958) (Interstate Commerce Act); California v. Taylor, 353 U.S. 553 (1957) (Railway Labor Act).

55. See, e.g., Florida Lime & Avocado Growers v. Paul, n.40 above at 143-46; Huron Portland Cement Co. v. Detroit, n.44 above at 444-46; California v. Zook, 336 U.S. 725 (1949).

56. See Note, 11 Stan. L. Rev. 208 (1959).

under the Act to the Secretary of Agriculture, the Supreme Court held that any state regulation of matters embraced within the Act was invalid.[57] Even such an express provision requires interpretation, however. In the same case, the Court upheld state law pertaining to matters that it found to be beyond the scope of the federal act.[58]

A manifestation of congressional intent to pre-empt may also be found in the absence of express provision when the regulatory scheme involved is so all-embracing as to make clear a design to bar state entry. Thus, in Pennsylvania v. Nelson, an alternate ground for finding state antisubversive legislation superseded by the federal Smith Act was the detailed provisions and broad scope of the federal act and related measures, which made "the conclusion...inescapable that Congress has intended to occupy the field of sedition."[59] Determination based on the nature of the federal scheme is perhaps best illustrated by contrasting Campbell v. Hussey,[60] in which the Court found a purpose to pre-empt in declarations in the Federal Tobacco Inspection Act of the need for uniform inspection and classification standards and the grant of authority to the Secretary of Agriculture to promulgate such standards, with the Florida Lime case,[61] where the Court, distinguishing Campbell, found no "pre-emptive design" in the Agricultural Adjustment Act's marketing standards,

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57. Rice v. Santa Fe Elevator Corp., n.51 above.

58. Id. at p.236-7.

59. 350 U.S. at 504.

60. 368 U.S. 297 (1961).

61. 373 U.S. at 146-52.

which were intended to be minimums, applicable only in areas designated by the Secretary on the basis of industry proposals.

c. Specific Federal Legislation Affecting Marine Resources. As the foregoing authorities indicate, the question whether state action in a particular area of marine activity is preempted by federal legislation must be answered on a case-by-case basis. Clearly, the state cannot directly frustrate the will of Congress, for example, by purporting to permit a pollution-causing activity which Congress has expressly forbidden. Where there is no such direct conflict, however, then the area must be examined with care to determine whether Congress has implicitly or expressly intended that federal regulation be exclusive. The following discussion of some of the more important acts of Congress affecting marine resources is intended to point out areas in which existing federal legislation may create problems for Maine's lawmakers. For discussion of specific problems of preemption in the admiralty area, see Section 3 below.

The Submerged Lands Act of 1953, confirming title in the states to lands and natural resources beneath their territorial waters, asserts that state law is to be applicable to such questions.[62] The Act, however, saves all rights previously acquired by individuals under federal law, thus preempting any state law that purports to affect such rights.[63] Of course, Congress acting under any of its Constitutional powers may preempt state law as to other matters just as it may for land areas. The Outer

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62. 43 U.S.C. §1311(a).

63. 43 U.S.C. §1315.

Continental Shelf Lands Act, also enacted in 1953, expressly makes federal law applicable in the Continental Shelf Zone to the seabed and fixed installations used in the exploitation of natural resources.[64] The Act adopts as federal law, however, all state law (except tax measures) in effect on the Act's effective date, August 7, 1953, that is not inconsistent with other provisions of federal law.[65] The Act thus preserves whatever preemptive effect individual federal enactments may have on state law, as well as expressly preempting state tax laws. It is not clear whether the Act is to be read as preempting all state laws enacted after August 7, 1953, or whether such laws are to have the limited effect that they would in any event enjoy on the high seas. See Section 1.b above.

The Federal Refuse Act and Oil Pollution Act provide various penalties for oil spillage on navigable waters and adjacent shorelines and require removal of spilled oil at the expense of the person responsible.[66] 1970 amendments to these provisions make the owner of a vessel responsible for an oil spill absolutely liable for clean-up costs up to $14,000,000 or $100 per gross ton, whichever is less and impose similar liability up to $8,000,000 upon the owners of onshore or offshore installations. In the event of willful negligence or misconduct, vessel or

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64. 43 U.S.C. §1333(a)(1).

65. 43 U.S.C. §1333(a)(2). Thus, state wrongful death statutes apply to deaths occurring on artificial islands. Rodrigue v. Aetna Casualty & Surety Co., 395 U.S. 352 (1969).

66. Refuse Act, 1899, 33 U.S.C. §407, 411-13; Oil Pollution Act, 1924, as amended in 1966, 33 U.S.C. §431-37.

installation owners are liable for the full clean-up cost and may be fined up to $10,000 for each offense.[67] The earlier provisions had been held to preempt state water quality standards adopted under the federal Water Pollution Control Act that imposed a less rigorous standard.[68] Maine's Coastal Conveyance of Petroleum Act[69] is apparently merely supplementary to the federal provisions, but the acts must be examined carefully to determine whether there is any conflict that might create a preemption problem.

Regulation of navigation on navigable waters of the United States is a further area in which federal authority has been asserted. The Rivers and Harbors Act of 1899 prohibits construction of a bridge or other structure on navigable waters without approval by the Chief of Engineers and the Secretary of the Army and, if the structure affects waters not entirely in one state, the consent of Congress.[70] The Act amounts to a federal preemption of exclusive state authority to permit obstructions on navigable waters, but has been interpreted as requiring concurrent state and federal consent for any such activity, at least on waters wholly within one state, in the absence of special federal legislation on the

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67. Water Quality Improvement Act of 1970, P.L. 91-224, signed April 3, 1970. See New York Times, April 4, 1970.

68. U.S. v. Interlake Steel Corp., 297 F. Supp. 910 (N.D. Ill. 1969), Water Pollution Control Act of 1956, as amended 1965, 33 U.S.C. §466-466k.

69. N.15 supra. See Vol. III, p.484 et seq.

70. 33 U.S.C. §401-406.

particular matter in question.[71] Congress has acted to regulate navigation on the high seas and on rivers, harbors, and inland waters.[72] The obvious necessity of uniform rules of the road means that this legislation preempts state action on the same matter.[73]

The Federal Motorboat Act of 1940[74] and the Federal Boating Act of 1958[75] impose safety and registration requirements upon virtually all fishing vessels and the great majority of recreational watercraft. The 1940 Act's safety provisions presumably preempt any inconsistent state provisions on the basis of the need for uniformity.[76] The 1958 Act provides for approval of state systems of numbering undocumented vessels. In the absence of such approval, the federal system set out in the Act applies, presumably preempting any unapproved provisions of state law.[77]

In general, regulation of fisheries has been deemed a matter subject to state law in the absence of federal legislation.[78] The Submerged Lands Act of 1953 confirms title to natural resources in the waters of a state's territorial sea,[79] and Congress has given blanket consent to interstate compacts regulating fishing that are not inconsistent with federal

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71. See Cummings v. Chicago, 188 U.S. 410 (1903); International Bridge Co. v. New York, 254 U.S. 126 (1920); Maine Water Co. v. Knickerbocker Steam Towage Co., 99 Me. 473, 59 A. 953 (1905). Cf. Zabel v. Tabb, 296 296 F. Supp. 764 (M.D. Fla. 1969); U.S. v. Republic Steel Corp., 362 U.S. 482 (1960).

72. 33 U.S.C. §143 (President to proclaim regulations for preventing collisions on the high seas); 33 U.S.C. §154 et seq. (Inland Rules).

73. See The Stella B., 183 Fed. 507 (E.D. N.Y. 1907); Intagliata v. Shipowners & Merchants Towboat Co., 26 Cal. 2d 365, 195 P. 2d 1 (1945).

74. 46 U.S.C. §526-526a.

75. 46 U.S.C. §527-527b.

law.[80] The Fish and Wildlife Act of 1956, which is concerned with development of fisheries as an economic and recreational resource, specifically preserves states' rights under the foregoing legislation.[81] Most federal legislation in the fisheries realm similarly pertains to research and development and thus has no preemptive effect on state law.[82] The Northwest Atlantic Fisheries Act, implementing an international convention applicable to the high seas, authorizes the Secretary of the Interior to promulgate regulations pertinent to such matters as seasons and size and catch limits, which could preempt state law that sought to assert extraterritorial effect, especially in view of authority given the Secretary to authorize state officers to act as federal law enforcement officers under the act.[83] In 1964, Congress enacted a comprehensive ban on fishing by foreign vessels within the territorial waters of the United States except when authorized by the Secretary of the Treasury upon the certification of the Secretaries of State and the Interior as to the national interest and with the concurrence of any affected state.[84] The need for uniform

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76. See Blevens v. Sfetky, 259 Cal. App. 2d 527, 66 Cal. Rptr. 486 (2d Dist. 1968) (Motorboat Act's prohibition of negligent operation makes state motorboat guest statute inapplicable.)

77. 46 U.S.C. §527a(b)-(h), 527h.

78. Toomer v. Witsell, n.33 supra; Skiriotes v. Florida, n.33 supra; Manchester v. Massachusetts, 139 U.S. 240 (1891).

79. 43 U.S.C. §1311 et seq.

80. 16 U.S.C. §667a.

81. 16 U.S.C. §742i.

82. See e.g., 16 U.S.C. §755-760g; 777-777k; 778-778c; 779-779f; 1221-26.

83. 16 U.S.C. §981-91. See 1950 U.S. Code Cong. and Ad. News 3936-39. Vol. IV, p. 633.

enforcement of laws affecting foreign nationals, coupled with a provision authorizing employment of state officers for enforcement, undoubtedly means that state legislation of similar purport would be pre-empted. A like effect is even more clearly to be attributed to a 1966 Act establishing a 9-mile fisheries zone contiguous to the territorial sea, in which the United States asserts the same exclusive rights that it claims in the territorial sea. That Act also expressly asserts that it does not extend state jurisdiction over natural resources beyond that already recognized in the territorial sea.[85]

3. Limitations in the Admiralty Clause. Article III, Section 2, of the Constitution extends the judicial power of the United States "to all Cases of Admiralty and maritime Jurisdiction." This clause is both a source of jurisdiction for the courts of the United States and a source of substantive law. Under its authority, Congress has granted jurisdiction of "Any civil case of admiralty or maritime jurisdiction" to the federal district courts.[86] Further, by virtue of the Constitutional provision, not only is the general maritime law of the world as recognized and declared by the courts of the United States applicable in all cases arising within the admiralty jurisdiction, but Congress has power by legislation to alter or add to that law. Thus, maritime activities of Maine residents may be such as to bring potential lawsuits arising therefrom within the jurisdiction of the federal courts. Moreover to the extent that Maine law governing marine resources deals with surface activities upon waters navigable in interstate or foreign commerce, it may con-

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84. 1 U.S.C. §1081-85.

85. 16 U.S.C. §1091-94.

86. 28 U.S.C. §1333.

flict with federal law based on the admiralty clause.

a. The Scope of the Admiralty Jurisdiction. The scope of the admiralty jurisdiction has in general been judicially defined, although, as will appear below, Congress has power to extend that scope within the broad limits of the admiralty grant. In a series of 19th-century decisions, the United States Supreme Court made clear that both the admiralty jurisdiction of the courts of the United States and the power of those courts to declare maritime law apply on all navigable waters of the United States.[87] In The Daniel Ball,[88] the Court defined "navigable waters" as those "navigable in fact," that is, waters "used, or...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 Court further defined "navigable waters of the United States" as those waters which "form in their ordinary condition by themselves, or by uniting with other waters, a continued highway over which commerce is or may be carried on with other States or foreign countries in the customary modes in which such commerce is conducted by water."[89] Thus, the waters subject to the admiralty jurisdiction include not only the high seas and the territorial sea and internal waters

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87. The Genesee Chief v. Fitzhugh, 53 U.S. (12 How.) 443 (1851); The Hine v. Trevor, 71 U.S. (4 Wall.) 555 (1867); The Lottawanna, 88 U.S. (21 Wall.) 558 (1875). See, generally, Note, From Judicial Grant to Legislative Power: The Admiralty Clause in the Nineteenth Century, 67 Harv. L. Rev. 1214 (1954). See also Vol. II, p. 221 et seq.

88. 77 U.S. (10 Wall.) 557 (1871).

89. Id. at p.563.

of the state in the international law sense, but also all inland waters, both lakes and rivers, capable of being navigated by vessels engaged in interstate or foreign commerce, even though such waters are wholly within one state. Presumably, only a completely intrastate lake or pond which has no navigable connection with waters in another state is outside the jurisdiction.[90]

The test for determining whether a particular case is within the admiralty jurisdiction varies according to whether the matter in question is a tort or contract. In general, the admiralty jurisdiction is said to extend to all torts occurring on the navigable waters of the United States and to all contracts whose subject matter is maritime, that is, relating to "navigation, business, or commerce" on the navigable waters of the United States.[91] While these generalizations embrace the great majority of situations, it is important to realize that the actual outlines of the jurisdiction have been drawn on a case-by-case basis over the centuries. There are thus important exceptions, both by way of inclusion and exclusion, which will be discussed in section d. below.

Generalization is more difficult with regard to the scope of congressional legislative power under the admiralty grant. Clearly, that

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90. Compare Marine Office of America v. Manion, 241 F. Supp. 621 (D. Mass. 1965) (Lake Winnipesaukee not within the jurisdiction where no evidence that its outlets to the sea were navigable), with Madole v. Johnson, 241 F. Supp. 379 (W. D. La. 1965) (artificial lake formed by dam in formerly navigable river was within the jurisdiction).

91. DeLovio v. Boit, 7 Fed. Cas., No. 3776, at 444 (C.C.D. Mass. 1815); G. Gilmore & C. Black, The Law of Admiralty 10 (1957) [hereinafter cited Gilmore & Black].

power includes all matters within the jurisdiction for other purposes; and the Supreme Court has held that, while the Court has the ultimate say as to whether a legislative act is within the scope of the Constitutional admiralty grant, Congress may by statute extend the admiralty jurisdiction of the federal courts, as previously defined by the Court. Thus, in The Thomas Barlum,[92] the Court upheld the constitutionality of admiralty proceedings under the Ship Mortgage Act of 1920,[93] despite the fact that similar nonstatutory mortgages on vessels had previously been held unenforceable in admiralty because beyond the jurisdiction. Similarly, in the Extension of Admiralty Act of 1948,[94] Congress provided expressly that the jurisdiction included injuries caused by a vessel where the damage occurred on land, overturning a contrary Supreme Court decision. The Court did not even trouble to argue the Act's constitutionality in holding that an injury to a maritime worker caused on shore by a portion of the ship's cargo was within the jurisdiction.[95]

Perhaps these cases on congressional power are best understood as turning on the difference between constitutional and statutory interpretation. When the Supreme Court determines the admiralty jurisdiction of the federal courts, it is interpreting the statutory grant of jurisdiction to those courts. Congress, in enactments such as the Ship Mortgage

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92. 293 U.S. 31 (1934).

93. 46 U.S.C. §911-984.

94. 46 U.S.C. §740.

95. Gutierrez v. Waterman S.S. Corp., 373 U.S. 206 (1963).

Act or the Extension Act, is adding to its previous jurisdictional grant. In upholding such additions to the statutory jurisdiction, the Supreme Court is following familiar practice in giving the language of Article III of the Constitution a broader interpretation than that accorded to the jurisdictional statute.[96] In any event, there is little question of the validity of the many congressional enactments under the admiralty clause. All of them are undoubtedly independently supportable as exercises of the Commerce power, because, directly or indirectly, they affect shipping that moves in interstate or foreign commerce.[97]

b. Consequences of Admiralty Jurisdiction -- Procedural. If a case is one that arises within the admiralty jurisdiction, the principal consequence is that it may be brought in a federal district court without regard to the amount in controversy, citizenship of the parties, or presence of a federal question. The federal statute granting this jurisdiction has, since 1789, saved to suitors "all other remedies to which they are otherwise entitled."[98] This provision has been interpreted to mean that the federal jurisdiction is exclusive if the relief sought is an in rem decree in execution of a maritime lien against a vessel or other

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96. See Gilmore & Black, 433-34.

97. See Id. at p.42.

98. 28 U.S.C. §1333. Until the 1948 revision of the Judicial Code, this provision read, "the right of a common law remedy where the common law is competent to give it." 1 Stat. 76-77. The Supreme Court has treated the revised language as importing no change in the distribution of jurisdiction between state and federal courts. See Madruga v. Superior Court of California, 346 U.S. 556, 560n. (1954).

maritime property (historically available only in admiralty) or if Congress has expressly so provided by statute.[99] Otherwise, the jurisdiction is concurrent with the jurisdiction of the state courts of common law or, if other jurisdictional requisites are met, the action may be brought in federal court as an ordinary civil action not subject to the special admiralty procedure discussed below.[100] Thus, when a case is one arising within the admiralty jurisdiction, a plaintiff who desires only a money judgment against one or more defendants in personam may sue in admiralty or at common law at his election, except in the few cases where Congress has made express provision to the contrary.

If suit is brought in admiralty in a federal district court by virtue of either exclusive or concurrent jurisdiction, certain special procedural consequences attach. As a result of the unification of admiralty and civil procedure by a 1966 amendment to the Federal Rules of Civil Procedure, differences between admiralty practice and that in ordinary civil actions in the federal courts have been greatly minimized, but certain important variations remain.[101] The principal difference is that in admiralty

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99. The Moses Taylor, 71 U.S. (4 Wall.) 411 (1867); The Hine v. Trevor, n.87 supra. For statutory provisions creating exclusive jurisdiction, see Death on the High Seas Act, 46 U.S.C. §761, discussed at notes 131-134 below; Suits in Admiralty Act, 46 U.S.C. §472 (waiver of sovereign immunity by United States for liabilities incurred by merchant vessels); Public Vessels Act, 46 U.S.C. §781 (suits against United States for liabilities incurred by public vessels).

100. Leon v. Galceran, 78 U.S. (11 Wall.) 185 (1871). Actions in which equitable relief is sought also come under the saving clause. The Knapp, Stout & Co. v. McCaffrey, 177 U.S. 638 (1900). The Supreme Court has held that a claim based on the general maritime law is not within the federal question jurisdiction of the federal courts. Romero v. International Terminal Operation Co., 358 U.S. 354 (1958).

101. See B. Currie, Unification of the Civil and Admiralty Rules: Why and How, 17 Maine L. Rev. 1. (1965); C. Fiddler, Admiralty Practice in Montana and All That, id at p.15.

there is no right to trial by jury. Other major differences are embodied in the Supplemental Rules for Certain Admiralty and Maritime Claims, which contain special procedures for maritime attachment and garnishment, in rem actions, actions for trial of rights in maritime property, and limitation of liability proceedings. Otherwise, the procedure is identical to that in an ordinary civil action, although it is currently an open question whether equitable remedies such as injunction and specific performance were made available in admiralty actions by the procedural unification.[102]

c. Consequences of Admiralty Jurisdiction -- Substantive. As a general proposition, if a case is one that arises within the admiralty jurisdiction, it is governed by a body of substantive federal maritime law that may differ significantly from the law of any state. This proposition holds true not only when suit in such a case is brought in admiralty in a federal court, but also when suit is brought in state court or in a federal court on jurisdictional grounds other than admiralty. Thus, a seaman injured in the course of his duties aboard ship may sue his employer in a state court where common-law procedure, including the right to trial by jury, will apply; but the substantive merits of his claim will be governed by the same body of distinctive maritime law principles that would apply if suit were brought in admiralty. Further, the existence of this body of federal maritime law may preempt state legislative action on

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102. Compare H. Zobel, Admiralty Jurisdiction, Unification, and the American Law Institute, 6 San Diego L. Rev. 375 (1969), with ALI, Study of the Division of Jurisdiction between State and Federal Courts 226-27 (1969).

maritime matters if such action is in conflict with the federal law or policy.[103]

The substantive law applicable to maritime cases has three basic sources: (1) Most important, the traditional body of rules and principles known as "the general maritime law" developed originally in the maritime courts of Europe as a uniform body of international private law. (2) Modifications of or additions to the general maritime law developed in the courts of the United States to meet new conditions or problems. (3) Modifications of or additions to the general maritime law enacted by Congress. The power of the federal courts to adopt and fashion the general maritime law is inherent in the grant of admiralty jurisdiction in Article III and exists as a matter of necessity.[104] The power of Congress to alter or supplement that law is deduced from the same constitutional source. By virtue of Article I, Section 8, Clause 18, Congress may make all laws "necessary and proper for carrying into Execution...all other Powers vested by this Constitution in the Government of the United States, or in any Department or Officer thereof." Thus, legislative additions to or modifications of the general maritime law are an exercise of congressional power in aid of the power of the federal courts over that law.[105]

The applicability of the federal maritime law in state courts and the preemptive effect of that law on state legislative action are both

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103. See Southern Pacific Co. v. Jensen, 244 U.S. 205 (1917); Chelentis v. Luckenbach SS. Co., Inc., 247 U.S. 372 (1918); Pope & Talbot, Inc. v. Hawn, 346 U.S. 406 (1953); Gilmore & Black 43-45, 374-86.

104. See Gilmore & Black 40-42.

105. See The Thomas Barlum, n.92 supra, at 42-45; Panama R. Co. v. Johnson, 264 U.S. 375, 385-87 (1924).

based on the need for uniformity. The maritime law primarily governs the affairs of the shipping industry, which touch most of the fifty states, as well as all seafaring foreign nations. A uniform body of law is needed, not only for convenience of the industry in interstate operation, but to assure a general uniformity of American law and practice with the internationally recognized principles of maritime law applied in other nations.[106] Questions of the preemptive effect of the federal maritime law, then, like similar questions under the Commerce Clause, must be answered by balancing the federal interest in uniformity against whatever interests are at stake in the application of state law. When state law serves legitimate local interests and its application will not interfere with the harmonious operation of the maritime law, then state law may control.[107] Exceptions to the principle of uniformity will be discussed in Section d. below.

d. Consequences of Admiralty Jurisdiction -- Specific Problems. As pointed out above, if a case is one arising within the admiralty jurisdiction, a principal consequence is that the plaintiff may, and in some cases must, bring his suit in a United States District Court sitting in admiralty. A further consequence is that federal decisional and statutory maritime law may govern the case regardless of which court it is brought in. The following discussion explains when these consequences will occur for selected areas of admiralty practice which may affect maritime activity.

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106. Southern Pacific Co. v. Jensen, n.103 supra; Gilmore & Black, 43-44.

107. See Kossick v. United Fruit Co., 365 U.S. 731 (1961).

(1) Torts. All torts that occur on the navigable waters of the United States, or, by statute, that originate on such waters and are consummated ashore, are within the admiralty jurisdiction, at least if they involve navigation or maritime commerce.[108] Thus, such matters as an injury to a crewmember aboard a fishing boat[109] or a collision involving small pleasure craft[110] are of admiralty cognizance. A civil action in admiralty may also be brought for an oil spill.[111] Although the cases are conflicting, there is some authority that certain fringe matters, such as an injury to a swimmer not caused by a vessel would be excluded, even though occurring upon navigable waters.[112] With the exception of certain statutory actions discussed below, all maritime torts may be sued upon in personam either in admiralty or in an appropriate common-law court. Injury caused by negligence or other tort in the management of a vessel also gives rise to a maritime lien, which may be sued upon only in an in rem action in admiralty. See paragraph (3) below.

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108. See Gilmore & Black, 21-22.

109. See The Carrier Dove, 97 Fed. 111 (1st Cir. 1899); Justillian v. Versaggi, 169 F. Supp. 71 (S.D. Tex. 1954).

110. See Niepert v. Cleveland Electric Illuminating Co., 241 F. 2d 916 (6th Cir. 1957); Stolz, Pleasure Boating and Admiralty: Erie at Sea, 51 Calif. L. Rev. 661, 662 n.7 (1963).

111. See Atlantic Pipeline Co. v. Dredge Philadelphia, 247 F. Supp. 857 E.D. Pa. 1965), affirmed 366 F. 2d 780 (3d Cir. 1966).

112. Compare McGuire v. City of New York, 192 F. Supp. 866 (S.D. N.Y. 1961) (injury to swimmer caused by condition of bottom not within jurisdiction), with David v. City of Jacksonville Beach, 251 F. Supp. 327 (M.D. Fla. 1965) (injury to swimmer caused by surfboard was within jurisdiction).

The maritime law governs most but not all incidents of recovery for a maritime tort, and thus, except as noted below, supersedes Maine common law and legislation on this subject. The principal area of concern, and that in which most litigation occurs, is personal injury and death of seaman, longshoreman, and other harborworkers. The seaman injured in the course of his employment has three causes of action which he may join and sue upon either in admiralty or at common law. These remedies apply to crew-members aboard fishing vessels and pleasure boats and other floating structures, including oil drilling barges, but not stationary structures such as bridges and platforms.[113] Under the Jones Act, the seaman may recover against his employer for an injury in the course of his employment caused by negligence.[114] By virtue of the traditional maritime-law remedy of unseaworthiness, he may recover against the owner of a vessel for an injury caused by a defect in the vessel, its equipment, crew, or cargo,[115] without regard to negligence on the part of the owner or his servants. He may also recover his medical expenses and other injury-produced costs under another traditional maritime remedy, maintenance and cure.[116] Contributory negligence is not a bar to these recoveries. Under the Jones

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113. See Mitchell v. Trawler Racer, Inc., 362 U.S. 539 (1960) (fisherman); In re Read's Petition, 224 F. Supp. 241 (S.D. Fla. 1963) (unpaid crewmember of racing yacht); Callendar v. Employer's Liability Assur. Corp., 283 F. Supp. 213 (E.D. La. 1967) (derrickman on offshore drilling vessel); Loffland Bros. Co. v. Roberts, 386 F. 2d 540 (5th Cir. 1967), cert. denied 389 U.S. 1040 (employee of casing contractor on off-shore drilling platform).

114. 46 U.S.C. §688.

115. See Mitchell v. Trawler Racer, Inc., n.113 supra.

116. See Vaughan v. Atkinson, 369 U.S. 527 (1962).

Act, the comparative negligence provisions of the FELA [Federal Employer's Liability Act] are incorporated, and for unseaworthiness a similar rule has been found in the general maritime law.[117] In contrast to Maine's Comparative Negligence Act, which bars any recovery for a plaintiff whose negligence is 50% or more,[118] the maritime law and FELA both permit a plaintiff to recover according to the actual percentage of his negligence.

Longshoremen and other harbor workers who are not primarily employed aboard a "vessel" are not entitled to the Jones Act or maintenance and cure recoveries, but have the remedy of compensation under the federal Longshoremen's and Harbor Workers' Compensation Act,[119] and may sue the vessel owner for unseaworthiness of the vessel when injury is caused by a defect in vessel, equipment, or cargo, even ashore.[120] In the unseaworthiness cases, the owner has a right over against the longshoreman's employer if the injury-causing defect was produced by the act or fault of the employer.[121]

The Supreme Court has made clear that the requirement of uniformity in the maritime law means that neither state common-law remedies in tort nor state statutory remedies, such as workmen's compensation, apply to seamen or to most maritime workers who are within the coverage of the

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117. Federal Employers' Liability Act, 45 U.S.C. §53; Pope & Talbot, Inc. v. Hawn, 346 U.S. 406 (1953).

118. 14 M.R.S.A. §156.

119. 33 U.S.C. §901-950.

120. See Gutierrez v. Waterman SS. Corp., n.95 supra.

121. See Italia Societa per Azioni di Navigazione v. Oregon Stevedoring Co., 376 U.S. 315 (1964).

Longshoremen's and Harbor Workers' Compensation Act, whether proceedings are before a federal or state tribunal.[122] There is, however, a "twilight zone" of cases having both maritime and local attributes in which the result of the decisions is that recovery may be had under either the applicable state compensation statute or the federal Longshoremen's Act.[123] These cases have included such borderline individuals as a structural steel worker working aboard a barge moored under a bridge that was being dismantled,[124] a repairman aboard a vessel on a marine railway 400 feet from the water's edge,[125] and a workman aboard a sand and gravel dredge operating in a lagoon opening off a navigable river.[126] An employee injured in such circumstances may thus have an election between the federal act and Maine's Workmen's Compensation Act.[127]

Death actions present another exception to the uniformity rule. There being no wrongful death remedy under the general maritime law, it has long been held that state wrongful death and survival statutes apply in such actions within the admiralty jurisdiction, whether in federal or state court, except as federal statutes may otherwise provide.[128] These

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122. See Southern Pacific Co. v. Jensen, n.103 supra; Chelentis v. Luckenbach S.S. Co., n.103 supra.

123. See Calbeck v. Travelers Ins. Co., 370 U.S. 114 (1962).

124. Davis v. Department of Labor and Industries, 317 U.S. 249 (1943).

125. Avondale Marine Ways, Inc. v. Henderson, 346 U.S. 366 (1953).

126. Hahn v. Ross Island Sand and Gravel Co., 358 U.S. 272 (1959).

127. See 39 M.R.S.A. §1 et seq. Presumably the provision of 39 M.R.S.A. §2(5)(A) excepting from the Acts' coverage "Persons engaged in maritime employment, or in interstate or foreign commerce, who are within the exclusive jurisdiction of admiralty law or laws of the United States," would be interpreted not to bar coverage of employees in the "twilight zone."

state statutes are generally interpreted to incorporate maritime theories of liability, such as unseaworthiness and comparative negligence.[129] The state death statutes do not apply in the case of seamen, however, because the Jones Act, which incorporates the death and survival provisions of the FELA, is held to preempt state law.[130] Moreover, in cases arising farther than one marine league [3 nautical miles] from shore, the federal Death on the High Seas Act has a similar effect on state law in all cases within its coverage and makes the federal admiralty court the exclusive forum.[131] The seaman injured beyond one marine league, however, may elect between the Jones Act and the Death on the High Seas Act.[132] And the Supreme Court has recently held that the death of an employee on "an artificial island drilling rig" is covered by the death provisions of the Outer Continental Shelf Lands Act, which incorporate state statutes, rather than by the Death on the High Seas Act.[133] The Maine Wrongful

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128. The Hamilton, 207 U.S. 398 (1907).

129. See The Tungus v. Skovgaard, 358 U.S. 588 (1959). The N.J. Wrongful Death Act, N.J. S.A. 2A:31-1, held in that case to incorporate unseaworthiness as a ground of recovery, was virtually identical to the Maine Death statute, 18 M.R.S.A. §2551. See 358 U.S. at 591 n.7, 594-96.

130. Lindgren v. United States, 281 U.S. 38 (1930).

131. 46 U.S.C. §761 et seq. See Guess v. Read, 290 F. 2d 622 (5th Cir. 1961).

132. See Doyle v. Albatross Tanker Corp., 307 F. 2d 465 (2d Cir 1966); Gilmore & Black, 304.

133. Rodrique v. Aetna Casualty & Surety Co., 395 U.S. 352 (1969).

Death Act[134] thus applies to all death cases arising within Maine's inland waters, internal waters, and territorial sea, as well as to cases in which the Outer Continental Shelf Act is applicable, except where the Jones Act controls.

The other major area of maritime tort law is collision. In collision cases, liability is based on a complex body of rules compounded in part of applicable rules of the road and similar federal statutory enactments and in part of judge-made rules developed in admiralty.[135] Although there has been little collision litigation in the common-law courts, it seems clear that these basic substantive rules should govern under the uniformity doctrine.[136] It seems equally clear that another unique rule of the maritime law, that in collision cases where both parties are at fault the damages are to be divided evenly, should govern at common law. An early Supreme Court decision looks the other way, but in all likelihood under current notions of the scope of uniformity, the rule of divided damages would be found applicable in an action at law upon a collision.[137] The result under the admiralty rule varies from that under Maine's Comparative negligence is fifty per cent or more.[138]

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134. 18 M.R.S.A. §2551-53.

135. See Gilmore & Black, 396-408.

136. See cases cited, n.73 supra.

137. See Belden v. Chase, 150 U.S. 674 (1893) (divided damages rule does not apply at common law), criticized in Gilmore & Black, 409-10.

138. 14 M.R.S.A. §156.

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(2) Contracts. Admiralty jurisdiction extends to all contracts "which relate to the navigation, business, or commerce of the sea."[139] The principal forms of transaction embraced in this general definition have been summarized as including:

> Suits on contracts for the carriage of goods and passengers; for the chartering of ships (charter parties; for repairs, supplies, etc., furnished to vessels, and for services such as towage, pilotage, wharfage; for the services of seamen and officers; for recovery of indemnity or premiums on marine insurance policies.[140]

As a result of case-by-case development, there are a number of exceptions to the rule that are not rationally explainable. These exceptions include "Suits on contracts for the building and sale of vessels; for the payment of a fee for procuring a charter; for services to a vessel laid up and out of navigation," and "proceedings to foreclose ship-mortgages other than those designated as 'preferred' in the Ship Mortgage Act."[141] Thus, the unpaid crewmember, ship's chandler, boatyard operator, or other purveyor of supplies and services to a vessel in navigation; the charterer dissatisfied with performance; and the banker who finances the purchase or repair of a vessel all may have claims that are within the admiralty

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139. DeLovio v. Boit, n.91 at 444.

140. Gilmore & Black, 20-21.

141. Id. at p.25.

jurisdiction. These claims may be asserted in personam against the owner, and in most instances give rise to maritime liens which may be asserted in rem against the vessel. See paragraph (3) below.

As in tort cases, the maritime law generally governs contracts that are within the admiralty jurisdiction, unless the matter involved is so "local" in nature as not to require the application of a uniform federal rule. Thus, in Kossick v. United Fruit Co.,[142] the Supreme Court held that a shipowner's oral undertaking to compensate an injured seaman for any failure in treatment rendered the seaman in a United States Public Health Service Hospital was a maritime contract. Accordingly, the ancient maritime law rule upholding oral contracts applied, rather than the New York Statute of Frauds. The Court found a uniform rule necessary because the federal interest, stemming from the international character of the seaman's occupation and its perils, outweighed any interest that New York might have in protecting its courts from fraud. In Wilburn Boat Co. v. Firemen's Fund Ins. Co.,[143] on the other hand, the Court upheld a state statute defining the effect of warranties in a marine insurance policy covering a houseboat situated on a small artificial lake on the Texas-Oklahoma boundary, there being no clearcut rule of maritime law in point. While the majority opinion appears to extend to the states a broad competence to regulate the field of marine insurance, the decision should probably be understood as limited to fact situations of the peculiarly local

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142. 365 U.S. 731 (1961).

143. 348 U.S. 310 (1955).

nature involved in the case -- a noncommercial craft on waters of marginal commercial importance.[144]

(3) Maritime Liens and the In Rem Action. The Maine resident who furnishes services or supplies or is otherwise involved with a vessel may have a unique form of security unavailable in similar transactions ashore. A maritime tort or contract claim involving a vessel, cargo, or other maritime property generally gives rise to a maritime lien against such property in the amount of the liability claimed. Such liens differ from liens arising on land both in their character as security and in the procedure by which they are enforced. The maritime lien takes priority over other claims and is "entirely independent of possession, is non-consensual, and is commonly said not to be extinguished by transfer to a bona fide purchaser without notice of its existence. It may arise even though the owner of the vessel in which it subsists is not personally liable."[145] Procedurally, the lien may be enforced only by an in rem action in admiralty, the jurisdiction of such actions being exclusive. The in rem action is in form against the vessel and may be brought by

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144. 348 U.S. at 321 (Frankfurter, J., concurring); see Gilmore & Black 44-45. The Court distinguished Wilburn on this ground in Kossick v. United Fruit Co., n.142 supra at 742. But see Purofied Down Products Corp. v. Travelers Fire Insurance Co., 278 F. 2d 439 (2d Cir. 1960) (Court will apply state law where no clear rule of maritime law appears).

145. Gilmore & Black, 32. As to priority, see id. at p.593.

arrest of the vessel wherever she is found. Sale of a vessel under an in rem admiralty decree gives the purchase a title good against all prior liens. Note, however, that discharge of a prior maritime lien in this fashion does not extinguish the personal liability of the owners or others on the claim, which may be pursued in an in personam action in admiralty or at common law.[146]

While most maritime claims give rise to maritime liens, there are some important ones that do not. As with the scope of the admiralty jurisdiction, there is no logical pattern to these exceptions, which are the result of case-law development. Among the maritime claims which do not create a lien even though vessel or cargo are involved are seaman's injury claims under the Jones Act, claims for unpaid marine insurance premiums, a master's claim for his wages, and the claims of owners or their general agents for advances.[147] Most of the important maritime claims do give rise to liens, however, including personal injury claims of seamen and others based on unseaworthiness and maintenance and cure; seamen's wage claims; claims for damages caused by collision; statutory ship mortgages; and claims of suppliers, materialmen, and repairmen.[148] Maritime liens do not arise in stationary property, such as oil-drilling platforms.[149]

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146. See, generally, id. at p.31-33, 481-83.

147. Id. at p.512-14.

148. Id. at p.514-19.

149. See The Rock Island Bridge, 73 U.S. (6 Wall.) 213 (1867) (no lien on bridge); Johnson & Towers Baltimore, Inc. v. The Dredge, 241 F. Supp. 598 (D Md. 1965) (dredge moored to shore and used to produce sand and gravel for a washing plant on shore not subject to lien); The Warfield, 120 Fed. 847 (E.D.N.Y. 1903) (dry dock and vessel in it not subject to lien).

Although the doctrine of uniformity of the maritime law applies generally to maritime liens, state law may give lien status to a claim which does not have that status by the maritime law. If the claim is one otherwise within the admiralty jurisdiction, such as the insurer's claim for premiums; it may be enforced only in an in rem admiralty action. If the claim is one not otherwise within the jurisdiction, such as a claim on a shipbuilding contract, it may be enforced in state court by any procedure which the state wishes to provide, subject to the priority which federal maritime supremacy may give maritime lien claimants.[150] The Federal Maritime Lien Act, enacted in 1910 and amended in 1920, provides a maritime lien enforceable in rem for "Any person furnishing repairs, supplies, towage, use of dry dock or marine railway, or other necessaries, to any vessel, whether foreign or domestic."[151] The Act expressly supersedes state statutes that purport to create maritime liens for the foregoing purposes.[152] A Maine statute creating liens against domestic vessels for contract claims is accordingly ineffective as to the objects of the federal act but has continuing vitality in nonmaritime contracts such as

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150. Gilmore & Black 533-37. See Armstrong v. United States, 364 U.S. 40 (1960) (validity of materialmen's liens enforceable by attachment against unfinished hulls by virtue of 10 M.R.S.A. §3851 et seq. recognized). Of course, ordinary common-law attachment also lies against a vessel. See 10 M.R.S.A. §3867; The Mary Anne, Fed. Cas. No. 9, 195 (D.Me. 1826). See also C. J. Hendry Co. v. Moore, 318 U.S. 133 (1943) (State forfeiture proceedings against illegal fish net seized in navigable waters of the State upheld).

151. 46 U.S.C. §971. See Gilmore & Black, 537-39.

152. 46 U.S.C. §975.

shipbuilding.[153] State-created maritime liens also remain effective for claims, such as those for unpaid insurance premiums and wrongful death, which are not within the federal act.[154] Maine statutes do not presently give lien status to such claims.

(4) Limitation of Liability. Under the federal Limitation of Liability Act, the liability of a vessel owner for loss or damage resulting from operation of the vessel occasioned without his privity or knowledge may be limited to the value of the vessel and pending freight, except for bodily injury and death claims, as to which the limit is a fund calculated at $60 per ton of the vessel's gross tonnage. The $60-per-ton fund provision does not apply to pleasure boats, fishing vessels, tugs and other small, nonpassenger-carrying craft, which are, however, otherwise within the coverage of the Act.[155] Limitation is available against both contract and tort claims and extends to nonmaritime claims.[156]

Proceedings for limitation of liability are commenced by petition of the vessel owner in the admiralty court, which has exclusive jurisdiction. Limitation may also be raised by the owner defensively if suit is brought against him.[157] Where there is more than one claim and the claims

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153. 10 M.R.S.A. §3851, 3852. See Gilmore & Black, 544-45; Armstrong v. United States, n.150 supra.

154. See Grow v. Steel Gas Screw Loraine K., 310 F. 2d 547 (6th Cir. 1962) (libel in rem on lien for insurance premiums authorized by Michigan statute); Gilmore & Black, 545.

155. 46 U.S.C. §181-189. See Gilmore & Black 667-76; The Yacht Julaine, 272 F. Supp. 282 (S.D. Tex. 1967).

156. Id. at p.676-79.

157. Id. at p.680-87; Famiano v. Enyeart, 398 F. 2d 661 (7th Cir. 1968).

in the aggregate exceed the available limitation fund, the Court will enjoin all proceedings in other courts against the owner and all claimants must make proof of their claims in the admiralty proceeding, where they will be adjudicated on their merits.[158] The value of the vessel for limitation purposes is its value after the loss has taken place, not including any insurance proceeds.[159]

The privity requirement creates a major anomaly. In an accident involving a small fishing vessel or pleasure craft, if the owner is aboard, which would frequently be the case, privity exists and the owner is liable to the extent of his personal resources. If the owner is absent, however, as in the case of a corporate owner, there is no privity, and recovery for injured parties is limited to the value of the vessel, which might be zero if the vessel were destroyed in the accident.[160]

As a federal statutory enactment, the Limitation Act clearly supersedes any state law or proceeding which might purport to conflict with it or hinder its operation.[161] The Supreme Court has construed the Act narrowly to permit maximum resort to state courts, however, denying jurisdiction to limit where only a single claim is presented or where

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158. Gilmore & Black, 687-89.

159. Id. at p.711-13.

160. See Coryell v. Phipps, 317 U.S. 406 (1943) (absent owner of pleasure yacht could limit). The doctrine is mitigated in the case of corporations by the rules that knowledge of a managerial employee will be attributed to the corporation and that the duty to provide a seaworthy vessel may not be delegated. See The Linseed King, 285 U.S. 502 (1932); Petition of Kinsman Transit Co., 338 F. 2d 708 (2d Cir. 1964). See, generally, Gilmore & Black, 698-705.

161. Butler v. Boston & Savannah S.S. Co., 130 U.S. 528, 555-58 (1889).

claims do not exceed the fund.[162] Moreover, state law has been given effect to supplement the limitation procedure.[163]

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162. Gilmore & Black, 689-95.

163. Maryland Casualty Co. v. Cushing, 347 U.S. 409 (1954) (Louisiana direct action statute permitted full personal injury recovery against insurers even if insured allowed to limit).

APPENDIX

TABLE OF CASES VOL. III AND IV*

MAINE:

*Table of Cases for Vol. I and II may be found in Vol. II p. 400.

OTHER STATE JURISDICTIONS:

UNITED STATES SUPREME COURT