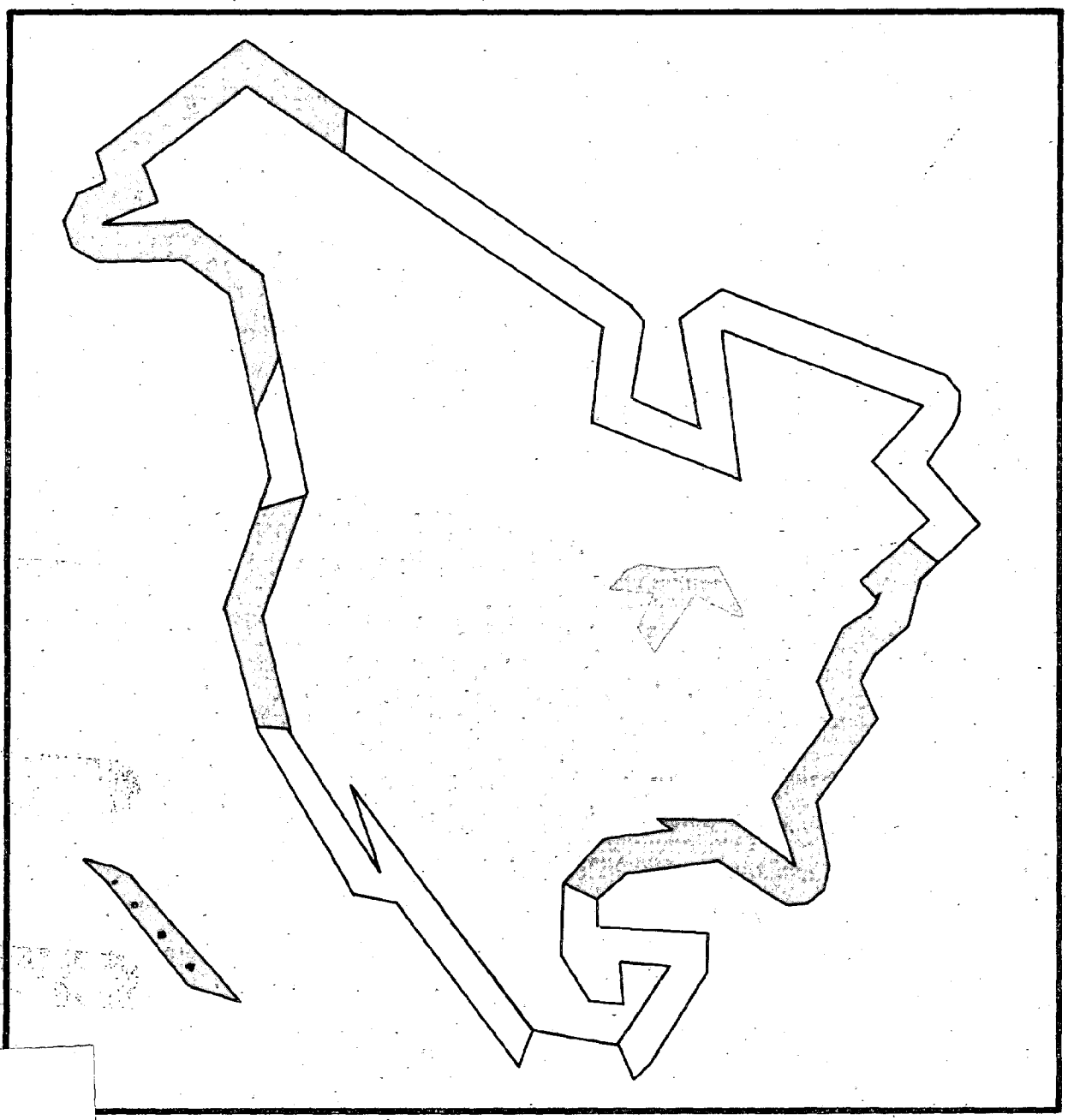
U.S. COASTAL BELT

Conflict, Resolution, and Promise



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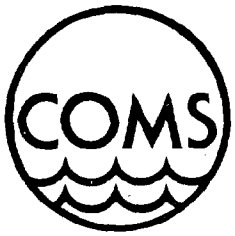

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The Center for Ocean Management Studies was created in the fall of 1976 for the purpose of promoting effective coastal and ocean management. The Center identifies ocean management issues, holds workshops and conferences to discuss these issues, and develops recommendations and research programs to resolve them.

U.S. Coastal Belt: Conflict, Resolution, and Promise

Proceedings of a Conference on the Management of Our Coastal and Ocean Resources

Lewis M. Alexander, Editor

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University of Rhode Island
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Introduction

Lewis Alexander

Good morning ladies and gentlemen, and welcome to the first annual conference of the Center for Ocean Management Studies. The theme of the conference is Management of the Coastal Belt and we hope, through this meeting, to identify problems and develop concepts concerning this geographic area.

At the outset, something should be said about both the coastal belt and the Center for Ocean Management Studies. The identification of the coastal belt came in response to national management needs in the marine environment beyond the limits of the territorial sea. Although some forms of management needs have existed in this area for several decades, particularly with respect to the resources of the continental shelf, the real impetus came in March 1977, with the coming into effect of the Fishery Conservation and Management Act, which extends U.S. fisheries jurisdiction out to a maximum of 200 nautical miles from shore. Along with the new fisheries jurisdictions have come increased activities within the 200-mile zone relating to oil and gas developments on the outer continental shelf, as well as to shipping developments, particularly those associated with the importation of hydrocarbons into the United States. To some of us it seems likely that before long U.S. jurisdiction in the 200-mile zone may, in addition to fisheries and continental shelf resources, be extended also to certain aspects of pollution control, not now covered by international agreements.

A few years ago, comprehensive management processes within the coastal zone (extending out to three nautical miles from shore) were provided through the enactment of the Coastal Zone Management Act. The coastal states of the United States are now engaged in developing, or implementing, coastal zone management plans. In doing so, the states must be aware of the onshore impacts of the offshore activities — a process which involves some management functions relating to offshore activities which take place beyond the seaward boundaries of the coastal zone, that is, more than three nautical miles offshore. Because of the obvious interactions between offshore, inshore, and onshore activities, and of the possibilities of some forms of management of these activities on a coordinated basis, the concept of the coastal belt has been developed, embracing both the coastal zone and the offshore areas between 3 and 200 nautical miles. In the case of seabed resources, the management area may be extended, on the ocean floor, to more than 200 miles, but this issue remains to be resolved within the framework of the ongoing Law of the Sea Conference.

From considerations of the coastal belt, we turn to those concerning our host, the Center for Ocean Management Studies. The Center was created in the fall of 1976 for the purpose of promoting effective coastal and ocean management. The Center identifies ocean management issues, holds workshops and conferences to discuss these issues, and develops recommendations and research programs to resolve them.

Finally, let me express my appreciation to three people who helped to make this conference possible. First is Dr. John Knauss, Dean of the Graduate School of Oceanography and Provost for Marine

Affairs, whose brainchild the Center for Ocean Management Studies is, and who, for fifteen years, has led Rhode Island both in its oceanography and in its marine affairs programs. Second is Dr. Neils Rorholm, Professor of Resource Economics, who, during the past year has chaired the Steering Committee of COMS and paved the way for its first annual conference. Third is Virginia Tippie, who has successfully served as Acting Executive Director of COMS, and whose energy and enthusiasm have contributed greatly to what we hope and expect to be a successful first annual conference here at Rhode Island.

Management Issues in the Coastal Region

Robert Knecht

Director, Office of Coastal Zone Management, NOAA

For purposes of my discussion this morning, I have divided the coastal belt into three geographical regimes as follows: the Shoreland Regime, the State Regime, and the Federal/International Regime. For each of these regimes, I would like to focus briefly on, first, the nature of the resources to be managed; second, the political and jurisdictional interests at stake; third, management philosophy and goals; and fourth, information, data, and planning requirements.

Regime I: Shoreland

In this regime private ownership is the predominate characteristic of the resources to be managed. Use and management are principally affected by market forces and by local government regulations, while the state and federal impacts are largely indirect. State coastal zone management programs are aimed at inducing a broader view and at more effective management of the local areas. While planning requirements are substantial, data and information needs do not significantly limit management progress.

Regime II: State

This regime generally involves both transitional zones — such as coastal wetland areas — and the territorial sea. Jurisdiction is generally clear, except in certain wetlands or with respect to certain fisheries stocks, and management goals are determined largely by the orientation and needs of the state: e.g., California — recreation and protection; Texas — recreation, environment, energy, and industrial siting; North Carolina — commercial and sports fishing, tourism.

Little comprehensive planning has been accomplished to date at the state level, but the need for such planning is growing. Ultimately, state coastal zone management programs should contain a comprehensive "wet half." In the case of state programs, data and informational needs are substantial and largely unmet, hence these needs often are limiting elements.

Regime III: Federal/International

Under this regime, jurisdiction (over resources) is clear, and extends out to 200 miles or the edge of the continental shelf (or further under certain circumstances). Management philosophy is expressed in a number of diverse pieces of federal legislation, such as the OCS Lands Act, Fishery Conservation and Management Act, and marine sanctuary provisions of the Ocean Dumping Act.

International ground rules are contained in the 1958 Geneva Conventions, and the federal government's management strategy is influenced both by foreign policy implications and by the attitudes of adjacent coastal states. Data, informational, and planning needs are substantial and generally unmet at the federal/international levels.

At least three types of linkages exist between these regimes. I would define them as physical, operational, and institutional.

Physical Links

For purposes of the topic at hand, two physical linkages seem most important. They are water pollu-

tion and fisheries. Pollution impacts link shore-based discharges with deleterious effects on marine resources offshore. Similarly, pollutants discharged at sea (drill rigs, ocean-dumping, tanker operations) can have adverse impacts nearshore and onshore. In a similar way, certain fish stocks migrate between the estuaries and nearshore waters and offshore areas. Coastal habitats are linked to offshore areas through fishery migration patterns.

Operational Systems

The systems associated with the development and production of offshore oil and gas supplies link ocean areas well at sea with shore locations. It can be anticipated that offshore marine sand and gravel recovery systems as well as deepsea mining systems will similarly link the offshore with coastal locations. And, in a certain sense, fareways established by the Coast Guard for navigational purposes to and from major ports constitute an operating system that bisects all three regimes.

Institutional Links

Six different or potential institutional ties between the three regimes are relevant.

1. The Coastal Zone Management Act. This program has as a principal objective the linking of Regimes I and II, but extends into Regime III through the federal consistency provision.

2. The Fishery Conservation and Management Act. Primarily aimed at Regime III, but can affect Regime II (and presumably Regime I) under certain conditions.

3. The Marine Sanctuaries Program. A single marine sanctuary can be designated over an area encompassing all three regimes (with state approval).

4. The Environmental Impact Statement Process. In theory, this process could link all three, but in fact is used primarily to link proposed activities in Regime III to adverse impacts in Regimes I and II.

5. Pending OCS Lands Act Amendments. Here again, the amendments, when enacted, will increase the linkage between actions in Regime III and impacts in Regimes I and II.

6. The Deepwater Ports Act. This legislation, albeit in a somewhat limited way, links proposed activities in Regime III to impacts in Regimes I and II.

One could ask, at this point, does the existence of these numerous ties form a kind of de facto coastal belt management program? I think the answer is clear that they do not, at least not at the present time. No one, for example, would want to claim the EIS process as an effective management tool.

Turning now to some of the goals of an effective management scheme, three essential areas would be: to resolve conflicts; to optimize use or production; to identify and exploit new opportunities.

At best, most of the institutional arrangements now in being aid in conflict identification and, to a certain extent, conflict resolution, but they are not well suited to capitalizing on new opportunities. This latter function generally depends upon having an adequate supply of data and information upon which to base plans and projections, all items which are weak in the present setup.

What can be said with regard to future trends and pressures? Will they tend to work towards a more coherent, better coordinated coastal and ocean management system? Or will they be such as to tend to perpetuate the existing fragmentation and single-purpose approach?

It seems to me that pressures of both kinds will exist.

There will be pressures toward a more coherent program. Pressure will be exerted by coastal states through federal consistency provisions of their coastal management program (and the Department of Commerce). International pressures on U.S. ocean activities will be exerted through the State Department. The development of a more extensive marine sanctuary system (as a counterpoint to ocean development) will force cooperative state-federal collaboration on ocean areas needing protection.

Counterpressures will exist as well. There is a prevailing fear of a super ocean management agency. "Turf" problems exist at both the federal and state levels. Pressures may be exerted by constituencies that benefit from continued single purpose programs.

In conclusion, it seems to me that the following three factors will be important in the coming years in determining the manner in which a coherent ocean management program evolves:

1. The pace and diversity of ocean development will almost certainly quicken.

2. The adjacent coastal states will become increasingly involved in these federally controlled ocean development activities.

   a. To protect their resources.
   b. To be able to deal with onshore impacts.
   c. To share in the economic benefits.

3. As our domestic development activities expand on the outer continental shelf, the international and foreign policy implications of these activities will also grow.

Taken together then, these factors will tend to force the United States toward a more unified coastal and ocean management system. The rate at which this takes place and the precise nature of such a management scheme of course remain to be seen.

In my opening remarks, I have attempted to provide you with my perspective of the coastal belt management problem. Clearly it is strongly influenced by my coastal zone management orientation. Nonetheless, I hope that these observations will contribute to your discussions over the next two days.

Coastal Belt Uses and Needs: Fisheries

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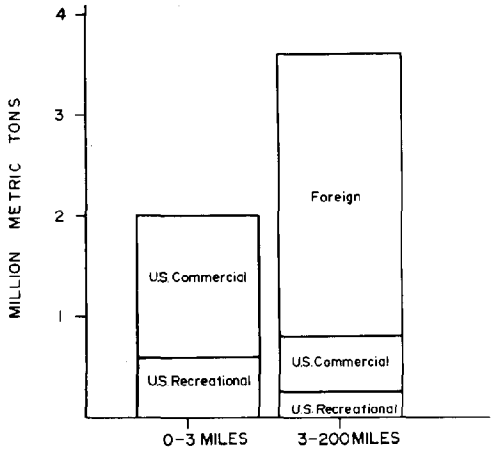
Office of Policy Development and Long-Range Planning, National Marine Fisheries Service, NOAA

Any assessment of coastal belt uses and needs must include a consideration of fisheries management in the territorial sea and in the conservation zone (the territorial sea is generally considered to be 0–3 miles from the coast and the conservation zone from 3–200 miles). Approximately 5 million tons of fish are taken each year from waters within 200 miles of the coast. The distribution by use group and location is shown in Figure 1. The U.S. commercial catch accounts for approximately 70 percent of the total in the territorial sea, while recreational fishing accounts for about 30 percent. Historically, foreign fishing in the U.S. fishery conservation zone accounted for about 76 percent of the total catch while U.S. commercial and recreational fishing accounted for 21 percent and 3 percent, respectively. Foreign fishing occurs primarily off the New England and Pacific coasts, especially off the coast of Alaska, as shown in Figure 2.

The Fishery Conservation and Management Act

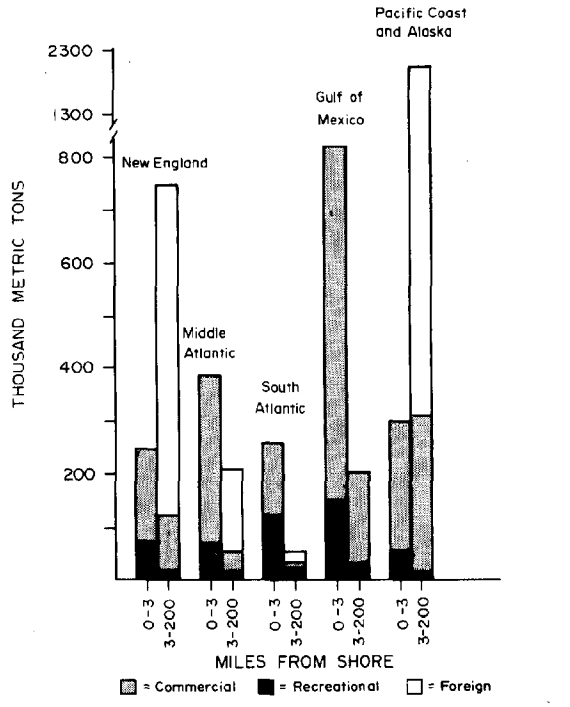
Figure 1. U.S. Commercial, U.S. Recreational, and Foreign Catch, by Distance from Shore.*



*U.S. commercial catch, 1976; U.S. recreational catch, 1970; foreign catch, 1975.

Source: U.S. Department of Commerce, 1970; U.S. Department of Commerce, 1976; U.S. Department of Commerce, unpublished statistics, 1975.

Figure 2. U.S. Commercial, U.S. Recreational, and Foreign Catch, by Area, by Distance from Shore.*



*U.S. commercial catch, 1976; U.S. recreational catch, 1970; foreign catch, 1975.

Source: U.S. Department of Commerce, 1970; U.S. Department of Commerce, 1976; U.S. Department of Commerce, unpublished statistics, 1975.

Table 1. Location of Commercial Catch for Major Finfish and Shellfish, 1976.

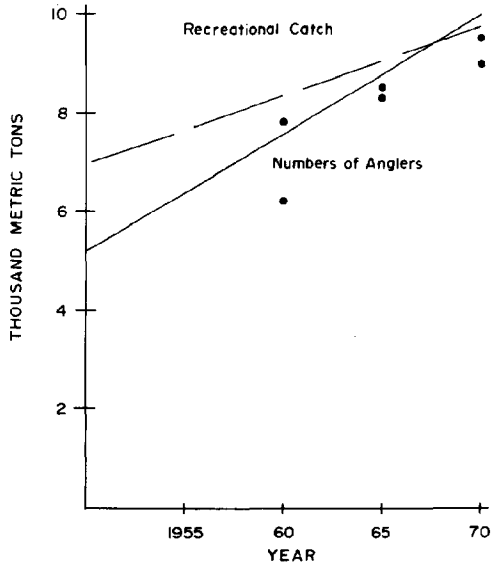
Species	Catch 0–3 Miles	Catch 3–200 Miles	Total	Percent of Catch 0–3 Miles
	(Thousand Metric Tons)			
Finfish:				
Alewives	24.6	————	24.6	100
Bluefish	4.2	0.5	4.7	89
Croaker	8.6	5.6	14.2	61
Cod	2.9	27.8	30.7	9
Flounder, Atlantic and Gulf	9.6	8.6	18.2	53
Flounder, Pacific	3.5	10.8	14.3	24
Sea Herring	60.1	8.3	68.4	88
Mackerel, Jack	2.7	14.8	17.5	15
Mackerel, Spanish	2.3	4.1	6.4	36
Menhaden	828.6	96.5	925.1	90
Mullet	13.7	0.1	13.8	99
Salmon, King	10.5	5.1	15.6	67
Salmon, Chum	23.9	————	23.9	100
Salmon, Pink	42.3	2.7	45.0	94
Salmon, Red	37.7	————	37.7	100
Salmon, Silver	10.9	7.1	18.0	61
Sea Trout, Gray	6.0	3.4	9.4	64
Striped Bass	2.6	0.1	2.7	96
Shellfish:				
Clam, Hard	7.1	————	7.1	100
Clam, Surf	3.0	19.3	22.3	13
Crab, Blue	51.1	0.2	51.3	99
Crab, Dungeness	13.0	3.2	16.2	80
Crab, King	9.6	38.4	48.0	20
Crab, Snow	5.5	31.1	36.6	15
Lobster, American	10.5	3.9	14.4	73
Oyster Meat	24.7	————	24.7	100
Shrimp	79.0	104.0	183.0	43

Source: U.S. Department of Commerce, 1976.

(FCMA)[1] has created, among other things, the institutional basis for management of fisheries by establishing (1) jurisdiction over fishery resources, (2) eight Regional Councils, and (3) guidelines for the development of systematic management plans for each fishery.

Under the Fishery Conservation and Management Act, fisheries may be classified in two ways: (1) those that are fished "predominately" in the conservation zone and (2) those that are fished "predominately" in the territorial sea. Specifically, Section 306 (a) & (b) of the Fishery Management and Conservation Act states, ". . . nothing in this Act shall be construed as extending or diminishing the jurisdiction of any State within its boundaries . . ."

Figure 3. Number of Anglers and Weight of Recreational Catch, 1960, 1965, 1970.



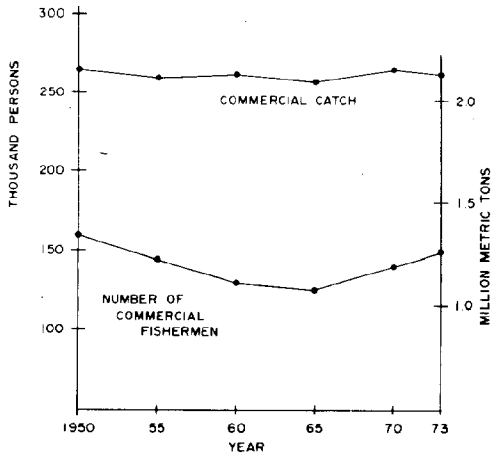
Source: U.S. Department of Commerce, 1970.

except if the secretary finds that ". . . the fishing in a fishery is covered by a fishery management plan implemented under this Act, is engaged in predominately within the fishery conservation zone and beyond such zone." As shown in Table 1, many major species of fish are caught both in the territorial sea and in the conservation zone. Since the FCMA provides no exact definition of "predominately," the problem of classifying each fishery exists. Further, only fisheries that are considered as predominately within the conservation zone are subject to the full management authority of the FCMA.

If, for example, predominately were to refer to catches greater than 50 percent of the total catch, then 90 of the 117 species of recreational and commercial fish at present caught within 200 miles would be classified as occurring predominately within the territorial sea, or approximately 2/3 of the domestic catch would be taken predominately in the territorial sea.

Recreational fishing makes the problems associated with fisheries management in the conservation zone and territorial sea more complex. Estimates are that the U.S. recreational catch accounts for about one-half of the total food-fish catch in the territorial sea. Recreational fishing, to a lesser extent,

Figure 4. Number of Commercial Fishermen and Weight of Commercial Catch, 1950, 1955, 1960, 1965, 1970, 1973.



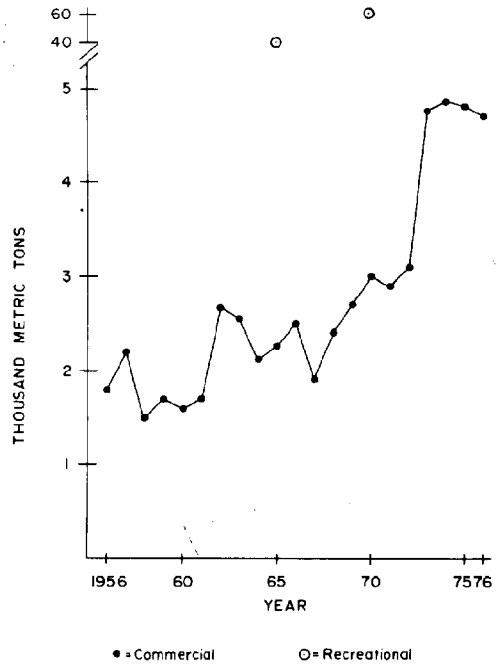
Source: U.S. Department of Commerce, 1976.

also takes place in the conservation zone. From 1955 to 1970, the number of recreational fishermen increased over 100 percent and expenditures for recreational fishing increased over 150 percent.[2] Preliminary estimates of the number of recreational fishermen and expenditures for recreational fishing indicate that a further increase took place in 1975.

Figure 3 shows the quantity of recreational catch and the number of anglers engaged in recreational fishing. As shown by the trend lines in Figure 3, the number of recreational anglers is increasing at a greater rate than the catch. Figure 4 shows that the U.S. commercial catch and the number of commercial fishermen decreased by 20 percent, while the commercial catch did not change appreciably (2 percent). Similarly, an increase in the number of fishermen from 1970 to 1973 did not greatly increase the quantity of fish caught. The same trend occurs if the number of vessels is substituted for the number of fishermen. If 1950–73 catch and effort patterns continue in the future, certain inferences can be drawn: (1) increased fishing effort (whether commercial or recreational) will not substantially increase the total catch, and (2) increased fishing effort will result in division of a more or less fixed total catch among a greater number of participants.

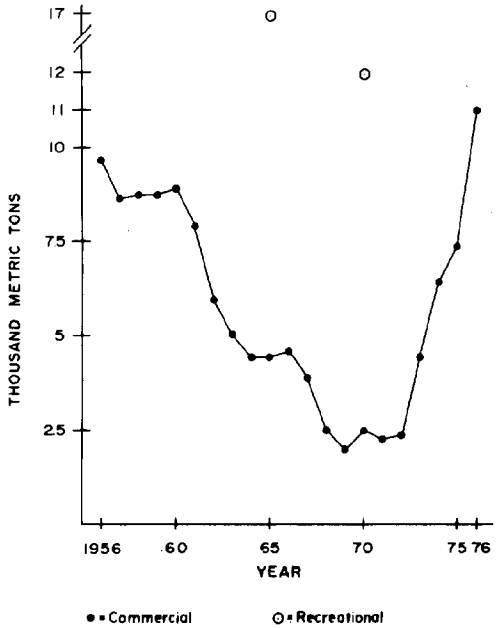
Figures 5–14 indicate trends in stocks of major species from 1950 to 1975. The catch of several major species has increased while, for others, the catch has decreased or remained stable. Various environ-

Figure 5. Bluefish: U.S. Commercial Catch, 1956-1976, and U.S. Recreational Catch, 1965 and 1970.



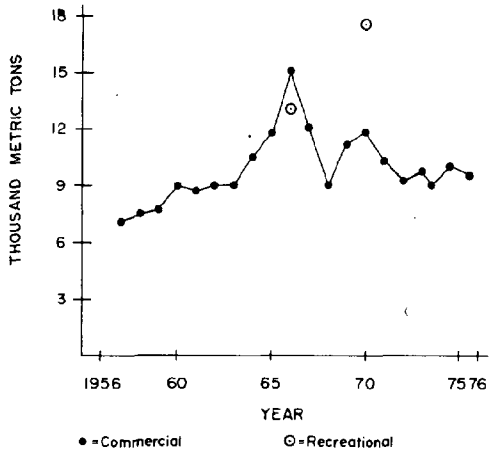
Source: U.S. Department of Commerce, 1970; U.S. Department of Commerce, 1974; U.S. Department of Commerce, 1975; U.S. Department of Commerce, 1976.

Figure 6. Flounder, Summer: U.S. Commercial Catch, 1956-1976, and U.S. Recreational Catch, 1965 and 1970.



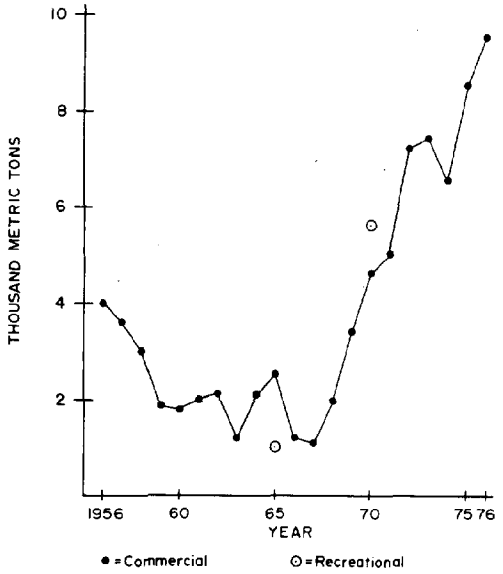
Source: U.S. Department of Commerce, 1970; U.S. Department of Commerce, 1974; U.S. Department of Commerce, 1975; U.S. Department of Commerce, 1976.

Figure 7. Flounder, Winter: U.S. Commercial Catch, 1956-1976, and U.S. Recreational Catch, 1965 and 1970.



Source: U.S. Department of Commerce, 1970; U.S. Department of Commerce, 1974; U.S. Department of Commerce, 1975; U.S. Department of Commerce, 1976.

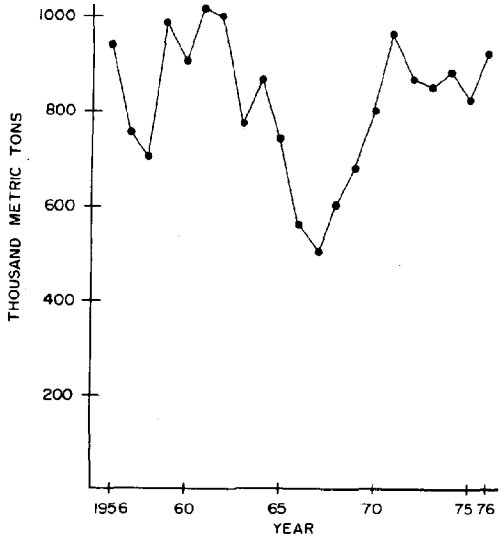
Figure 8. Gray Sea Trout: U.S. Commercial Catch, 1956-1976, and U.S. Recreational Catch, 1965 and 1970.*



*Weakfish

Source: U.S. Department of Commerce, 1970; U.S. Department of Commerce, 1974; U.S. Department of Commerce, 1975; U.S. Department of Commerce, 1976.

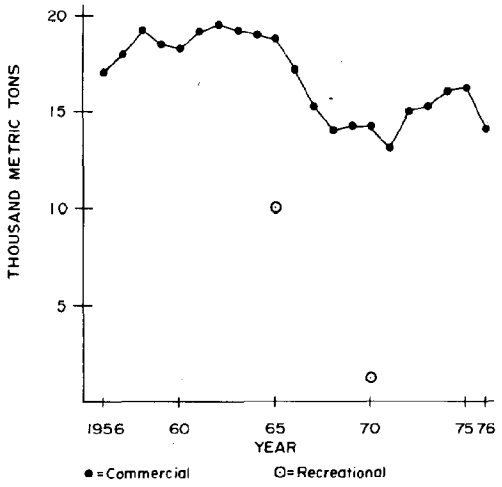
Figure 9. Menhaden: U.S. Commercial Catch, 1956-1976.*



*Little or no recreational catch

Source: U.S. Department of Commerce, 1974; U.S. Department of Commerce, 1975; U.S. Department of Commerce, 1976.

Figure 10. Mullet: U.S. Commercial Catch, 1956-1976, and U.S. Recreational Catch, 1965 and 1970.



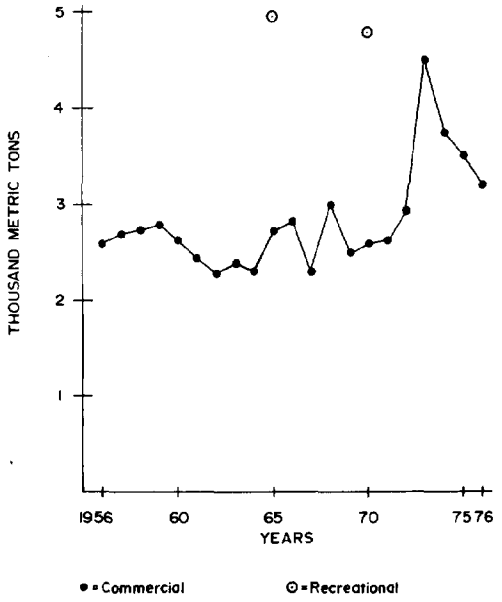
Source: U.S. Department of Commerce, 1970; U.S. Department of Commerce, 1974; U.S. Department of Commerce, 1975; U.S. Department of Commerce, 1976.

mental and biological factors, as well as commercial and recreational fishing, may account for the trends.

As well as adding to problems associated with the growth in fishing intensity, an increase in human population density in the coastal zone has contributed to increased pollution rates and the destruction of wetlands which are thought to be associated with fish production. The destruction of estuaries and wetlands is caused primarily by the maintenance and protection of navigation, landfill operations, and solid waste disposal. The areas reclaimed are generally the highly productive tidal marsh which is of primary importance to estuarine ecology.

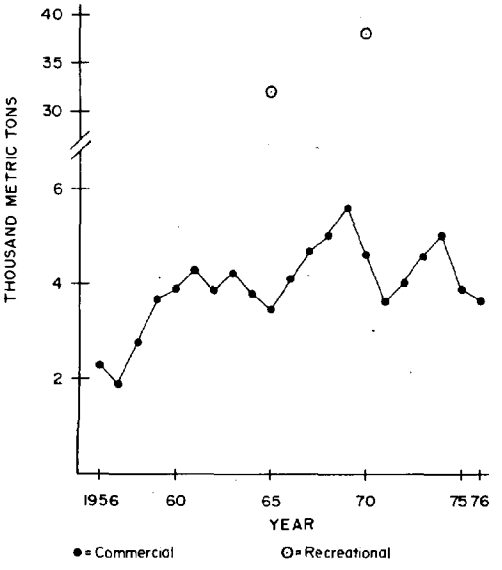
The Report of the Secretary of the Interior to the U.S. Congress indicated that 7 percent of the important wildlife habitat had been dredged and/or

Figure 11. Spotted Sea Trout: U.S. Commercial Catch, 1956-1976, and U.S. Recreational Catch, 1965 and 1970.



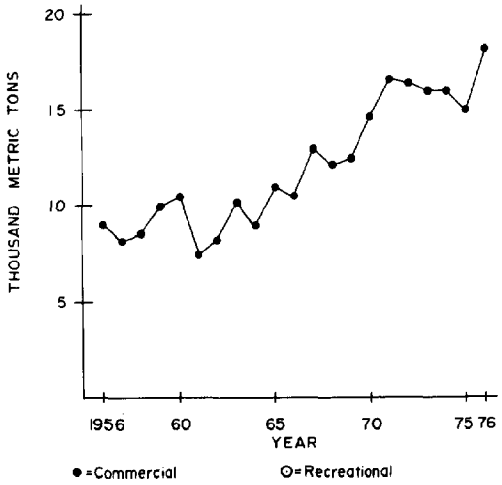
Source: U.S. Department of Commerce, 1970; U.S. Department of Commerce, 1974; U.S. Department of Commerce, 1975; U.S. Department of Commerce, 1976.

Figure 12. Striped Sea Bass: U.S. Commercial Catch, 1956-1976, and U.S. Recreational Catch, 1965 and 1970.



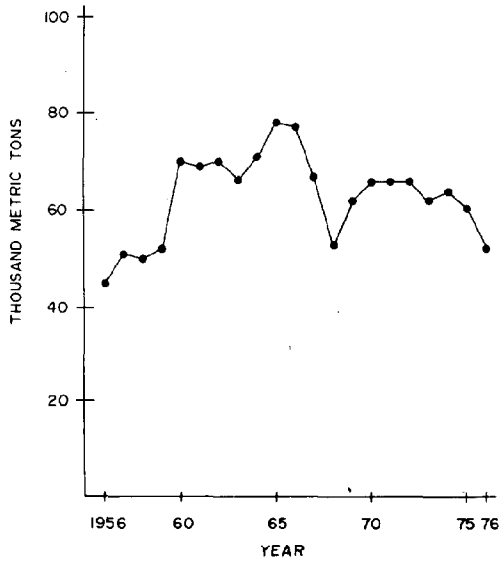
Source: U.S. Department of Commerce, 1970; U.S. Department of Commerce: 1974; U.S. Department of Commerce, 1975; U.S. Department of Commerce, 1976.

Figure 13. Blue Crab: U.S. Commercial Catch, 1956-1976.



Source: U.S. Department of Commerce, 1970; U.S. Department of Commerce, 1974; U.S. Department of Commerce, 1975; U.S. Department of Commerce, 1976.

Figure 14. Shrimp: U.S. Commercial Catch, 1956-1976, and U.S. Recreational Catch, 1970.*



*Estimate

Source: U.S. Department of Commerce, 1970; U.S. Department of Commerce, 1974; U.S. Department of Commerce, 1975; U.S. Department of Commerce, 1976.

filled from 1947 to 1967.[3] The report also indicated that 67 percent of the important wildlife habitat had been filled or dredged in the Pacific Southwest during that period. From 1930 through 1960, the population of the coastal counties increased 79 percent, as compared to a national growth rate of 46 percent. Estuarine zone population is expected to more than double between 1960 and 2000, from 60 million persons to 139 million persons. Coupled with the increase in population, a significant increase in such

Table 2. Preliminary Fishery Management Plans and Final Fishery Management Plans.

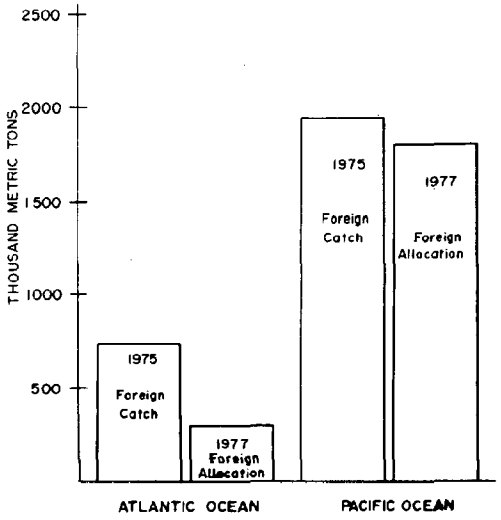
Preliminary Fishery Management Plans
Trawl Fisheries of Washington, Oregon, and California
Trawl Fisheries and Herring Gillnet Fishery of Eastern Bering Sea and Northeastern Pacific
Sablefish Fishery of the Eastern Bering Sea and Northeastern Pacific
Trawl Fishery of the Gulf of Alaska
Snail Fishery of the Eastern Bering Sea
Eastern Bering Sea (King and Tanner Crab Fisheries)
Shrimp Fishery of the Eastern Bering Sea and Gulf of Alaska
Seamount Groundfish Fishery of the Pacific
Hake Fisheries of the Northwestern Atlantic
Foreign Trawl Fisheries of the Northwestern Atlantic (incidental catching of finfish)
Mackerel Fishery of Northwestern Atlantic
Squid Fisheries of the Northwestern Atlantic
Final Fishery Management Plans
Commercial and Recreational Salmon Fisheries off the coasts of Washington, Oregon, and California
Atlantic Fisheries (Atlantic Groundfish Plan)

high water-use industries as paper, chemical, and textile manufacturing is projected.

With the increase in economic activity, pollution and increased industrial use of estuarine waters occurs. The Federal Water Pollution Control Administration estimates that, by 1980, municipal wastes generated by the estuarine zone population will require the use of 2,130 billion gallons of water per year and will produce 3.6 billion pounds of waste solids per year.[4]

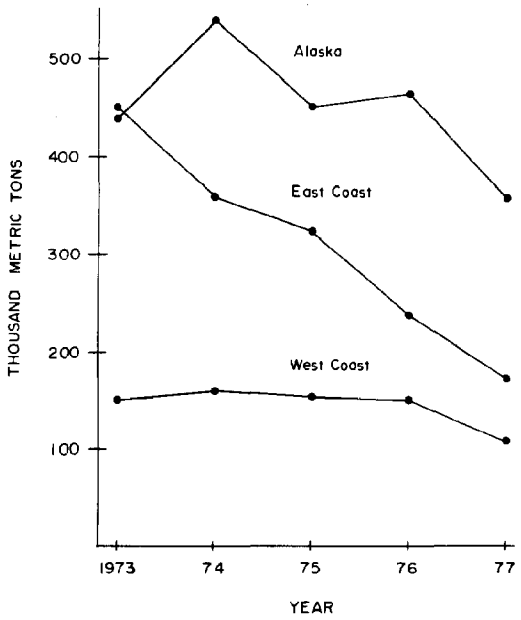
Efforts to manage fisheries to prevent the depletion of the resource within the conservation zone, under the FCMA, include the creation of preliminary and final management plans. Preliminary plans for thirteen fisheries and several final management plans have been developed (Table 2). Other efforts include limitations on the allowable levels of foreign fishing. Preliminary indications for 1977 are that total foreign catch will have decreased. This has increased the anticipated catch per unit effort by some of the larger foreign fleets. As illustrated in Figure 15, the 1977 allowable level of foreign fishing under FCMA for the Atlantic Ocean was about 1/3 the catch by foreign fishing vessels in 1975. The 1977 allowable level of foreign fishing under FCMA for

Figure 15. Catch by Foreign Vessels in the Conservation Zone, 1975, and Allowable Levels of Foreign Fishing Under FCMA, 1977.



Source: U.S. Department of Commerce, unpublished statistics, 1975; U.S. Department of Commerce, 1976.

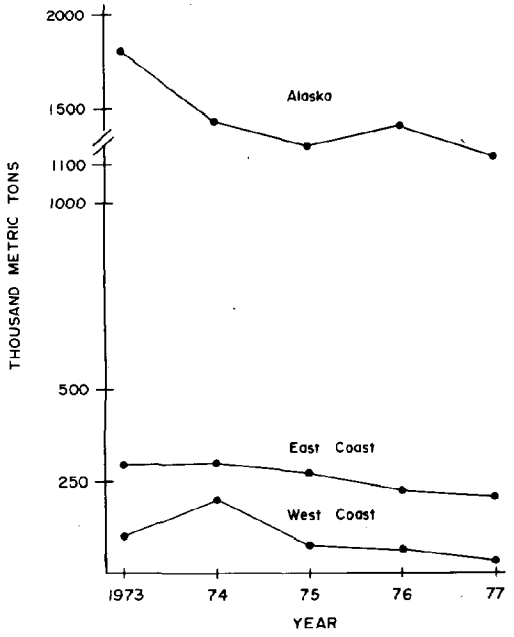
Figure 16. Catch by Soviet Vessels in the U.S. Fisheries Conservation Zone, by Area, 1973-1977.



Source: U.S. Department of Commerce, unpublished statistics, 1977.

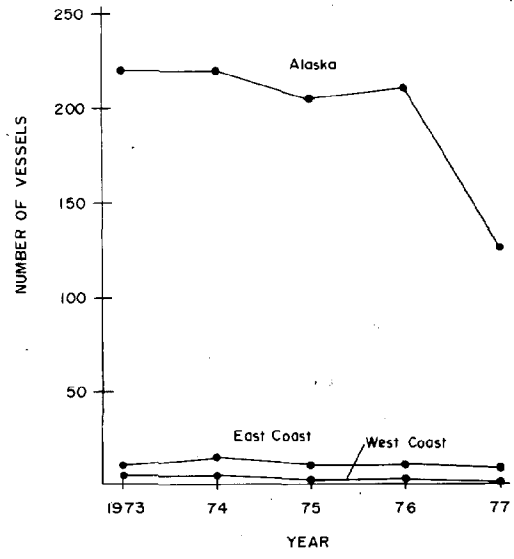
the Pacific Ocean, however, was approximately 80 percent of the catch by foreign vessels in 1975. The decline in Soviet and Japanese catches in the U.S. conservation zone from 1973 thru 1977 is shown in Figures 16 & 17. The catch of Soviet vessels

Figure 17. Catch by Japanese Vessels in the Fisheries Conservation Zone, by Area 1973-1977.



Source: U.S. Department of Commerce, unpublished statistics, 1973-1977.

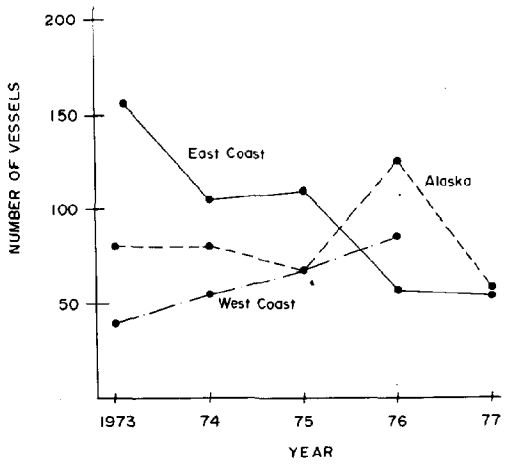
Figure 18. Average Monthly Number of Japanese Fishing Vessels in the U.S. Fisheries Conservation Zone, 1973-1977.



Source: U.S. Department of Commerce, unpublished statistics, 1973-1977.

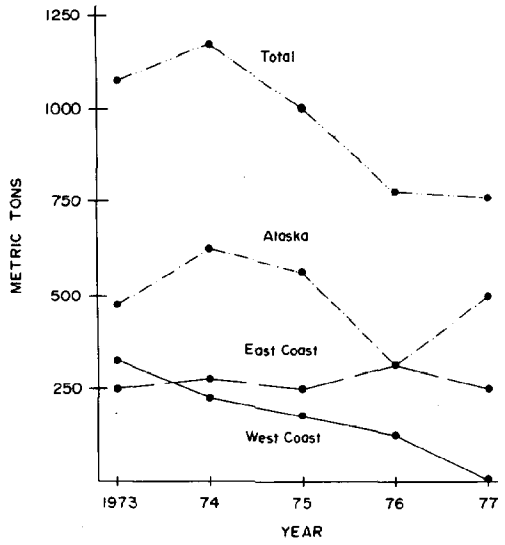
declined rapidly from 1973 thru 1977 in the East Coast and Alaskan waters and declined slightly in 1977 in West Coast waters. The catch by Japanese vessels in the U.S. conservation zone declined rapidly from 1973 to 1977 in Alaskan waters. The Japanese

Figure 19. Average Monthly Number of Soviet Fishing Vessels in the U.S. Fisheries Conservation Zone, by Area, 1973-1977.



Source: U.S. Department of Commerce, unpublished statistics, 1973-1977.

Figure 20. Average Monthly Catch per Soviet Fishing Vessel in the Fisheries Conservation Zone, by Area, 1973-1977.

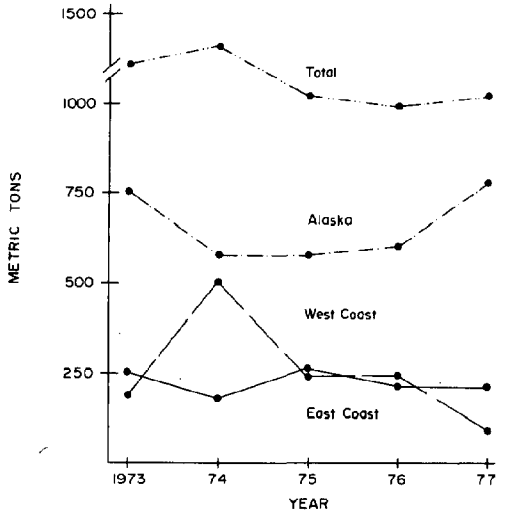


Source: U.S. Department of Commerce, unpublished statistics, 1973-1977.

catch in East Coast and West Coast waters has been constant.

The average monthly number of Japanese vessels fishing in the U.S. conservation zone has been constant from 1973 to 1977 except in Alaskan waters (Figure 18). In 1977, the average monthly number of Japanese fishing vessels in Alaskan waters decreased rapidly. The average monthly number of Soviet fishing vessels along the West Coast and Alaska increased from 1973 to 1976, then declined

Figure 21. Average Monthly Catch per Japanese Fishing Vessel in the Fisheries Conservation Zone, by Area, 1973-1977.



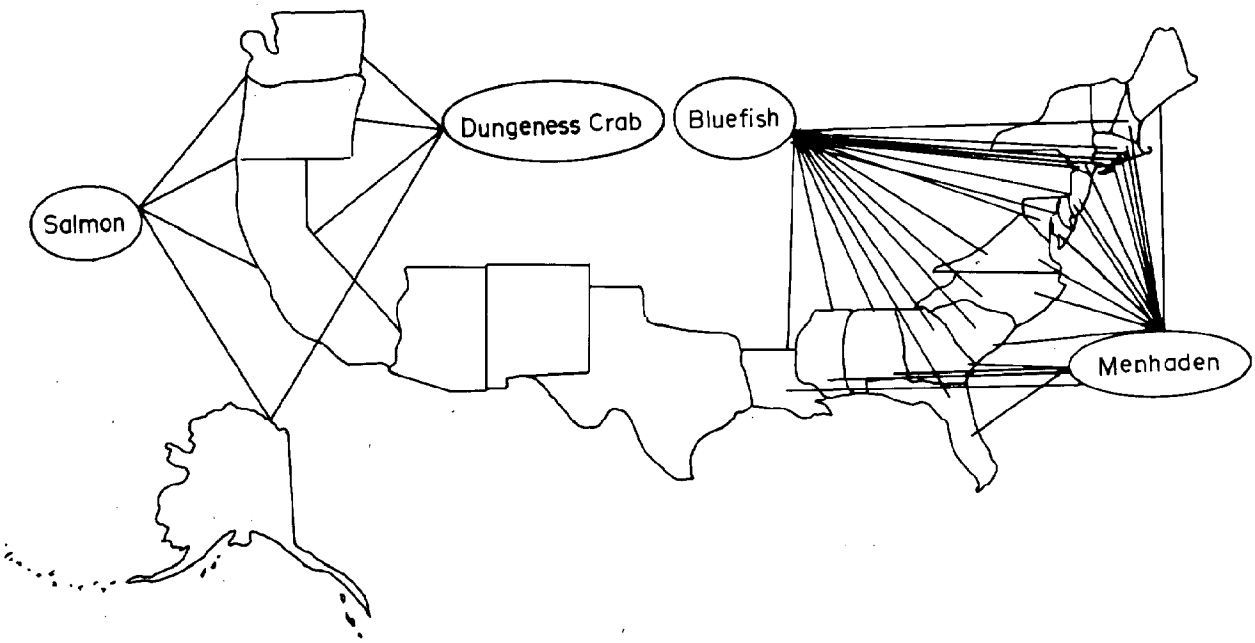
Source: U.S. Department of Commerce, unpublished statistics, 1973-1977.

in 1977 (Figure 19). Soviet vessels fishing in East Coast waters declined from 1970 to 1973. Following these trends, the Japanese and Soviet catches and efforts in the conservation zone might be expected to decrease. Preliminary indications of Japanese and Soviet fishing effort (Figures 20 & 21) show a slight increase in the total Japanese fishing effort and a slight decline in Soviet fishing effort.

The patterns for management of fisheries within the territorial sea, however, are less definite. Some fisheries are managed under comprehensive plans, while others are managed under regulations that have a less than satisfactory scientific basis. Some fisheries are continually being researched and are without effective management, while others are not managed at all.

The problem of concurrent jurisdiction by several states over a particular fishery may be a major impedance to management. Figure 22 illustrates this situation. Bluefish, for example, occur in the waters of about 14 states while menhaden occur in the waters of about 16 states. This accounting does not separate species or races or geographically isolated stocks. Since each individual state creates laws for fisheries management, differing regulations sometimes exist among states. For example, Table 3 shows that for striped bass in various Northeast states, size limits vary from Maine and South Carolina, which have no limitations, to New Jersey, which requires the fish to be 12 inches to be retained by a recreational fisherman. Some states have divided authority within the state, which adds further difficulties to fishery management in that

Figure 22. Fisheries Management, State Jurisdiction, by Species, 1976.



Source: U.S. Department of Commerce, 1976.

Table 3. Size Limits for Striped Bass in Various Northeast States.

State	*Regulation*
Maine	No Limit
New Hampshire	Minimum: 16 inches to fork of tail
New York	Minimum: 16 inches to fork of tail
New Jersey	Minimum: 18 inches, commercial
	12 inches, recreational
	Maximum: 20 pounds in Delaware
	River
Maryland	Minimum: 12 inches
	Maximum: 15 pounds,
	March 1 – April 30;
	1 per day over 32 inches
Delaware	Minimum: 12 inches
	Maximum: 20 pounds in Delaware
	River
Virginia	Minimum: 14 inches to tip of tail
	Maximum: 2 per day over 40 inches
North Carolina	Minimum: 12 inches*
South Carolina	No Limit

*Virginia-North Carolina Agreement, limit 4, minimum 20 inches, on the Dan River, from the Banister River to the Brantley Steam Plant Dam.

state. The level of funding may be a further constraint in many of the states. In Figure 23, the management budget of several states is plotted against the value of the catch and considerable variability is noted among the states.

In some cases, a high proportion of the total management expenditure goes to enforcement (Figure 24).

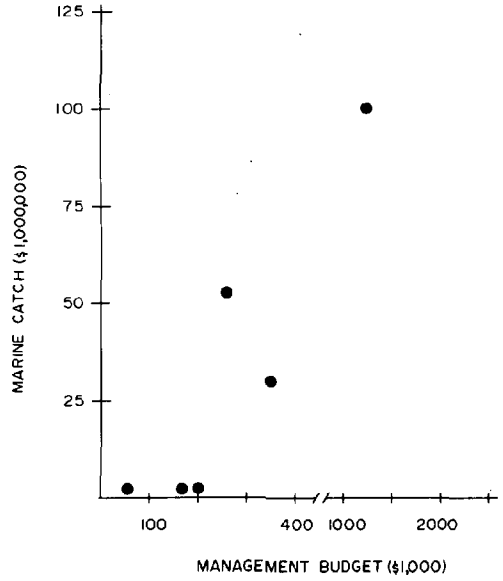
Currently, a number of institutions exist that may deal with the territorial sea management. These are:

1. The states. Each state has the authority to manage fisheries within its legal boundaries.

2. Interstate Marine Fisheries Commissions. Three Interstate Marine Fisheries Commissions, the Atlantic States Marine Fisheries Commission, the Pacific States Marine Fisheries Commission, and the Gulf States Marine Fisheries Commission were established to develop a joint program for the promotion and protection of marine fisheries. Regulatory management authority may be granted to the commissions by member states.

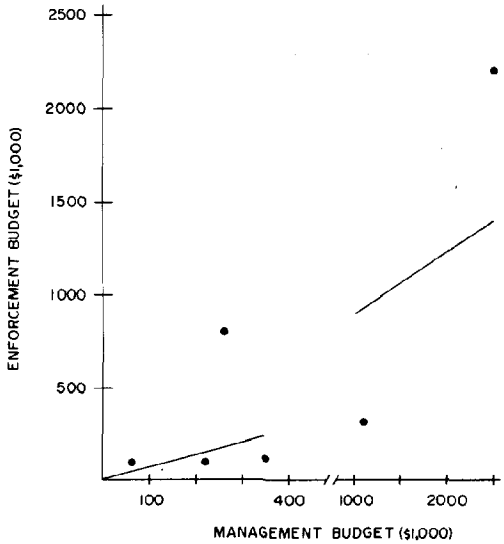
3. Regional Fisheries Management Councils.

Figure 23. Management Budget and Total Value of Marine Catch for Several States.



Source: U.S. Department of Commerce, 1977.

Figure 24. Management Budget and Enforcement Budget for Fisheries Management for Several States.*



*The line is provided as an index to show an equal apportionment between the enforcement budget and the management budget.

Source: U.S. Department of Commerce, 1977.

Under FCMA, the Regional Fisheries Management Councils will prepare, monitor, and revise management plans for fisheries to achieve and maintain the optimum yield from each fishery, while preventing overfishing of the fish stocks.

4. State-Federal Fishery Management Program. These programs were developed by the National Marine Fisheries Service to advise the states and assist them in cooperating among themselves on the management of important interstate, marine resources. This program includes interstate fisheries that exist inside and outside the territorial sea (although the majority are within the territorial sea). Funding for the development of such management is available; however, no specific legislative authority exists for this program.

5. The Coastal Zone Management Program. The Coastal Zone Management Program provides for state management programs to determine objectives, policies, and standards to guide public and private uses of lands and waters in the coastal zone. The Coastal Zone Management Act provides grants to accomplish the above objectives for (1) development of coastal zone plans, (2) their implementation, (3) the execution of the coastal energy impact program, and (4) research studies and training to support state coastal zone management plans and coastal zone management. To date, the coastal zone funding has not been applied to interstate fishery management.

At present there is no clear integration of these five counterparts. Thus, while the patterns for fishery management appear to be set in the conservation zone, effective management of the fisheries of the territorial sea will most likely entail the creation of a method for integrating the resources of the individual states, the Interstate Marine Fisheries Commission, the Regional Fishery Management Councils, the State-Federal Fishery Management Program, and the Coastal Zone Management Program. In this way, focus may be directed to the contemporary imperative of making better and more cost-efficient management decisions for our fishery resources.

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Notes

1. U.S. Congress, House, *H.R. 200, Public Law 94-265,* 94th Cong., 13 April 1976.
2. U.S. Department of Commerce, 1976.
3. U.S. Department of Interior, 1970.
4. ____, 1970.

Coastal Belt Uses and Needs: Oil and Gas

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The primary purpose of my being here today is to discuss with you the needs of the oil industry in the coastal zone. At present, oil and gas supply 75 percent of our energy and will continue to be our dominant energy source for the rest of the century. Our problem is to continue to find and produce new and reliable sources of these substances until alternative sources can be developed.

Although the future prospects of offshore oil and gas development on the Atlantic coast will likely come to your minds immediately, I should point out that many oil-related activities are already present in the coastal zone. Historically, a large portion of the industry's refining capacity, product storage and distribution facilities, and product and crude oil transport have been located in or adjacent to what we now identify as the coastal zone. These facilities were located near the coast for sound economic reasons. An efficient, water-based transportation system to move the vast quantities of petroleum products and fuel directly benefited the consumer. And as our dependence on imported oil and petroleum products grows, the need for these kinds of facilities will increase.

But let's focus our attention for the moment on the *new* activities associated with developing oil and gas resources on the outer continental shelf — activities which have attracted the attention of the various local, state, and federal government bodies which have the responsibility for planning and regulating them.

As most of you know, the most promising area for finding new domestic supplies of oil and gas is the outer continental shelf. The Atlantic OCS is the area of most interest to this audience, in view of the lease sale in the mid–Atlantic last August, the still-pending litigation on that sale, and the sale scheduled for November 1977 in the North Atlantic. The idea that there might be oil or gas deposits off the Atlantic coast has been around for many years, but only recently has it taken on the proportions of a national priority.

Oil development off the East Coast of the United States is often viewed in exaggerated terms. To some, offshore oil exploration and development means heavy industrial activity upsetting traditional lifestyles and harming the area's environmental resources. At the other extreme, offshore oil and gas development is viewed as an economic panacea, with new jobs and revenues propelling a region suffering from chronic unemployment and economic ill health into a new era of prosperity.

In reality, neither view is correct. The arrival of the offshore oil industry will *not* bring with it serious environmental consequences. And, while it will bring jobs, it won't mean instant wealth or a "boom town" bonanza. As a starting point, it is important for all of us to understand just what OCS development will and will not do, so that any evaluation of these effects or benefits is balanced and objective. OCS development is too important to be decided by emotion and wild conjecture. This is especially true when discussing the subject of this conference: coastal belt uses and needs.

To gain insight into probable developments, let me attempt to answer four questions:

1. What is the justification for these activities?
2. What are the specific industry needs?

3. When will the various activities occur?
4. What are the probable impacts?

First, what is the justification? Today, the U.S. is using about 18 million barrels of oil a day, 44 percent of which is imported. That percentage is rising fast. Shell believes that this increased reliance on imports must and can be slowed, in spite of an expected growth in domestic demand of about 3 percent per year. But we must first accomplish several major goals: We must adopt the conservation ethic explicit in President Carter's energy message. We must explore extensively onshore and offshore in the U.S., particularly in Alaska, off the West Coast and off the Atlantic. Third, we must substantially increase coal production. Lastly, and this may sound exaggerated, we must complete the equivalent of one nuclear-powered, 1,000 megawatt generator plant every two weeks throughout the 1980s.

A cut in any of these factors, we believe, must be replaced by increased imports of foreign oil. Why? Simply because alternative energy sources cannot be developed and brought into production fast enough to improve our near-term supply. Thus, development of the OCS is an important factor in solving our energy problem.

With this background let's look at the potential for oil and gas supply in the Atlantic OCS. The U.S. Geological Survey estimates there may be from 2 to 4 billion barrels of oil, and 5 to 14 trillion cubic feet of gas in the Atlantic offshore. Shell believes that no one can accurately predict the amount of oil and gas which might be present in any one specific area. We prefer to look at the overall opportunities in the U.S., then pinpoint locations where our geological studies suggest the best odds for finding petroleum. However, we do believe that 60 percent of new oil discoveries and 35 percent of new gas discoveries will come from the OCS.

Viewing the prospects in this manner, we are interested in all three areas of the Atlantic which show promise — the Georges Bank area off New England; the Baltimore Canyon off New Jersey, New York, Maryland; and the Southeast Georgian Embankment and the Blake Plateau in the South Atlantic. Each of these areas should be explored and developed as soon as practical to aid in the solution of our energy problem.

Now let's talk about the second question: the specific needs which must be provided for in the coastal areas to support outer continental shelf oil activities. For purposes of this discussion, I have divided these activities into two phases. The first phase is exploration. The second phase, which is contingent upon the success of the exploratory effort, encompasses development and production. Let's look at these phases in sequence. And as we look, we will get a feel for time of occurrence and likely impacts.

Seismic information is the fundamental presale exploration tool to locate offshore formations favorable for the accumulation of oil and gas. This is the first step in determining if commercial quantities of oil and gas are present and guides us in determining how much to bid in a lease sale. Seismic data acquisition began in the Atlantic as far back as 1967. As many as six seismic vessels have worked simultaneously along the Atlantic coast. While this activity is largely complete, it will continue to some degree throughout the life of oil development. When in operation, a seismic vessel requires port facilities in the area of operation for biweekly crew changes and supplies. Beneficial impacts are limited to those connected with dock rental and supply. Opportunities for direct employment are very limited. Similarly, shoreside negative impacts are negligible.

The next exploratory operation is drilling to locate and determine the size of oil and gas resources. However, this activity cannot proceed until a sale has been held and an operator has obtained from the EPA, USGS, Corps of Engineers, etc., the necessary permits for the acreage on which he was the successful bidder.

A semisubmersible or floating drilling rig is normally used in offshore water depths from 150 to 1,200 feet. The average cost for such a rig, including rig supplies and transportation, is between $45,000 and $65,000 a day. This rig normally employs 50 to 60 workers. It seems probable that five or six rigs would be in operation at the same time in the Baltimore Canyon, whenever the litigation is settled and permits are finally issued. This kind of rig would also be used in the Georges Bank.

Looking at onshore activity to support the exploratory drilling operation, the supply base we used near Tampa, Florida, to conduct our first offshore Florida exploratory drilling, was typical. The

drill site was located some 50 miles west in the Gulf of Mexico. The base, shared by Shell and two contractors, employed 32 people, including 12 local residents, and covered less than 10 acres. Unfortunately, no oil or gas was found offshore, and this supply base is no longer in use.

Closer to New England is the former Quonset Point Naval Air Station at Davisville, Rhode Island. Shell rents approximately five acres of dock and storage space that would be used as our initial base for exploratory activities in the mid–Atlantic.

A work boat carries drill pipe, machinery, mud materials, and other supplies to the drilling rig. A typical boat has a crew of eight and measures about 180–200 feet in length. Crew personnel are transported to and from the offshore rig by helicopter. In the Baltimore Canyon, our activity would be some 60 miles off the New Jersey shore. Thus, we plan to have a helicopter base site in the Atlantic City, New Jersey area.

The impact of the initial exploratory effect is slight. Activities in the coastal area are all related to the support base. Now, let's move to the development and production phase. This assumes, of course, that a commercial find is made. The number and size of facilities and resulting impacts cannot be accurately judged until we know the amount and location of the oil or gas resource. We can, however, look at the kind of facilities that will be needed and activities which will occur.

First, let's look at timing.

If oil and gas are found, platform design normally takes about a year. Another 3 1/2 years are needed to actually build and install the structure. Development drilling can take another 2 years. Then would come the installation of production facilities and construction of pipelines to get the oil and gas to shore. As much as 6–10 years can elapse before the first oil or gas would reach a refinery or a gas plant for processing.

Now let's look at the offshore development operations and their relation to the coastal area. In South Louisiana, where offshore structures are built, there is a platform fabrication yard. Such yards are not likely to be located on the Atlantic unless a large find is made. From offshore support bases in south Louisiana, boats carry supplies and equipment to the rigs and platforms. Helicopters also ferry personnel to and from the offshore sites from these bases.

In the development stage, the work boat previously mentioned is again employed to perform the same essential supply support function for the offshore production platform. The helicopter is also employed in the same manner to ferry the platform work crews to and from their offshore production location. A pipe lay barge is used to install pipelines in offshore waters between the production platform and shoreline processing facilities.

The shore where the pipeline crosses is undisturbed, except for markers to indicate the pipeline's position.

A Shell gas plant in Texas typifies the type of onshore facility one might expect along the Atlantic coast to handle potential gas production. The area covered is about 20 acres. A plant this size could process almost all of the gas that may be found in the Baltimore Canyon or Georges Bank region. It isn't necessary to locate a gas plant at oceanside. A plant can be built many miles inland, away from heavily populated or recreational areas.

An onshore pumping station is small in configuration. Its purpose is to move offshore production to onshore storage. It requires minimal staffing, no more than one person around the clock.

In the course of developing an offshore discovery, various onshore-based service companies are needed. Some very specialized service companies would be required. However, for the majority of general support services, such as welders, machinists, caterers, etc., the industry would look to local, existing companies. The industry would not normally add new facilities, nor would our presence mean a dramatic increase in jobs.

So, what does all this mean to you? How many jobs will be spawned in New England by offshore development? Of course the question can't be answered until the amount and location of the oil and gas resources are known. The Interior Department *estimates* as many as 10,250 new jobs for New England, supporting a population of some 25,500 people. Putting this in perspective, this is less than one percent of the population of the region. We estimate that 75 percent of the new jobs created would go to local people, people already living here. Thus, population growth would be slow,

orderly, and limited in all likelihood to a few communities.

When will it begin to happen?

On the negative side, the 1976 Baltimore Canyon lease sale, as previously mentioned, is still in litigation. District Court Judge Weinstein ruled for plaintiffs to cancel the sale and the case has been appealed to the Federal Appeals Court in New York. Should the court rule favorably and the sale be allowed to stand, we must then obtain drilling permits from various governmental agencies, including the Corps of Engineers, the U.S. Geological Survey, and the Environmental Protection Agency. It is unlikely that any drilling activity could begin this year.

As for the Georges Bank area off New England, a lease sale is scheduled for November 1977. If there are no court challenges, and if permits can be obtained in a timely fashion, we might expect drilling on that acreage to begin by midyear 1978.*

Now, let's turn for a moment to environmental considerations. The need for a clean, safe environment is fundamental, and safeguards against pollution are a basic necessity. In the nearly thirty years since offshore development began, more than 21,000 wells have been drilled in the U.S. waters. In this time only one accident has caused severe, but *temporary*, pollution to beaches and shores — the highly publicized Santa Barbara spill. And while any oil spill is bad news, what is generally overlooked is that independent studies show there has been no lasting damage from any offshore spill — including Santa Barbara. For example, a recent report by the National Academy of Science analyzing all available technical information on oil on water concluded: "The effect of oil contamination on human health appears *not* to be cause for alarm."

Also, a two-year study of effects on marine life in the area of offshore oil production in the Gulf of Mexico, where more than 16,000 wells have been drilled, concluded: "Every indication of good ecological health is present." This study was conducted by twenty-three scientists from thirteen universities and research institutes.

According to the same National Academy of Science study quoted above, only about 1.3 percent of the petroleum hydrocarbons entering the world's oceans annually comes from offshore production. And our record continues to improve. That is not to say there will be no oil spills or accidents. All human undertakings are subject to error and misjudgments. But, we must and will do everything possible to prevent oil spills, and history has shown that we have been increasingly successful.

In summary, what effect will OCS development have on the coastal zone? Very simply, there are three areas of probable impact. These are pipelines, onshore support bases, and personnel requirements. All other aspects of our activities can be conducted outside the coastal zone. As you have already seen, these three probable areas of impact will have no appreciable effect on any coastal area. I hope it is clear from my discussion that we are talking about very small numbers, and limited space requirements.

Finally, let me say in the perspective of our energy situation today that development of the Atlantic OCS will not totally resolve our energy problem — but it is an important link in the chain of undertakings required to better our position. Some impacts on coastal areas will result from OCS activities — both positive and negative. In my view such impacts are small in relation to the great need to move forward to resolve our energy problem.

As we search for solutions to our energy problems, we must do so rationally and sensibly. The decisions we make are too important to be decided by emotional reactions and preconceived notions. For these reasons, I am particularly pleased to have been here today to share these thoughts with you. Let us hope that, together, we will make wise decisions.

*As of the date of publication, the lease sale has not been conducted.

Transportation in the Coastal Belt

John W. Devanney

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Today I shall talk about transportation, and the conflicts which it raises within the coastal belt. From among the number of interesting problems that are associated with transportation, I have chosen to cover two issues. One concerns the regulatory controls which should be placed on tankers operating near our shores. A second issue involves the proportion of our waterfront which should be allocated to terminals. This latter question has been highly publicized, although I dare say that perhaps 95 percent of the people in this room have not thought seriously about the issue.

The tanker regulation issue has of course been brought about by tanker spills and discharges. What do we know about these problems? In the course of normal tanker operations, we spill tons of petroleum each year into the ocean, much of this through tank cleaning. It is estimated that between 100,000 and 300,000 tons of petroleum enter the ocean each year through tank cleaning, a figure which represents between one-fifth and one-fourth of all man-made petroleum discharged annually into the ocean.

More petroleum enters the ocean from tank cleaning than from oil spills. Further, it should be noted that almost all the oil spilled within a given year comes from a few very large spills, usually not more than three or four. Generally, the several largest spills during a year account for 80 to 90 percent of all oil spills worldwide, and equal the total amount of petroleum that enters the ocean from ship losses due to grounding, collision, or explosion. Of the total tanker spillage each year, less than ten percent is contributed by operational spills.

We at MIT have compiled fairly complete data on oil spills over the past four or five years. Several interesting things should be noted. First of all, there's little statistical data on the notorious Liberian fleet, which is growing in tonnage each year. Also, one clear pattern, and a disturbing one, is that old ships tend to spill more than young ships. It so happens that draft restrictions in U.S. ports benefit the newer ships. But we are the ones who are going to pay for whatever rules are in effect in our ports, and if the older vessels are forced to compete with the more expensive and more efficient newer ships, perhaps the rules might be adjusted to give the older vessels a greater chance in the competition.

Discharge of oil ballast is by far the largest source of oil spillage, and techniques such as load on top cannot, for the most part, greatly affect operations on American routes, which are largely productive routes. Load on top is expensive, and could represent a five to ten percent increase in transportation costs. It would place some limit on how much oil each tanker could discharge, and leave it up to the industry to figure out which combination of segregated ballast and other techniques is cheapest. But I am completely convinced that such restrictions as double bottoms, tank-size limitations, etc., will have almost no effect on the amount of oil that is spilled. The reason for this is that the greatest bulk is spilled in incidents involving the complete loss of a ship, in which case such measures are ineffective. Double bottoms, for example, would not have helped the *Argo Merchant.*

With respect to tanker spills, the emphasis should be on personnel training, operating procedures, communication and navigation gear, and the

required use of the English language in intervessel communications. Minimal navigation and gear requirements, coupled with adequate Coast Guard inspection, would cost very little, yet would greatly reduce spillage. Unfortunately, the bureaucratic and political need for doing something concrete, and the expedience of doing something spectacular, rather than what reality dictates, have saddled us with the costs of a series of expensive tanker design requirements which will do almost nothing beneficial for our environment.

There is another important subject to which I would like to call your attention. I fear that the Congress, under the guise of protecting our interests, is planning to enact an expensive regulation, and one that has no direct bearing on environmental protection. This proposed legislation places a restriction on the amount of imported oil that can be carried on non–American flag vessels. The arguments for this legislation are based on a balance of payments, jobs, and environmental protection.

At MIT, we have taken the time to analyze this legislation. In this analysis we have had to make certain assumptions. One of these concerns the initial costs of currency, that is, the market exchange rates in the absence of any controls. We have also made assumptions about American shipyard workers, if they were not building the new vessels which would be required by the legislation, as well as assumptions about what U.S. seamen would be making if they weren't working on the additional U.S. ships.

If one assumes that foreign currency is at present 15 percent under value, and that a seaman working on a foreign tanker would make half what he would on an American flag vessel, and that an American shipyard worker would make 80 percent of his shipyard wage in other employment, then the account ends up something like this: The total cost of the proposed legislation to the American taxpayer would be about 4.5 billion dollars a year. The annual gain to the American flag seamen and shipyard laborers would be 4.8 billion dollars, but there are many other costs involved. Taking account of all the plusses and minuses, we have calculated that the total cost to the nation of the proposed bill would be about 3.2 billion dollars per year.

These figures assume that all the ships needed under the new law will have actually been built, and they take no account of the fact that there is currently a great surplus of foreign flag vessels. What would really be accomplished by this bill would be the subsidy for a few years of 100,000 American shipyard workers, as well as of 3,000 American seamen. Wouldn't it be simpler to give these men $30,000 a year outright, and save our steel, our energy, and other resources?

Nevertheless, the cargo resolution overwhelmingly passed both houses of Congress before the *Argo Merchant* incident, and we can be sure it will pass again. The last time, President Ford vetoed the bill; this time it will be up to President Carter. You may ask how such an atrocious piece of legislation can go through Congress with such flying colors? If there are any political people here, I would suggest you could do no better than to study the American Shipping Lobby, a fantastic organization. You might entitle your thesis "How Cheap Is Your Congressman?"

A second transportation issue to which I would call your attention is that of container terminals. The problem here is that when it comes to port facilities, the public is convinced that the more cargo which is handled the better the facility. As a result, here in the New England region, we are subsidizing essentially uneconomic port activities. Our criterion for success with regard to marine-cargo handling is not how much profit the operations make but how much money they spend. The economics here in New England practically guarantee that we cannot make money in container handling except in relatively small-scale operations. Yet Massport in Boston informs us that they are hopelessly congested, and need more space. Although more space for them means losing still more money, they are still going to get it.

All of the New England port cities appear convinced that they should reserve their waterfronts for urban industrial uses. As a result, in every large New England port you will see large tracts of waterfront for such a use — waiting, and waiting, and waiting. Visitors from the West Coast and Florida are completely aghast. Here is prime waterfront sitting fallow. Invariably, you will find that the property is in the hands of some public or semi-public agency which is insulated from supply and demand factors. If the private sector could get its

hands on the property it would turn it to recreational uses. Currently marina operators in Boston are getting better than $35 a boat foot, and are minting money. We could put 900 boats in Charlestown and 2,000 in South Boston in the space which is designated for container terminals. One of the funny things about container terminals is that they represent an occupation which is anything but labor-intensive. The container terminal generates about four jobs per acre; there aren't many activities which have a lower ratio of jobs per acre.

We blame a lot of our pollution problems on the marketplace, and often with good cause. But it is the public sector which is responsible for the misallocation of waterfront property. The time has come to tell marine transportation that it has to compete with all the other uses of potentially valuable urban waterfront space.

Marine Recreation: Uses and Needs

Niels Rorholm

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Marine recreation is certainly not a new form of recreation, but it has grown very rapidly both in quantity and in variety during the past 25 years.

I won't attempt to describe the quantitative growth with numbers, for one of the difficulties with outdoor recreation is the matter of measuring it — no one agrees on the numbers, and in fact, they are not very meaningful, primarily because there has been no consistent impartial collection of data on which to base time series. It is generally agreed, though, that marine recreation is an activity that has substantial social and economic ramifications. These range from paying more for a year-round residence from which you can see and smell the sea, through talking and sunning at the edge of the sea, or walking the marshes and dunes, to diving, sailing, surfing, and swimming in or on the sea itself.

The sea encourages variety in use not only because it changes constantly in response to currents and weather, but also because of the infinite variety of environments that are created by land-sea interaction — from the quiet coastal pond or lagoon to the thundering surf.

Marine recreation, in common with other marine activities, depends for its very existence on the maintenance of certain characteristics of the coastal belt, most of which is in the public domain. Thus, the quality of marine recreation is likely to depend heavily on the functioning of government, either through income redistribution (for public beaches and parks for example), or through ensuring that costs of production or of housing are fully internalized (air- and water-pollution control).

But most marine recreation differs from other uses of the sea in one important respect: the "product" is consumed on the premises. Thus resources (air, sea, land, capital), producers (marina owners, hotel owners, etc.), and consumers (swimmers, boat people, fishermen, etc.) are in intimate touch with one another through the entire production, marketing, and consumption process. Add to that the fact that though all feel in some vague sense that they have rights to the basic natural resource — and indeed they do — some have more influence than others in the way local or state governments affect access to and use of the coast and its waters.

These characteristics make marine recreation extremely difficult to manage, and by "manage" I mean here the determination and execution of policies that affect access to and costs of recreation. It is perhaps worth pointing out that, although coastal management bodies may not necessarily set prices for recreation services, their actions have profound effects on prices and costs to consumers. For example, a policy of discouraging the building of additional marina slips will very quickly lead to higher prices for dockage in that area.

Marine recreation is probably the one use of the coastal belt — or at least that part of it extending, say, ten miles from shore — that is the most demanding of natural and of public resources. Requirements for natural resources are high because of the pressure of population on a limited shoreline. The requirements for public resources arise first out of the necessity for holding valuable shoreland for public use and second from the tremendously expensive network of roads and bridges needed to ensure access

Table 1. Suggested Resource Needs and Output Characteristics of "Going to the Beach."

Resource needs common to all three: High water quality; gently sloping foreshore free of vegetation; accessible by land.

Social Beach

Outputs or products: Swimming, getting a tan, socializing, being seen, having fun, etc.

Resource needs: Sandy, fairly wide beach, ocean site preferred, large parking area, high-capacity access road, nearby low- to mid-priced food and beverage service, pavillion facilities, lifeguards, preferably other entertainment nearby. Highly cyclical use. Heavy weekend use.

Scenic Beach

Outputs or products: Swimming, getting away from it all, enjoying nature, sunbathing, walking for exercise.

Resource needs: Less sand beach and less width needed, ocean preferred, less parking, no special roads, may be difficult of access, limited lifeguard service, more even use.

"Mother and Child" Beach

Outputs or products: Getting out of the house, socializing, tanning and swimming, healthier children.

Resource needs: Sand, no surf, close to home, public transportation preferable, average road needs, fairly even use through summer, could probably be artificial, playground equipment, limited pavillion facilities, lifeguards.

to these areas far in excess of the nonweekend needs. The wants for shore-based recreation are such that were all the walkable shore available to public access, one would probably not be able to get out of public hearing between Portland, Maine, and Norfolk, Virginia, on a summer weekend. In fact, things are a lot more crowded than that, for the market system has been at work over the years, satisfying the demand for private recreation on the edge of the public domain, with the result that the ability of the public to get to its domain and there to do "its thing" has been greatly diminished. Only limited amounts of shoreline are available for public use.

But all is not lost for, as we mentioned above, the variety of experiences characteristic of the marine environment are at least equal to the variety of consumers' wants for different types of marine recreation. To illustrate the variety even within what we often think of as identical kinds of recreation, one need only look at some descriptions of "going to the beach." From Table 1, it is evident that both the expectation from recreation (output or product) and the inputs or resources required are quite different for the different kinds of beach experiences.

I venture the statement that for the major proportion of the beachgoing population these three types of beach environments would be poor substitutes for one another; so poor in fact that they may probably be classified as different products. The good news is that this stretches the limited natural resources that produce beach experiences; the bad news is that in planning for beaches, it is not enough to use a few average capacity figures and, from those, determine the need for public beaches. Unless it is known what a given beach will likely be called upon to produce, it is not possible to predict the resource loads or the associated public service requirement.

One could make the same breakdown for several other kinds of marine recreation, but the point has probably been made — a great variety of experiences is possible and this leads to great variety of resource combinations needed. This "stretches" the natural resource, but also reinforces the specialization of wants and thus leads to a lack of substitution among products.

So far we have discussed marine recreation as if the sole purpose behind resource allocation to those activities were to provide opportunities for the public and those owning shore property to "re-create" themselves in, on, and by the water. That is an idealistic if not downright incorrect view. The driving forces behind such resource allocation vary from the above purpose, typically motivating public officials to seek personal financial gain. But they include also such activities as trying to keep out industry in favor of tourism, and subsequently attempting to keep out the commercial necessities for successful tourism in favor of unchanged access to and competition for the local natural environment. This is often known as preserving a way of life, a very understandable desire on the part of local populations when this is a nice way of life. (Please note that resource allocation to a given use need not be a conscious decision, but can result from failure to allocate it to, or permit it to be employed in, other uses.)

If the "re-creators," their suppliers, the resource owners (on land) and the regulators are going to get along in the future as more and more people

"discover" marine recreation, we are going to need to know a lot more about the needs and results of marine recreation than is currently known. In what seems to me a very complicated area, we need to know what in fact is the role of recreation in keeping fit physically and mentally, and what aspects of recreation affect these processes. It amounts to nothing more nor less than knowing the nature of the "product" that is being consumed. Let me illustrate why it is important. If solitude is an important aspect of fishing from beaches at night for bluefish or striped bass, then one obviously would not double the amount of recreation output by, for example, doubling the parking facilities to permit twice the number of people to participate; diminishing incremental product would occur fairly soon. If, on the other hand, the number of fish caught is a much more important ingredient of the experience, then one would expect incremental product to diminish more slowly and a given length of beach could produce a relatively greater total amount of recreation product. If we don't know the nature of the product, we can't plan for its production and distribution or allocation.

In addition, we must know the production process, including spillovers and externalities. This will have to include employment and income effects, for recreation is often used as a tool for regional economic development.

Table 2 shows a partial list of variables about

Table 2. Partial List of Productive Factors for Selected Types of Recreation.*

	Social Beach	*Scenic Beach*	*Summer Residences*	*Marina-Based Boats*	*Ramp-Launched Boats*
Productive Factors					
1. Wide sandy beaches, ft.	.4				
2. Narrow sandy beaches, ft.		4.1			
3. Other beach or shore, ft.			40		
4. Protected shore, ft.				1.4	less
5. Land/coast ratio	315	176	172	517	greater
6. Land area, sq. ft.	126	722	6,900	724	same
7. Water area, sq. ft.	200				
8. Associated physical environ. features					
9. Private investment dollars			19,000	4,200	660
10. Public investment, direct dollars	8.40	82.60	M		20
11. Private costs, incl. capital services dollars	50.00	40.00	H	571.00	274.00
12. Public cost, incl. capital services dollars	15.00	35.00	M	4.00	10.00
13. Water quality					
14. Employment, NO					
Associated Outputs					
1. Improved environment food					
2. Food					
3. Local personal income generated					
4. Local taxes					
5. Other taxes					
Associated Inputs					
1. Public investment dollars					
2. Annual public cost, incl. capital services	H	M	L	L	M
capital services	H	M	L	L	M
3. Loss in environmental quality					

*Numbers are rough approximations from limited numbers of observations. The base is per 100 recreation days.

which we need information for intelligent coastal management in recreation. They are not all directly quantifiable, but we must at least be able to describe them.

Before deciding it is an easy task to fill out and complete Table 2, remember that we don't really know how to define and measure recreation. But I can't stress enough how important it is for our public management agencies to have better information with which to attack this problem.

Let us briefly try to look into the future with respect to growth and conflicts in marine recreation.

Participation in marine recreation does not appear to slow down when increases in disposable income either moderate or are reversed. On the contrary, it keeps increasing. Hence, policymakers must decide — rather more quickly than they would otherwise have to — whether participation is going to be limited by crowding that can destroy the recreational experience, by pricing out the less affluent, or by some other method of allocation. This decision is extremely important for it will affect the quality as well as the distribution of recreation.

Recognizing that, to at least a limited extent, the pricing option will always be at work within our system, let me explain why I believe we must not rely too heavily on the crowding option to do the allocation for us. I believe that our increasingly specialized economic system generates a need for diversity in recreational opportunities to offset the monotony of specialization. This belief is based on my acceptance of two premises. One is that variety is a basic need of man along with food, shelter, etc.[1] The second is that if basic needs (such as variety) are denied, tensions rise. Thus, the more we specialize in our roles as workers, the more we generate a need for other activities which, together with work, produce a variety of experiences necessary for mental health. But if the product is not there, that is to say if the experience that is sought is denied, then tensions are not released through a variety of activities; instead, they are increased through thwarted expectations. For example, if instead of solitude you get crowding and snagged fishing lines, if instead of quiet you get traffic noise and rock and roll, and indeed to many people if you get quiet instead of rock and roll, the end result of the recreation will likely be increased rather than alleviated tension. And that, it would appear, is a sure way for an affluent society to jeopardize its productive vigor and mental balance. Recreation, then, can be viewed as an aspect of tension management.[2] Considering the pressures of today's world, I suggest that perceptive planning for recreational opportunities in and by the sea is very important both socially and economically.

Up to now, at least on the U.S. East Coast, there have been very limited conflicts between recreational and commercial uses of the seas. They will begin to appear, though, and the most likely candidates would seem to be water pollution from energy production, commercial catch of certain species of fish and shellfish, and traffic conflicts with commercial shipping. The most limiting conflicts, however, will probably be among different kinds of marine recreation, for example, housing and marinas, housing and beaches, in fact among nearly all aspects of so-called private and so-called public recreation and particularly between individuals who live in a given area and those who make their living from the tourist services sector. The second most frequent conflict seems to occur within a given use itself — crowding. A study of boat owners, for example, indicated this was one of the factors that seriously threatened the enjoyment people received from boat-based recreation.[3]

To handle the conflicts, we need first of all to know what is going on. That seems to call for some fairly basic research in sociology-psychology. But, in addition, we need a better information base; here salt-water fishing licenses, registration of all boats, and a change in coding in the censuses of manufacturers and trade could help. Finally, we need to make some tough decisions about how free the public domain is. For example, if lives can be saved, ought not commercial shipping to be compelled to stay in shipping lanes in coastal waters; if because of low turbidity a given spot has a comparative advantage for diving, might that sport not receive some preference there. This is not quite water zoning at its inflammatory worst, but rather it is the kind of resource allocation that firms and nations have always had to practice when their means of production have been exceedingly scarce relative to their needs. Today our coastal belt is exceedingly scarce relative to our wants.

We don't have much time. It is my fervent hope that we will see close cooperation on all levels of government in managing both the land and the water part of the coastal belt. Once that is assured, then we need to address the question of federal-state guidelines for land use, so we can make a solid dent in the altogether too insular local zoning powers — powers that are a great hindrance to an optimum combination of public and private resources in coastal uses.

Notes

1. See, for example: Irving A. Spaulding, "Socio-Cultural Values of Marine Recreational Fishing," in *Marine Recreational Fisheries*. ed. Henry Clapper (Washington, D.C.: Sport Fishing Institute, 1976).
2. Spaulding, *ibid.*
3. Niels Rorholm, "Boats and Their People," University of Rhode Island Marine Technical Report 52 (Kingston, R.I.: 1976).

Offshore Oil Development and the Fishing Industry: The Georges Bank Case

Part One. An Overview of the Two Industries and an Assessment of Potential Damage to Fishery Resources and Losses in Fishing Ground

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The Coastal Resources Center recently completed, for the New England Regional Commission, an eighteen-month study entitled *Fishing and Petroleum Interactions on Georges Bank.* Volume I[1] is an atlas showing the distribution of fishery resources, fishing grounds, and areas of interest to the petroleum industries. One purpose of the atlas was to underscore how poor available data is on several important topics. Volume II[2] examines several potential areas of conflict in considerable detail and summarizes relevant data on the two industries. In this paper we will touch upon some of the highlights of the study.

Georges Bank lies between Cape Cod, Massachusetts, and Cape Sable, Nova Scotia, and includes some 12,000 square miles within the 100 fathom isobath. It is one of the world's richest fishing grounds and an important spawning ground for several major species. It may also overlie reserves of oil and gas and commercial drilling activity is expected to commence shortly. The bank has traditionally been worked by fishermen from many nations. In the late 1950s large fleets of foreign vessels began an onslaught on selected stocks that radically changed the nature of Georges Bank fisheries. Domestic landings declined drastically, as shown in Figure 1, as foreign fleets claimed a growing share of the total catch and important fish stocks rapidly declined and became overfished. Figure 2 gives an indication of the size of the domestic New England industry measured in terms of fishermen.

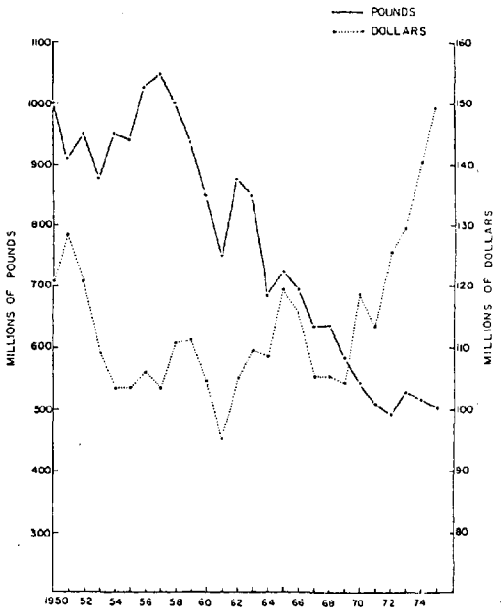

Figure 1. New England Landings.

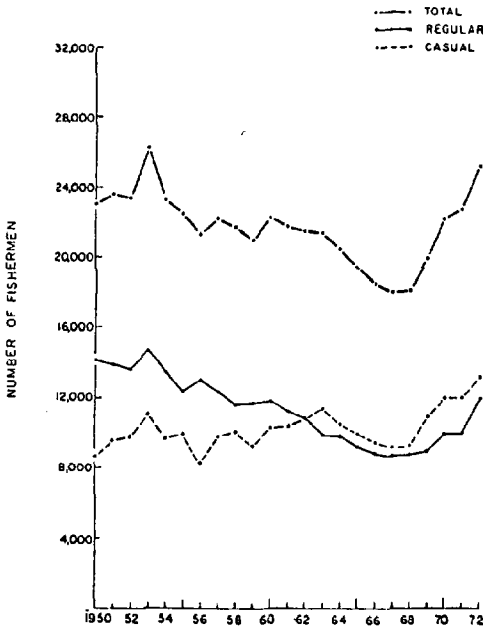

Figure 2. Number of Fishermen, New England.

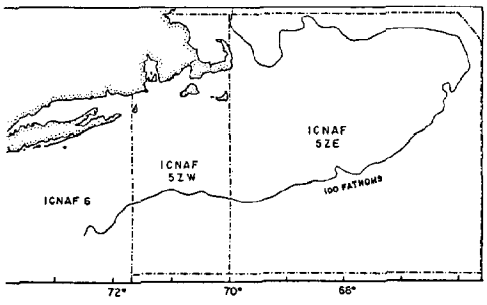

Figure 3. ICNAF Statistical Areas.

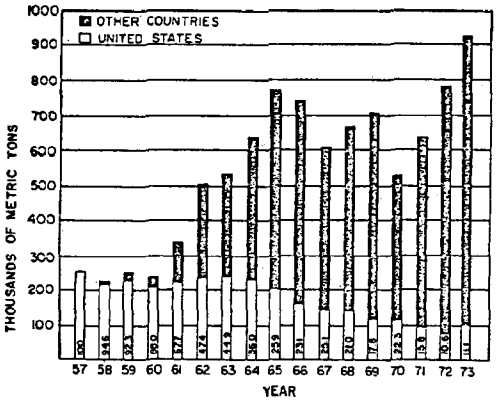

Figure 4. Total Landings of All Species from ICNAF Area 5Z Showing Percentage Landed by the U.S.

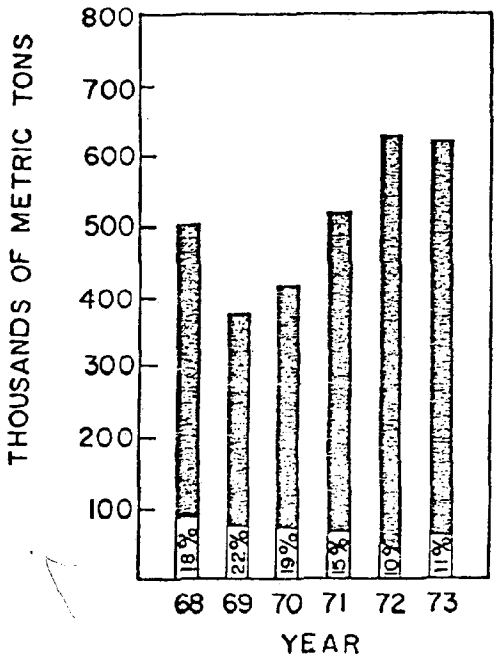

Figure 5. Total Landings of All Species from ICNAF Area 5ZE (Georges Bank) Showing Percentage Landed by the U.S.

Statistics on foreign fisheries are compiled by the International Commission for the Northwest Atlantic Fisheries (ICNAF). The accuracy of these data during the fifties and sixties is questionable but they are the only numbers available. Figure 3 shows the statistical areas by which catch data are compiled. Area 5ZE approximates Georges Bank. Unfortunately 5ZE and 5ZW were combined until 1968. Figures 4 and 5 show total landings, and the U.S. share of that catch, for areas 5Z and 5ZE. The domestic share of the pie is small, but had grown to approximately one-third of the total Georges Bank (5ZE) catch in 1975. The total harvest in 1974 was 1,070 million pounds. Landings in New England ports by domestic fishermen totaled 522 million pounds with a dockside value of $122 million in 1974; 27 percent of that catch, by weight, was taken on Georges Bank.

The point these numbers make is that the fishery resources of Georges, even in their present battered condition, are great, and the share taken by New England fishermen is small. However, the 200-mile fishing limit should drastically change the outlook for New England fishermen by holding out the hope for sane resource management practices and the

opportunity for New England fishermen to claim a larger share of the total catch. This means that we must not compare a future offshore oil industry on Georges with the present domestic fishing industry; the character of the latter may be very different in ten or twenty years when offshore oil activities may be in high gear.

Our knowledge of the fish stocks on Georges is sketchy and it is risky to make predictions for what the bank could produce if fisheries were properly managed. It can be hypothesized, however, that the bank could produce a maximum sustainable yield (MSY) of some 420,000 metric tons (924 million pounds) of fin and shellfish each year. A very conservative estimate, using 1974 dollars, is that the dockside value of this catch might be $142 million that would generate $420 million in transactions in New England, of which $166 million would be personal income. Let me emphasize that these numbers are a best guess.

Dr. Virgil Norton, a member of our study team, made a series of projections for the expansion of New England fisheries under the 200-mile limit. He concentrated on the groundfish (cod, haddock, ocean perch, and pollock) fishery. Three hypothetical cases were examined. In Case 1, effective management, but no federal aid to fishermen, is postulated; some federal aid is postulated, but foreign fishing continues in Case 2; and in Case 3 the industry receives aid from the federal government and foreign fishing is eliminated (a truly hypothetical situation). Estimated changes in the New England groundfish fishery may be summarized as follows:

	Millions of Lbs.	*Vessels*	*Fishermen*	*Employment in Processing Plants*
Present	250-350	470	2500	1000
Case 1	500	545	3422	1500
Case 2	700	679	4620	2000
Case 3	750	712	4925	2800

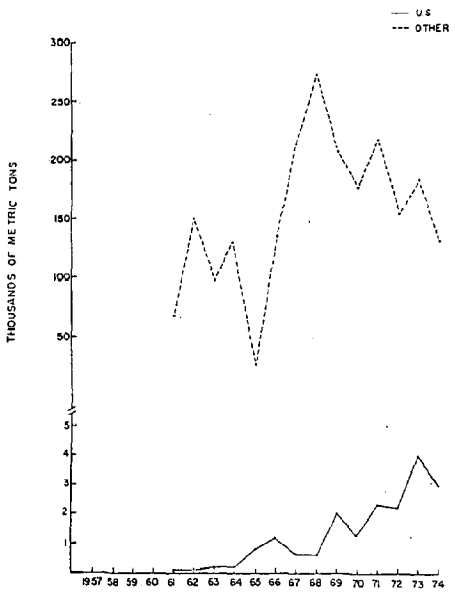

Figure 6. Herring Landings, ICNAF Area 5Z (E and W).

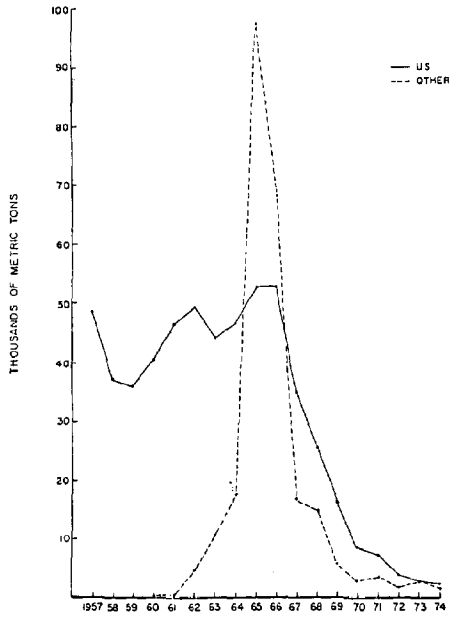

Figure 7. Haddock Landings, ICNAF Area 5Z (E and W).

Fisheries for herring and sea scallop could also experience dramatic growth and new fisheries may develop for such high-volume, low-value species as mackerel and squid. The potential for growth in domestic fisheries for both traditionally favored and "new" species are illustrated by Figures 6, 7, and 8.

The petroleum reserves on Georges may also be substantial. Unlike the fish, however, these resources are nonrenewable. Present estimates for the magnitude of these reserves, and very important, whether they are concentrated in a few large fields or are scattered, are very definitely best guesses. There

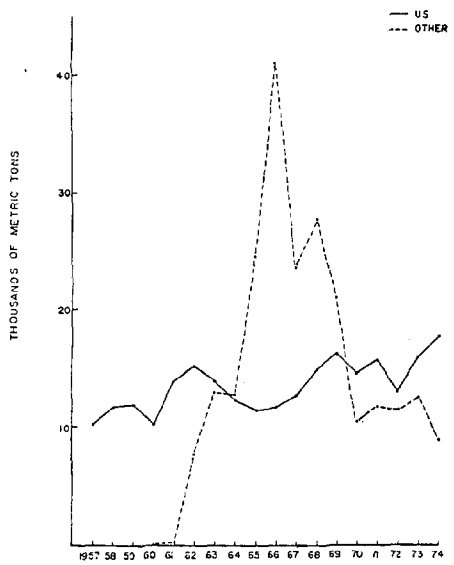

Figure 8. Cod Landings, ICNAF Area 5Z (E and W).

may be no exploitable reserves at all, but the indications are that a moderate-sized find (in global terms) will be discovered. The estimates for exploitable reserves we used are:

	Oil (billions of bbls)	*Gas (trillion cubic ft)*
Large Find	0.18	1.3
Small Find	1.3	8.6

The economic benefits that could accrue to the region depend upon the size of individual fields and the price at which the product is sold. The greatest benefits to the region would result from a large find of gas that would be sold at a low controlled price. Depending on the size of the fields, we estimated that the consumer real income from single hypothetical fields could range from $5–634 million for gas sold at a controlled price of 60 cents per thousand cubic feet (a best case) and $6–155 million for individual hypothetical oil fields. Small and large fields are defined as follows:

	Oil (millions of bbls)	*Gas (trillion cubic ft)*
Small Field	18.5	0.11
Large Field	321.8	1.93

The nature of the available data unfortunately does not permit us to directly compare the possible future values to the region of fish and petroleum.

Now let us turn to some potential problems between fishing and petroleum exploitation. The first question is what the impacts of petroleum exploitation might be on the fishery resources themselves. The amount of area that may be directly affected by the placement of structures such as rigs and pipelines is small and the loss of habitat does not appear significant, with one important exception. Some species, most notably herring, spawn in small, well-defined areas. Disruption of these habitats should be avoided at all costs. The major potential problem appears to be oil pollution. Although the spill record for offshore drilling is good, it is common knowledge that accidents, and big ones at that, do happen. There is also concern for chronic low-level pollution that need not be associated with big spills. In attempting to assess the potential impact of petroleum pollution on Georges one is again struck by the meagerness of the information with which we must work. Marine toxicology is a science in its infancy and most of the research completed has been conducted under controlled conditions in the laboratory. It will be extremely difficult, if not impossible, in all but the most obvious catastrophic situations, to note a change in the environment, establish its cause, and assess its significance. On Georges Bank our ability to accomplish these steps will be impaired by the lack of baseline data, and the studies presently being undertaken will not provide the answers. These problems were discussed in detail at the Bentley College Workshop,[3] a convocation of recognized authorities on the Bank held in 1975. Why are we concerned with oil pollution? Because the soluble aromatic hydrocarbon derivatives (S.A.D.'s) in petroleum products are toxic at very low concentrations. The concentration of S.A.D.'s in crude oil varies and may reach 0.1 to 10 percent. Lethal effects on adult marine organisms are found at S.A.D. concentrations of 0.1 to 10 ppm, and sublethal effects, including production of abnormal spawn and inhibition of the mating response, occur at 1 to 10 ppb for some species of commercial and/or ecologic importance. Tainting can occur at concentrations of 1 ppb; humans can taste concentrations in animal tissues of 5 to 50 ppm.[4] All this leads to the conclusion that highly sensitive fish eggs and larvae would probably be wiped out if they came in contact with

spilled oil. It should be pointed out that most eggs and larvae die anyway; but a spill at the wrong place at the wrong time could have a major impact on a year class. Perhaps most worrysome of all is that significant impacts may go unnoticed, or if they are detected, that it will be very difficult indeed to establish their cause.

Let us now consider the problem of a loss of fishing ground on the bank due to the placement of offshore structures. The first point to be made is that trawlermen — and most of the fish and shellfish caught on the bank are taken with gear that is towed along the bottom — do not randomly drop down their gear and pull it about anywhere. Fishermen work discrete grounds, and where the bottom is scattered with obstructions, or fish are known to concentrate in a specific place, the ground may be very tightly defined. Fishermen are understandably jealous of their personal knowledge of the grounds they fish and they do not readily tell others where the best places are. Nevertheless we were able to work with several fishermen who make their living on Georges and map, in a somewhat generalized manner, the various grounds. These maps have been widely circulated and fishermen feel they are accurate. We then asked the National Marine Fisheries (NMFS) Laboratory at Woods Hole to analyze their data on catch-by-area for landings at major New England ports collected from 1965 through 1974. The manner in which this data was collected poses many important problems, but the file is the only source of numbers for catch by specie for small areas (squares measuring 10 minutes of latitude by 10 minutes of longitude). One obvious problem with the data is that the catch for an entire fishing trip was usually assigned to a single square, and never to more than three squares. It is very unusual for a vessel to take all its catch from one small area. However, we worked the data hard and defined "grounds" which agree fairly well with the areas defined as grounds by the fishermen. A careful analysis was made of data for 1965, 1969, and 1974, and it was found that the most productive grounds, as defined by the NMFS data, produced an average of $29,585 and 164,410 pounds per year per lease tract (approximately 5,700 acres). Information collected from fishermen strongly suggests, however, that the per area value in some locations is much higher than these figures suggest.

Estimates were then made of the amount of area that could be lost to fishermen by the placement of drilling platforms. Given a minimum safety zone of 500 meters around each platform, and a greater loss in the vicinity of clustered platforms, we estimated that in a hypothetical worse case 50 platforms grouped in small clusters could preempt 125 square miles from fishing. If all this area was concentrated in the most productive fishing grounds some 2 percent of the total Georges Bank catch, in both pounds and dollars, might be lost. I will not go into all the obvious problems with the data, but the conclusion that the loss appears relatively small seems to be reasonable. We could not estimate losses from pipelines and this could be a more significant problem. The potential loss of ground from debris appears to be a greater problem than loss from structures; this will be discussed by Dr. Grigalunas. Structures, at least, can be clearly marked and can be positioned so that they will cause minimal interference with fishing. We strongly recommend, therefore, that fishermen be consulted when the precise placement of structures is being decided. A small shift could save a valuable fishing area.

Notes

1. Olsen, Stephen and Saila, Saul B. *Areas of Particular Interest to the Two Industries.* Fishing and Petroleum Interactions On Georges Bank, vol I. Energy Program Tech. Report 16-3. Boston: The New England Regional Commission, 1976.
2. Olsen and Saila. *The Characteristics of the Two Industries. Potential Future Trends and An Assessment of Foreseeable Conflicts.* Fishing and Petroleum Interactions On Georges Bank, vol. II. Energy Program Tech. Report 77-1. Boston: The New England Regional Commission, 1977.
3. Bentley College Workshop. Georges Bank Conference; Marine Environmental Assessment Needs on the Georges Bank Related to Petroleum Exploration and Development. New England Natural Resource Center, 1975.
4. Hyland, J. L. and Schneider, E. D. *Petroleum Hydrocarbons and Their Effects on Marine Organisms, Populations, Communities and Ecosystems.* Proceedings of Symposium on Sources, Effects, and Sinks of Hydrocarbons in the Aquatic Environment. Washington, D.C.: American Institute of Biological Sciences. August 9-11, 1976.

Part Two. Three Potential Aspects of Conflict: Debris on the Seafloor, Competition for Labor, Competition for Port and Service Facilities

Thomas Grigalunas

Associate Professor, Department of Resource Economics, University of Rhode Island

Debris and Bottom Obstructions*

If North Sea drilling is any guide, debris on the ocean floor that can foul fishing gear is expected to be one of the more noticeable day-to-day conflicts between the petroleum and fishing industries. Scottish fishermen's representatives have stressed that ". . . debris is possibly the most serious factor affecting fishing operations . . ."[1]

For perspective, over the period from May 1974 through June 1976, some 121 claims were filed for $123,000 against the United Kingdom Offshore Operators Association for damages resulting from oil-related debris.[2] These figures do not include 28 claims filed directly against oil companies, and the value of these direct claims is not available. Also the statistics are somewhat understated because claims for the value of lost fishing have been recorded only since late 1976.

The cost of new fishing gear (trawl net, doors, and warps) for representative trawlers of the type that fish for groundfish on Georges Bank could range from $7,300 to $9,700, although seldom is all the gear likely to be lost. In addition, the estimated *net* loss in income (revenue less operating costs) to the vessel owner and crew could amount to $1,333 for each day of lost fishing time.

The potential economic costs resulting from oil-related debris and bottom obstruction in total are dwarfed by the prospective major returns from offshore oil and gas developments (see above). Nonetheless, conflicts in this area are certain to be highly visible; and unless pragmatic remedies are adopted, relations between the two industries can be aggravated, which in turn can affect the leasing of offshore tracts and the potential to realize gains from the expansion of both industries. Some present and possible remedies are outlined below.

O.C.S. orders provide that the disposal of wastes into the ocean shall not adversely affect uses of the ocean. O.C.S. orders also require that offshore operations clear permanently (though not temporarily) abandoned well sites of obstructions. The existence of regulations, of course, does not insure that problems will not arise. The United Kingdom has its Dumping at Sea Act of 1974, and yet there is difficulty with debris in the North Sea. The fact is that effective enforcement of regulations is costly, so that deliberate as well as accidental discharge of materials into the ocean is likely to occur.

It may, of course, be possible to induce accident prevention by some straightforward approaches. For example, someone other than the supply boat crew could offload waste materials being brought ashore, so that a crew would not have an incentive to dump at sea in order to have more free time on shore. Educational efforts also may be used to inform oil

*This section is based on Sutinen (CRC, 1977, Section 9).

industry employees of the characteristics of offshore fishing operations and the potential harm that can be caused by dumping materials offshore.

If damages to commercial fishermen resulting from debris and bottom obstructions do occur, direct approaches for compensation are not likely to be a very useful general approach for compensation. First and foremost, it is necessary to know the identity of the alleged offending party, and often this will not be possible. Even if the identity is known, however, litigation very often will be too costly to pursue. Also, direct but informal negotiations between the parties can be costly (particularly in the opportunity cost of time for the owner-operator of a vessel), and in this case, the decision as to whether and how much to compensate is left to the oil company, the presumed offending party.

One remedy proposed for dealing with the problem of identification of the offending party is to require that major pieces of material and equipment going offshore be conspicuously marked. However, such a scheme could prove to be costly.

Because the direct approaches described above often will not prove useful, there is considerable merit in the indirect approach of a compensation fund that could cover damages from oil-related debris that cannot be attributed to a particular company. Such a system, funded by oil operators, is functioning in Scotland.

Under the compensation fund system, commercial fishermen would be able to seek recompense against the fund for damages to gear as well as the net income loss resulting from lost fishing time. The value of lost fishing time might, for example, be estimated by using the average productivity of the vessel over its last, say, three trips in order to account for the productivity of individual skippers.

It is clear that, in setting up a compensation scheme, the organization, funding level, and procedures and standards to be followed are central to the success of this approach. The characteristics of the compensation fund financed voluntarily by the United Kingdom Offshore Operators Association, which could be a useful model for Georges Bank, are described in some detail in our report.[3] In general, while it is hoped that such a system would expedite claims, the fund would have to be protected from false claims. On the other hand, if claims procedures are too strict, some legitimate claims may not be paid, thus negating the purpose of the fund.

Competition for Labor

Introduction of offshore oil in the North Sea has attracted workers from alternative occupations, including commercial fishing. However, offshore oil in the North Sea coincided with a period of decline in fisheries. In New England the situation is the reverse; we expect to have both industries expanding simultaneously. At issue is whether or not the introduction of petroleum development on Georges Bank could somehow dominate labor markets and slow the expansion in fishing.

In order to assess the likely labor market interactions between the two industries, estimates were made of the quantity and type of added demands for labor by fishing, petroleum, and related industries. The extent of overlap in the demand for skills was identified, and the likely impact of market competition for the commonly demanded pool of labor then was elevated.

The peak demand for labor to work offshore in the high oil and natural gas find case was estimated to be about 4,000. New England's share of this workforce is estimated to be about 2,100 at peak. About 1,200 jobs, at peak, would require skills similar to those found in commercial fishing, e.g., captains, mates, crews, mechanics, and radio operators.

In the high commercial fishing case, the combined added demand for labor for expanding harvesting operations, to replace retiring crewmen and to provide management observers to enforce fishery regulations, could amount to 5,400 to 6,200 workers.

In sum the expansion of both industries by the mid-1980s will create a demand on the region's labor force for some 6,600 to 7,400 additional workers with similar skills. This increase in demand for workers is not likely to have a notable impact on commercial fishing for several reasons. First, the increase will occur over a period of years, and a gradual increase in both industries would be expected to lead to fewer dislocations than an equivalent increase over a short period of time. Moreover, fishermen's earnings compare favorably with expected earnings in similar job categories in the offshore petroleum industry (although there probably is less risk in the oil industry than in the fishing industry).

Potential transfers from the fishing industry to the oil industry also would be hampered because fishermen may not possess the seamen papers necessary for many positions on oil-related vessels. Finally, there appears to be ample availability in other sectors, especially construction, of the skills and aptitudes required in offshore petroleum.[4]

On the other hand, a note of caution is called for. Recent high rates of unemployment may continue to decline, and we cannot be sure precisely what labor pool will be drawn upon to accommodate the demand for the skills, training, and characteristics used by the two industries and related (e.g., vessel repair yards) businesses. Therefore, industries and government will need to work together to initiate training programs to avoid potential bottlenecks.

Competition for Port and Service Facilities

O.C.S. oil and natural gas development and additional commercial fishing will lead to an increase in the demand for port services, including berthing and the use of nearby port lands for support activities and vessel repair facilities. Will the additional activity of both industries create congestion problems in ports? Is it likely that O.C.S. petroleum operations will displace commercial fishing in New England ports?

It is difficult to assess potential conflicts between the two industries on a general level. Management decisions are port and state specific, and the kinds and scale of development that will be encouraged depend importantly on decisions made by those responsible for port management. Also, potential demands for port services will arise from recreational boating, tourism, and other activities, and the scope of our work was restricted to potential offshore petroleum and commercial fishing developments. Nonetheless, useful insight into potential competition between the two industries can be gained by reviewing possible additional demands by the industries and the present utilization of ports in the region.

First we look briefly at the demand side. The hypothetical high offshore petroleum and commercial fishing development cases are used since the potential for conflict, if any, would be most evident in these cases.

The results of our study suggests that some 60 vessels will be used in continuous support of Georges Bank oil and gas development in the high find case. In the most optimistic commercial fishing case, perhaps 240 additional fishing vessels will be added to the groundfish fishing fleet, an increase of about 50 percent over the 1976 groundfish fleet of vessels over 38' long.*

In total, the ports in the region would need to accommodate about 300 additional vessels, and these vessels will tend to be larger than many of the boats currently using many ports. Supply boats will be in the 175–225 foot range and draw 15 feet when loaded. The size of the "average" groundfish vessel is expected to increase, with most of the additional fishing vessels expected to be in the over 70-foot category.

Perhaps 700 acres would be demanded for direct offshore oil support operations, excluding a possible platform fabrication facility or petroleum refinery. An expanded fishing industry also may create demands for additional port lands.

On the supply side, an inventory was made of the principal features and facilities available at ports in the region. Substantial underutilized or idle facilities exist at many major ports in the region and at excessed Navy lands, including Boston and New Bedford in Massachusetts and Quonset-Davisville, Melville, and Coddington Cove in Rhode Island.

On a general level it is difficult to see how offshore oil and gas development on the scale envisaged here need result in any notable competition for berthing and use of port lands, especially in view of present plans to use the massive facilities at Quonset Point to support offshore oil and gas operations. The only qualification necessary is that a number of smaller ports in the region — e.g., Newport and the harbors on Cape Cod — are heavily utilized during the summer and conflicts exist between fishing vessels and pleasure craft at present rates of use. If petroleum-related activities were placed in many of these smaller ports, displacement of commercial fishing and other uses could take place.

*It is emphasized that these figures include groundfish fishing vessels only because these are the fisheries most likely to feel the major impact of extended jurisdiction, in terms of increase in vessels, over the next, say, ten years. No attempt is made to estimate potential increases in the number of vessels to harvest scallops, herring or other species.

In a related vein the introduction of offshore oil and gas development and extended jurisdiction will generate additional demands for a variety of vessel repair and maintenance services. Demands by oil-related vessels for repair work are likely to be insensitive to price because these vessels are on call twenty-four hours a day. Speed of services at a repair yard thus is a major consideration by operators of supply boats. Should congestion problems arise and cause lost operating or fishing time, costs could be imposed on oil companies or fishing vessel owners and crews.

The combination of additional demands (expenditures) for vessel-related repair and maintenance work by offshore oil support vessels and commercial fishing boats could be comparable to the annual output of about seven moderate-to-large commercial boatyards. As part of our survey of port facilities during the summer and fall of 1975 it was found that many of the large shipyards in the region have been operating substantially below capacity. Many of the larger boatyards had excess capacity during the off-peak seasons. In addition, most yards have informal arrangements to work on emergency jobs first, which serves to reduce potential congestion costs during peak periods. In view of the above, general congestion problems are not likely to arise, and increased demands should serve primarily to decrease the underutilization and off-season excess capacity at repair yards.

Managers of vessel repair yards were asked what problems, if any, might be encountered should they have an incentive to expand their facilities to accommodate additional, larger vessels. The major non-market factors mentioned, that could hamper or prevent yards from expanding, were lack of adjoining land (seven yards out of sixteen responding), and the inability to extend facilities further into the harbor (six yards). The need to dredge and obtain environmental permits (five yards) and the physical limitations in the harbor (five yards) also were given as constraints on handling either more or larger vessels.

Notes

1. Department of Agriculture and Fisheries for Scotland, "Effects of Oil and Gas Development on Fishing" (Edinburgh: October, 1975), mimeographed.
2. Assistant Secretary, Scottish Fishermen's Federation, personal communication, Nov. 1976.
3. Coastal Resources Center, University of Rhode Island, *Fishing and Petroleum Interactions on Georges Bank* (Boston: New England Regional Commission, May 1977), pp. 280-286.
4. Ibid., p. 298.

Deepwater Ports and the Marine Environment: An Issue for the Gulf Coast

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Public planning is often characterized as involving trade-offs between economic and environmental values. Cast in this light, the planning process often causes interested parties to align themselves with one side or the other, and eventually degenerates into firm opposition, with each side unwilling to compromise. We have all seen this happen, and, I believe, can agree that such a scenario is not a healthy atmosphere for intelligent decision-making.

We have also seen the other extreme to this approach to public planning in which decision-makers base their decisions on the interests of a small group, usually including themselves, and studiously avoid and frustrate broader public input.

Neither approach is desirable. Although good decisions can come from either process, they don't usually arise because of any positive contribution of the planning process. In the past, the second approach had the appeal of expediency. However, court decisions blocking major projects solely *because* of the expediency of that approach have detracted severely from this process.

Hopefully, the problems of both types of planning have had enough publicity to create an atmosphere which will encourage a more effective approach to public planning — the cooperative approach. As used here, cooperation is not intended to imply collusion or absence of conflict. It does mean that all interested parties have a comprehension of and respect for all facets of the question. Possibly, individuals would even begin to realize their commonality of interests. Such a realization is the key to a true cooperative approach.

I would like to describe a project, and the public planning process surrounding it, which has benefited from the cooperative approach. (No serious "use conflicts" have arisen to date.) The Louisiana deepwater port is an offshore oil importation terminal to unload foreign petroleum from very large crude carriers (VLCCs). The port is planned as a monobuoy facility in the Gulf of Mexico, 18 miles off the Louisiana coastline, connected to underground salt dome storage facilities in the coastal zone and to inland refineries by 95 miles of large-diameter buried pipelines. The port will be owned, constructed, and operated by the Louisiana Offshore Oil Port, Inc., LOOP, a consortium of six oil companies. Construction is expected to begin by the end of this year, with operations commencing in 1980. The Offshore Terminal Authority is the state agency which licenses LOOP and monitors its activities.

The deepwater port is not a "controversial" project in Louisiana. Louisiana has had fisheries and offshore oil production existing side by side for many years, and realizes that with proper safeguards, one need not interfere with the other. (The same holds true for oil wells in the highly productive wetlands.) Many individuals work in both industries in the course of a year. Louisiana also understands the need in this country for importing foreign petroleum. Finally, Louisiana recognizes that a deepwater port for supertankers, properly constructed and operated, is better economically and environmentally than the alternative of continuing with increasing numbers of small tankers entering our ports.

Petroleum importation is a fact of life in this country. The U.S. is now importing one-half of its total petroleum needs, and almost every projection shows this dependence on foreign oil increasing for at least the next several decades.

Louisiana is a major importation point for foreign oil needed not only by our own refineries, but also by refineries in the midwestern United States. This oil is now transported up the Mississippi River in small tankers which have received their oil from transshipment terminals in the Caribbean or from VLCCs in the Gulf of Mexico. These small tankers deliver their cargoes directly to refinery docks in Louisiana and to pipeline terminal facilities for shipment to the Midwest.

The use of VLCCs for long-haul foreign petroleum (such as from the Middle East or Africa) can save more than 30 percent in transportation costs over such transshipment or lightering operations. VLCCs are generally safer than small tankers, since they are usually newer, well-equipped with navigational aids, and manned with highly qualified personnel. There are some inherent disadvantages to VLCCs, such as their being less maneuverable because of their large size, that make them less desirable in situations like confined harbors or inland waters. Their deep draft, as much as 90 feet, makes it impossible for them to approach the major U.S. eastern and southern coast ports without extensive channel dredging. In some cases, such as the mouth of the Mississippi River, which has maintained depth of 40 feet, it is considered technically infeasible to create and maintain a channel deep enough for VLCCs, because of the large volume of silt constantly being deposited.

Offshore deepwater ports solve these problems, and others, by placing the port in natural deep water; the need for environmentally disruptive dredging is eliminated, and the big ships remain in deep, open water where there is little risk of collision and no chance of grounding. In addition, a deepwater port is a single, sophisticated importation system, where navigation, mooring, and unloading can be closely controlled and where emergency response equipment can be made readily available. Further, use of a deepwater port drastically reduces the need for small tankers to transport oil upriver or to "lighter" from VLCCs in the Gulf, both of which are relatively more hazardous. Two-thirds of all accidental oil spillage from tankers is the result of collisions or groundings, which are more prevalent in confined waters.

In 1972, the state of Louisiana recognized that increased quantities of foreign oil must be imported to keep its petroleum-refining and petrochemical industries operating. The state's own petroleum resources were diminishing and new discoveries were not making up the losses. The state was also aware of the advantages of VLCCs and superports in the efficient and safe transportation of these needed imports and in the preservation and growth of the state's economy.

Without a deepwater port, Louisiana's refineries would increasingly import petroleum by small tanker via the Mississippi River, with the attendant increased risks and costs, to keep existing refineries running. Because of large capital costs, once a refinery is built and tied into a product distribution system, it is generally more economical to keep it running than to shut it down, even if the cost of supplying feedstock increases. But, in the face of a decidedly uneconomical supply system, industry would probably allow process units to wear out without replacement, and would tend to look elsewhere to locate expansions and new grass-root plants. This would have a severe "ripple-effect" on the Louisiana economy, since a decline in refining would mean a decline in availability of energy supplies and, perhaps more importantly, certain petrochemical feedstocks. Conversely, with an efficient means of petroleum supply, the state of Louisiana, because of the existing industrial and transportation infrastructure, is an extremely attractive location for new refining and petrochemical capacity.

It should also be mentioned that, prior to 1972, there had been considerable discussion of a deepwater port off the coast of Texas. It is probably reasonable to assume that the normal competitive feelings between the two states might have had some influence on Louisiana's interest in a similar facility. (Seadock is the Texas project.)

Early in 1972, recognition of these various factors caused the then Governor-elect Edwin Edwards to form the Louisiana Superport Task Force, a blue ribbon commission of forty-six individuals representing such diverse interests as shipping, manufacturing, labor, government, and environmental groups. The task force was charged with three major goals: funding through private sources of preliminary legal, environmental, engineering, and economic studies of a deepwater port and its

impacts; beginning a public information program to apprise the public of the need for a deepwater port; and drafting legislation, to be presented to the 1972 session of the Louisiana Legislature, which would create a state agency to deal with deepwater port development.

The studies revealed much significant information, and raised many new questions for subsequent study. This research presented a realistic picture of what a Louisiana deepwater port and its associated facilities would be like and what effects it would have on the state's environment, economy, people, and government. Equipped with this picture, members of the Sea Grant Legal Program at Louisiana State University were able to prepare a set of recommendations on how to proceed with legal aspects of the project.

The recommendations of the legal researchers were divided into four categories: state, federal, international, and environmental. Essentially, the recommendations supplied the data needed for the draft legislation establishing the Louisiana Deep Draft Harbor and Terminal Authority, now called the Offshore Terminal Authority.

This legislation was an important phase of deepwater port development. It not only set up a first-of-its-kind state agency, but also spelled out in detail the criteria which would allow construction of an offshore port without allowing uncontrolled, unsound consequences.

The enacted state legislation defined the Offshore Terminal Authority's jurisdiction as "functional" rather than "geographic." This was important, given the fact that a deepwater port, because of the water depth required, was not likely to be built inside the state's traditional jurisdictional limit of three miles from shore. The Authority was given exclusive powers which enable it to do everything necessary for developing and regulating an offshore port. The legislative act also placed a binding proviso on those powers. Before any development program can begin, a comprehensive environmental protection plan must be formulated and it must be followed in all respects throughout the life of the Authority.

In addition, the act creating the Offshore Terminal Authority provided for the protection of existing Louisiana ports, including prohibitions on handling certain types of cargo at the deepwater port without the consent of the other ports.

With the creation of the Offshore Terminal Authority as a functioning state agency, the ad hoc task force was dissolved. The Authority began its program of promoting, planning, developing and regulating a deepwater port.

The first priority of the Offshore Terminal Authority was to introduce the citizens of Louisiana to the concept of offshore ports. It was vital to inform and to assure the public that the state could benefit greatly from a deepwater port without sacrificing its environmental integrity or jeopardizing its financial position.

Initial efforts to build deepwater ports off the coasts of Delaware, New York, and Maine all had met solid public opposition, largely because the people of those areas felt — rightly or mistakenly — that the risks to the environment were too great. The developers of those proposed projects did not make an adequate effort to communicate the concept of and need for offshore ports; nor did they pay adequate attention to the legitimate concerns of environmentalists.

On the other hand, the Louisiana Offshore Terminal Authority worked hard at establishing two-way communications with every possible part of the populace of the state. A public information program was, and is, an integral part of the Authority's development plan. The people of Louisiana had to know about the project and its implications.

Environmentalists were eager to know what was being planned near one of the most biologically productive wetland areas of the world. The Authority was just as anxious to establish communication with the environmentalists, because their input was certain to contribute heavily to the environmental protection plan.

Looking years ahead, the Authority began establishing information channels with other state and federal agencies, because a project of the magnitude of a deepwater port ultimately reaches many agencies and affects planning for the state.

In a word, planning is one of the Authority's biggest responsibilities. The Authority has encountered unique situations at each juncture, because no other agency in the U.S. had ever held the responsibility of developing a deepwater port. The Authority

predated the federal offices set up to work with superports.

The Authority's board began by organizing a staff. It was realized that the nature of the Authority's work would be varied and constantly changing as deepwater port development advanced. It was necessary to have ready access to a diversity of talent, although much of that talent would only be needed on a temporary basis. The board decided that a large staff would create an inefficient and inflexible bureaucracy, and so chose a small, versatile staff and relied on consultants for work in such specialized areas as law, public relations, and engineering.

To form a basis for developing concrete plans for deepwater port developments, the Authority commissioned studies in economics, environment, engineering, and legal jurisdiction.

A socio-economic impact study conducted on behalf of the Superport Task Force, and subsequently updated and expanded by consultants to the Authority, showed conclusively that a deepwater port would have a major and favorable impact on the economy of Louisiana. As previously mentioned, the existence of an efficient, low-cost method of importing foreign petroleum into Louisiana will mean revitalization and growth of the state's refining and petrochemical industries. Without such a system, these industries would stagnate and eventually decline. The difference between these two scenarios is what we mean by the economic impact of the deepwater port. The latest studies project that the deepwater port, in its first year of operation, 1980, will be responsible for about 16,000 new jobs in refining, petrochemical, and related industries, with new investment in these industries amounting to some $2.3 billion. These benefits are expected to increase in later years, with projections showing over 30,000 new jobs and approximately $5.6 billion in new investment generated by the deepwater port by the year 1990. By the way, the studies also show that, based on regulatory standards being enforced, our air and water will be cleaner in 1990 than they are today, despite the expected expansion of industry. This is because new industry will be required to be extremely clean, and existing industry will be required to substantially reduce pollutant discharge levels.

The process of developing the Environmental Protection Plan required by state law was begun by commissioning an ecological study by the Louisiana State University Center for Wetland Resources.

Using the results of this study as a base and incorporating additional data obtained from studies performed by the U.S. Army Corps of Engineers and U.S. Department of the Interior and from three public environmental workshops, the environmental plan was formulated by the director of the Authority and two prominent experts (from the Louisiana Wildlife and Fisheries Department and from the LSU Wetlands Center) as required in the statute creating the Authority.

The Environmental Protection Plan summarizes potential stresses and lists the specific criteria to be considered in the development program. This enumeration is made in the statute also. Briefly these criteria are:

1. Site selection factors, including environmental vis-a-vis economic ones. This section adopted the policy of the Louisiana Advisory Commission on Coastal and Marine Resources, and lists maximizing the use of existing development and navigation corridors, avoiding existing oil and gas production platforms, avoiding manmade sea-bottom installations and natural spawning sites, and minimizing disturbance of coastal wetlands areas.

2. Design requirements, including statements on how proposed designs minimize potential environmental dangers. Of particular interest is the portion of this section which controls long-term development so that growth and additions to the port do not result in random expansion or gradual environmental deterioration. As a preliminary determination, the plan favors a monobuoy-type system for handling crude oil. To ensure the Authority's means of controlling secondary development, provisions of the plan limit and control "tie-ins" to the pipeline system in wetland areas.

3. Descriptions of operation procedures which minimize environmental problems, and provisions for enforcement of environmental regulations. This section sets forth construction and operational guidelines to minimize disruption of the coastal area. It also provides for a monitoring system to be conducted by the Louisiana Department of Wildlife and Fisheries. The enforcement provisions include measures for cleanup of accidental spills with evidence of financial responsibility to ensure perform-

ance, and methods for extracting environmental compensation from owners and operators judged responsible for damages. To avoid unsound environmental practices, owners or operators of any facility under the Authority's jurisdiction are required to submit operational and contingency plans for approval.

4. Procedures for funding projects to compensate the coastal environment for losses resulting from deepwater port development. In simple terms, the Authority can impose compensatory charges on those who cause damage to the environment or who violate environmental regulations. The money from these charges would be paid into a fund which would be used to clean up oil spills and other pollution and to pay the costs of restoring the environment when damage has occurred. Money from the fund could also be used to pay for environmental research projects or monitoring programs.

5. A framework for coordinating Authority activities with those of other governmental agencies.

Following promulgation of the Environmental Protection Plan, the next major activity of the Authority was participation in the drafting of federal legislation and subsequent federal regulations. Because of the need to locate deepwater ports beyond the territorial limits of the U.S., to utilize naturally deep water, because of the jurisdictional uncertainties which arise in such locations, and because of the large number of federal agencies with potential interest in deepwater ports, federal legislation was necessary to assure sound development of offshore ports.

The Deepwater Port Act of 1974 was introduced by Louisiana Congressman John Breaux, passed by the Congress in December 1974, and signed into law by President Ford in January 1975. The Deepwater Port Act accomplishes the following:

1. Places prime jurisdiction over deepwater ports constructed beyond the territorial limit in the hands of the federal government, but with express recognition of the rights and responsibilities of states. States are given preferential right to develop deepwater ports off their coasts, may veto or place conditions on privately developed deepwater ports, and can assess fees as compensation for economic, environmental, and administrative costs attributable to deepwater port development.

2. Creates a single window licensing procedure under the secretary of transportation, and mandates a maximum of 356 days for the processing of a license application.

3. Establishes liability for oil-spill cleanup costs and damages, places liability limits on vessels and deepwater ports, and establishes a fund to pay cleanup costs and damages not otherwise compensated. (This part of the act is likely to be replaced by similar language contained in uniform oil spill liability legislation presently under consideration in Congress.)

4. Makes a deepwater port and its facilities a common carrier, providing nondiscriminatory use of nonowners.

The development of federal regulations to implement the Deepwater Port Act required almost one year of study, public hearings, and comments. The licensing process was defined and guidelines for preparation of application documents were developed. Criteria and regulations for design, operations, and environmental impact were promulgated. In late 1975, the U.S. Department of Transportation was ready to receive license applications for deepwater ports.

In the state of Louisiana, a private corporation had previously announced its interest in developing a deepwater port. Louisiana Offshore Oil Port, Inc., now known as LOOP, is a consortium of six oil companies which have refining operations in Louisiana and in the Midwest. Because of LOOP's financial and technical capability of properly constructing and operating the deepwater port and because of LOOP's willingness to comply with the state's Environmental Protection Plan and other requirements the Offshore Terminal Authority determined that the best interests of the state would be served by allowing private enterprise to construct and operate the deepwater port.

The Authority concentrated its efforts on its present major activities — licensing and regulation. The state licensing process paralleled and interfaced with the federal licensing process. The Authority was responsible for licensing and regulating those parts of the deepwater port and related onshore facilities within the state jurisdiction. The Authority was also responsible for advising the governor when his approval of the federal license was required.

Because of this two-fold responsibility, and because the geographical demarcation between state and federal jurisdiction over the deepwater port is not clearcut, the Authority reviewed all aspects of the project, both onshore and offshore.

Both federal and state licensing processes required approximately one year, beginning with the submission of LOOP's license applications in December 1975. Detailed reviews were made on both state and federal levels of technical design, environmental and economic impact, operational and contingency procedures, legal ramifications, and regulatory compliance. Numerous federal, state, and local agencies in either the state or the federal licensing process, or both, were involved in the review of LOOP's plans. The Authority conducted detailed institutional studies and surveys to identify state and local agencies with an interest in the deepwater port, provided each with copies of LOOP's application documents, and incorporated their comments into the state review. Public participation in the board of commissioners' meeting was actively encouraged.

The federal licensing process also included the preparation of an environmental impact statement, the holding of public hearings in Louisiana and Washington, and an extensive antitrust review. Numerous meetings between LOOP and federal and state officials resulted in several project changes to ameliorate the expected impact.

Federal and state licenses were issued to LOOP in January 1977. These licenses contain stringent requirements regarding environmental protection, financial responsibility, liability for oil spills, nondiscriminatory usage, and indemnification of the issuing authority. Since final details of design, operation, and contingency procedures are yet to be developed, the licenses require approval of these details before construction and operation can begin. LOOP is required by the federal license to hold ownership open for six months after issuance of the license, and must decide whether to proceed with the project within two weeks after that period, or by August 1, 1977. Seadock is under the same federal time constraint.

It is expected that LOOP will decide to proceed on August 1, and will be able to start construction by the end of 1977. The future regulatory role of the Authority during construction and operation will be to:

1. Review and approve detailed design and operational and contingency plans.

2. Inspect and oversee construction and operation for conformity with regulatory requirements.

3. Administer the environmental protection plan and other regulatory requirements, particularly an environmental monitoring program, cleanup and compensatory programs (if needed), and administrative cost reimbursement.

The environmental monitoring program is worthy of specific mention. This program is not only a requirement of the state's license and environmental protection plan, but has also been incorporated as a requirement of the federal license and other federal permits. The monitoring program is a comprehensive program covering all of LOOP's facilities and operations, and is intended to detect environmental impact from the deepwater port and related onshore facilities. The program must be in operation months before construction begins. The cost of monitoring will be borne by LOOP, as will all state regulatory costs under provisions of the Deepwater Port Act. The monitoring program was developed by the same group which developed the environmental protection plan, and will be conducted by the Louisiana Department of Wildlife and Fisheries at an annual cost of approximately $300,000. Data from the program will be used to determine whether significant adverse impact has resulted from construction or operation, and to plan needed ameliorative action and compensatory programs.

I have described a very active program of governmental planning and regulation aimed at most effectively developing a deepwater port off the Louisiana coast. The approach taken by the Offshore Terminal Authority has been one of genuine cooperation and meaningful consideration of the interests of all concerned parties. In dealings with LOOP and other private industry, with all levels of government, with public interest groups and with individual citizens, the Authority has attempted to create trust in its integrity and reasonableness and has attempted to keep that trust by actively seeking out points of view and fairly incorporating legitimate concerns in its policies and programs. In addition to reflecting the interests of its constituency, the Authority has

provided leadership and coordination in deepwater port development.

I said earlier that the deepwater port was not a controversial project in Louisiana. The people of the state believe the port is being properly handled and will benefit them economically and environmentally. By taking an open and cooperative approach to public planning, the Offshore Terminal Authority has helped both to create this favorable impression and to assure Louisianians that the reality lives up to the impression.

A Case Study of Marine Recreation Conflicts in Southern California

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The seemingly vast coastline of California is a finite resource with increasing demands for its use. Although there are 300 miles of island coastline in addition to 1072 miles of shoreline, less than 25 percent of this is available for public recreation.

The Southern California coast faces particularly heavy pressures. Los Angeles and Orange Counties have a population density of over 500 people per square mile. This has contributed to heavy air pollution which is trapped by the mountain ranges to the east and north of the Los Angeles Basin. To get away from the smog and to benefit from the cooler air temperatures nearer the ocean, many people have sought homes in the nearby coastal area.

The coastal area is also a focus of commerce and industry. The Los Angeles and Long Beach Harbors are major ports for oil importation and general cargo-shipping and support facilities. Power plants, sewage treatment facilities, and airports are located on the coast to take advantage of the ocean environment.

With over 11 million people in Los Angeles and Orange Counties and year-round good weather, the coast is extremely popular for recreation. While the weather changes sufficiently to vary the numbers of coastal users throughout the year, even in the cooler weather the coast has considerable appeal.

Even among recreational users there are varying pressures for use. Each kind of user — the boater, fisherman, surfer, swimmer, scuba diver, sunbather, photographer — requires different facilities and terrain. Boaters need harbors and marinas or boat ramps. Because boating is "equipment intensive," land space is needed for storage, if boat ramps are used for access. Fishermen may need boat access or may find rocky coasts or piers and jetties suitable for their use. Surfers and swimmers need sandy beaches with different nearshore bottom configurations to provide good surf or no surf. Scuba divers seek areas with considerable bottom life, often off rocky shorelines and bluff areas where shore access is very difficult.

Owners of private coastal property and properties within closed gate communities frequently make exclusive recreational use of their coastal frontage. Coastal hotels, restaurants, and shopping promenades in harbors provide commercial recreational opportunities. Public, free access is often restricted by these private, commercial, and special interests.

In Southern California, we can perhaps understand the conflicts better if we review the number of people and the number of coastal recreation user-days. Here there are over 1 million boaters actively pursuing this sport on 27 million occasions per year. There were an estimated 9,165,000 angler days in Southern California in 1975 and 2 million dive occasions. In that same year, Los Angeles and Orange Counties together calculated 167 million beach-use days. In all of Southern California there were an estimated 225 million sightseeing days, including such activities as photography, painting, exploring, and study.

This heavy demand results in traffic and parking congestion. Southern Californians rely heavily on private automobiles for access to the beach. There

are photographs as early as 1930 that show bumper-to-bumper traffic en route to Newport Beach on a Sunday afternoon — evidence even then of the regional demand placed on beach cities.

Although many parking lots have been built near public beaches to accommodate beach visitors, there are a number of public beaches adjacent to densely populated residential areas that are without adequate parking facilities. On-street parking by beach visitors frequently conflicts with residential parking requirements.

Few public transit lines are available to alleviate the parking dilemma, but there are some notable exceptions. Orange County Rapid Transit District does have a line that delivers many people to the beaches on the Balboa Peninsula in Newport Beach. In Laguna Beach a shuttle bus runs between cars parked several miles from the beach and the shore-front shops and beach boardwalk. However, lack of support for a similar shuttle bus run by a private entrepreneur near Marina del Rey stopped that effort after a short trial period, despite the fact that on some weekends people cannot find available parking in this popular marina area.

Along some stretches of the Southern California coast, residential development is so dense that one cannot even see the ocean. For instance, along the Pacific Coast Highway in parts of Santa Monica and Malibu, a sightseer is confronted with a solid "China Wall" of garage doors. Many of the homes here do not even have windows on the inland side, and the walkways are blocked by wooden gates.

Many of the marinas in Los Angeles and Long Beach Harbors are surrounded by industrial shipping facilities and barely have enough parking space for the boat owners they serve. There are no park areas around these marinas for public enjoyment of them. Even Marina del Rey, built to berth nearly 6,000 boats, has only two shore areas designed for public access to the marina, plus several shoreside restaurants.

A few of the sandy beaches most accessible to the downtown Los Angeles area have become environmentally unpleasant because of industrial facilities in the adjacent upland area. The Los Angeles Airport take-off pattern is directly over El Segundo Beach. Every four or five minutes all communication on the beach is stopped by the deafening roar of a departing jet. Just south of the airport are a sewage treatment facility and a power plant that further detract from the environment of this beach.

For many years the Los Angeles Harbor Department issued only month-to-month leases to marinas in order to leave maximum opportunity for new commercial shipping facilities. The result has been a miserable collection of marinas, with minimum facilities, cheaply constructed, because of constant concern that their leases would not be renewed. Finally in 1976, the Harbor Department altered its policy and issued some twenty-year leases for marinas that are in the Cerritos Channel area of the harbor.

There is especially intense pressure on the Los Angeles–Long Beach harbor area for major expansion of recreational boating facilities, since the recent coastal legislation almost entirely restricts new boating facilities to existing developed harbors. One particular fight between the boating community and the Los Angeles Harbor District has been over development of Reeves Field as a recreational harbor with substantial land use for boat storage as well as picnic areas. The harbor management personnel have argued that this parcel is essential as a fill site for dredge spoil, to be then used for car storage facilities or as a proposed LNG terminal. They have suggested the Fort MacArthur site as an alternative recreational harbor, but have not addressed the questions of land title to that area, suitability of the space for dry boat storage, effect on water quality of nearby beach, nor the conflict posed by the existing deep draft Union Oil Terminal. In this harbor complex, with one of the area's oldest and most prestigious yacht clubs, the boaters have banded together in an effort to gain significant additional marina space in the harbor.

Commercial support facilities for recreational activities, particularly boat repair and service shops, have difficulty competing for space on the coast even though they are water-dependent. Unfortunately, coastal properties taxed for "highest and best use" favor condominiums and restaurants whose incomes can better offset the high taxation.

The recreational users further feel the impacts of conflicting coastal uses through resource depletion. The sports fishermen find and catch fewer

fish per unit of effort (partly because of increased numbers of fishermen, but also because estuarine habitats for juveniles have been destroyed or severely polluted through development).

Pollution in some areas has weakened plant and faunal life in underwater environments, allowing biological communities to be destroyed and replaced by heartier species such as urchins. Coastal areas depleted of kelp may be less interesting for diving activities and often support fewer fish. During the last ten years pollution from Palos Verdes Peninsula runoff has decreased and biological communities in some of the underwater environments have gradually improved. Researchers have done some experimental kelp transplants in Abalone Cove on the Palos Verdes Peninsula to try to reestablish the once lush macrocystis (kelp) environment.

While most of the beaches in Southern California maintain sufficiently high water quality to remain open for swimming, shellfishing is often prohibited because of the concentration of pollutants in these filter feeders.

What Is Being Done?

In 1972, in accordance with Proposition 20, the California Coastal Commission was formed to design a conservation plan for the future development and preservation of California's coastal zone. The resulting plan was submitted to the legislature in 1976, and significant portions of it became the California Coastal Act of 1976.

The act emphasizes protection of environmental resources (aesthetics as well as habitats, agriculture, and other natural resources), public access, and recreational opportunities. It refers to the right of the people under the California Constitution to access to the sea "where acquired through use, or legislative authorization." It requires that (with some exceptions) public access from the nearest public roadway and along the coast be provided in new development projects. While there is little opportunity, under the provisions of the act, to change existing barriers to access, the Coastal Commission has set a precedent for approving permits for change to existing development only on condition that public access is provided.

The act gives priority to visitor-serving commercial recreational uses of the coast over private residential use, general industrial, or general commercial development, but not over agriculture or coastal dependent industry. It recommends that public facilities be distributed throughout an area to limit the impacts of overuse and overcrowding. Furthermore, the act recommends the protection, encouragement and, where feasible, the provision of lower cost visitor and recreational facilities (e.g., campgrounds and parks).

To alleviate the parking conflicts, the Commission has required the provision of on-site parking spaces for new coastal developments. Through development of local coastal programs under the provisions of the act, impacts of recreational facilities on traffic congestion will be reviewed and attempts will be made to mitigate traffic problems, perhaps through wider distribution of new facilities.

The limited space available for boat berthing will continue to be a problem. The act does allow for expansion and development of new marinas within existing harbors, but the port commissions that control the Los Angeles and Long Beach harbors, where the greatest pressures are, have shown tremendous resistance toward accommodating recreational needs. The ports must submit master plans to the Coastal Commission for approval, thus giving the Coastal Commission an opportunity to place conditions on the port plan. However, there is no clear indication at this time that recreational needs will be given higher priority than even a portion of commercial port facilities.

The Coastal Act does encourage development of additional boat-launching ramps and increased dry storage facilities. Many of the smaller boats now occupying berthing space may be forced out of the water by the growing shortage of available berthing facilities.

A companion act to the Coastal Act of 1976 established a California Coastal Conservancy. The conservancy is empowered to acquire accessways and buffer zones adjacent to recreational areas and environmentally fragile habitats, which will enhance the quality of the recreational experience and the richness of the habitat areas. The conservancy can also make advance loans to coastal communities for areas to be acquired within ten years. The conservancy should ease some of the burden on local

governments of increasing public access and preserving habitats and agricultural open space. The effectiveness of this act has not yet been tested.

A third statewide measure that will affect public access and recreation on the California coast is the Parklands Acquisition Bond Act, which was passed by the voters in November 1976. This authorizes the issuance of bonds to fund parkland acquisition, a portion being allocated for identified coastal parcels.

At the local level, action is being taken to improve marine recreational opportunities too. In 1974, the County of Los Angeles was given a title easement for use of much of Catalina Island as a conservation and recreational area. Very careful planning is being carried out to ensure that the quality and uniqueness of the island are maintained, while increased hiking, camping, and sightseeing opportunities are developed.

The Los Angeles County Department of Beaches has an excellent long-term acquisition program for new beach areas. Many of the newer beaches acquired are in more fragile environments and include rocky tidepool shorelines as well as sandy beaches. Considerable effort is being made to design the facilities to protect the resources while increasing access. Unfortunately budget limitations deny public education opportunities that would encourage proper use of particularly fragile areas of access. Interpretive signs have been planned, but have not been implemented in these areas.

The Los Angeles County Department of Beaches has also been responsible for the development of ten accessways from the nearest public road to the beach in the Malibu area. Public rights-of-way have been found through property title searches and the public option for the corridors has been exercised. These accessways allow the public to walk along the beach from the water up to the mean high tide line. They especially increase opportunities for surf fishing, scuba diving, tidepool observation, and beach walks.

In Newport Beach, in Orange County, a new city policy increases the density allowance of marine-related uses of coastal properties as an incentive to keep marine businesses on the coast despite high land costs and taxation. The theory is that with higher density allowances these businesses will be able to afford the coastal location.

What Are the Outstanding Issues?

In Southern California there is little interest in seeking public transportation solutions to recreational access (or any other problems!). Much of the traffic and parking congestion could be alleviated if public transportation were accepted by the public. For example, office parking areas used heavily during the week could be used on weekends by beachgoers who would travel the last few miles to the beaches in shuttle buses. Also public transportation could be used to distribute use of the beaches.

Because the beach communities cater to regional as well as local demands, they are bearing a burden of financial responsibility for maintenance and development of increased access and facilities. Although the local coastal programs mandated by the Coastal Act are supposed to identify regional demand on local coastal facilities, there is no established provision for compensating communities for the extra financial burden encountered. To place direct use charges on nonlocal users is deemed discriminatory and tends to intensify the lack of access experienced by those who cannot afford to live on the coast.

A further financial burden is experienced by the coastal communities when new coastal areas are acquired for public use and are thereby taken off the tax rolls. The cost of maintenance and beach safety goes up while the local revenues are decreased. The dilemma has been posed, but no resolution has been determined. Most public money comes from taxes, so the public in the long run must bear the responsibility.

The determination to be made is what should be the size and composition of the tax base supporting a facility meeting regional marine recreation demands. Boating facilities in California are in fact supported by boater fuel taxes. Most of the beach and park facilities have been supported by local communities or coastal counties, but as increased access is developed there is considerable concern that the burden of responsibility should be subsidized by a broader base, such as the State General Fund.

Patterns of Jurisdiction in the Coastal Belt

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Issues of conflict resolution in the coastal belt inevitably involve the question of jurisdiction, that is "Who has the authority to make decisions?" There may be one single agency or several agencies. More than one level of government may be involved. And since both the coastal zone concept itself and some of the offshore zones of control are relatively new phenomena, considerations of jurisdiction in the coastal belt are still often unresolved — a fact which serves to complicate the management process.

The question of jurisdiction has two dimensions, one geographical and one functional. *Geographically*, there is the issue of boundaries — where are the limits of various juridical zones, such as the territorial sea and the continental shelf? Where are the boundaries of U.S. offshore zones where they abut the zones of Canada, Mexico, or Cuba? When seen from a *functional* standpoint the question has two sets of factors to be considered. First, there is the *level of government* which has authority over all or some activities within juridical zones of the coastal belt. The principal governmental levels are international, national, state, and local. The term "local," as used here, refers to minor civil divisions, such as counties, cities, and townships, as well as "special purpose" administrations, as in the case of land use and coastal zone management groups.

A second functional aspect concerns the *agencies* at various levels of government which have the responsibilities for regulating and managing activities within the coastal belt. Such responsibilities often overlap one another, both within the context of particular governmental levels as well as between such levels. Take, for example, marine pollution control management at the state level. Responsibilities for regulation and enforcement may be shared by a group of departments, such as the Department of Health and the Department of Natural Resources. But the federal government may also be involved through the Environmental Protection Agency, the Office of Coastal Zone Management, and the Army Corps of Engineers. And local agencies may also be concerned in the management process, as for example a town conservation commission or planning board.

Geographical and functional elements of jurisdiction form a complex mosaic within the U.S. coastal belt. The boundaries of juridical zones are frequently indistinct. Where for example are the inland boundaries of the "coastal zone" of the various states? Where are the offshore boundaries separating one state's waters from another state's? As noted earlier, there are still a great many uncertainties concerning jurisdictional issues in the coastal belt. This paper does not attempt to resolve such uncertainties, but rather suggests a conceptual framework within which questions of authority may be considered.

Boundaries and Zones of Jurisdiction

The most critical geographic point in the coastal belt is the tidal area, that is, the zone between high and low tideline. This is the contact point where the land and water environments intersect one another and where the physical effects of interaction between the two environments are the strongest. The horizontal extent of the tidal zone may be a mile or more, or it may be zero. On the upper courses of rivers and creeks, for example, the tidal range may

be nonexistent so that the high and low tidelines may be the same; in the case of precipitous cliffs facing the sea there is vertical movement of water throughout the day, although no horizontal change. But regardless of the variations in its physical nature, the tidal area of the United States is a primary element in coastal belt jurisdiction and management.

There are several categories of tideline. Among these are mean high and mean low water, mean spring tide, and mean lower low water. The latter is the lower of the two low waters of any tidal day, and is important if there is considerable difference in the location of the low-water line between the first and the second low tides of the day. The choice of tidelines is important when one comes to measure the territorial sea and other offshore zones of control. The further out a country places its baseline for such measurements, the further offshore its jurisdiction extends. Along the Atlantic and Gulf coasts, the U.S. measures seaward from the line of mean low tide; on the Pacific coast, the baseline for measurement is the line of lower low tide. The choices of tideline are also important, of course, to municipalities and property owners along the coast. Laws vary, for example, from state to state with respect to property owners' rights in the tidal area between high and low tide. And they vary also according to the original source of title to the property.

Although the use of the tideline for measuring offshore zones of control is generally appropriate along smooth shorelines, complications may arise in the case of rugged or island-fringed coasts, coasts marked by bayous or swamps, the expanding deltas of rivers, coral atolls, and modifications made to the coast by man in the form of jetties, harborworks, and other structures. For most of these situations there are generally recognized procedures for delimiting the baseline from which the breadth of the territorial sea is measured, although differences may exist among countries on such issues as the proper conditions for delimiting straight baselines along irregular coasts, or the criteria which should be used for designating certain coastal waters as "historic" in nature. The waters of bays, estuaries, or other features across whose mouths straight closing lines have been drawn have the status of internal waters. Over such areas the United States has complete sovereignty. Narragansett Bay, for example, is closed off juridically by a line from Point Judith eastward to Sakonnet Point. Waters within the Bay are internal; from the straight baseline seaward the three-mile territorial sea is measured.

Within the territorial sea the United States exercises complete sovereignty, save for the right of innocent passage through territorial water by foreign vessels. Passage is considered to be innocent so long as it is not prejudicial to the peace, good order, or security of the coastal country. Foreign vessels may not fish in the territorial sea, foreign submarines may not transit submerged, and there is no right of overflight of territorial water by foreign aircraft. While the United States, for 194 years, has clung to a three-mile-wide territorial sea, a majority of the world's coastal nations now claim twelve miles. Some claim in excess of twelve, a few even to 200 miles.

By the Submerged Lands Act of 1954 the United States relinquished to the coastal states ownership of the offshore areas out to three nautical miles from shore; therefore, the living and nonliving resources of the territorial sea, and of the seabed and subsoil underlying that sea, belong to the coastal state. Exceptions were made in the Gulf of Mexico off the coasts of Texas and Florida, where, because of "historic rights," state ownership extends to nine miles from shore. Beyond the boundaries of state jurisdiction, marine resources (particularly oil and gas) belong to the federal government.

Another offshore area is the contiguous zone, which lies between the three-mile outer limit of the territorial sea and a distance of twelve miles from the coast. This is a special zone of the high seas in which the United States has the right to take steps to prevent violations of its customs, fiscal, sanitation, and immigration laws. Such steps could include the boarding and arrest of vessels within the zone which are suspected of engaging in, or planning, illegal activities within the United States or its territorial sea. The U.S. applies the Federal Water Quality Improvement Act within this area.

The U.S. also has laws prohibiting the discharge from tankers of oil or oily mixtures on the high seas beyond its contiguous zone. According to the 1962 Amendments to the International Convention for the Prevention of Pollution of the Sea by Oil, prohibited zones are set up extending to 50 miles

off the coasts of countries which are party to the Convention. Discharges of oil and oily mixtures are forbidden within such zones. In addition there is a special prohibited zone off the northeastern U.S. and Canada which at one point in the Georges Bank area extends more than 140 miles seaward of the nearest point along the U.S. coast. The U.S. has the right within the prohibited zone to monitor foreign tankers with respect to the willful discharge of oil, although the prosecution of violators is the responsibility of the country whose flag the vessel is flying.

On March 1, 1977, the provisions of the Fishery Conservation and Management Act went into effect, establishing an exclusive fishery zone for the United States to a distance of 200 miles from shore. Within the zone, the U.S. has jurisdiction over all fisheries except highly migratory species, particularly tuna. These are to be managed by an appropriate international authority. In addition, the United States claims jurisdiction over anadromous species (e.g., salmon) of U.S. origin, wherever they may be located on the high seas outside the territorial or fisheries zones of foreign countries. Not only is the Conservation and Management Act itself unilateral in nature, but so too is the provision regarding anadromous species. While there is some precedence for the 200-mile act in terms of current negotiations now going on at the Third Law of the Sea Conference, and of state practice, as exemplified by the actions of Canada, Mexico, Iceland, and the EEC, there is no precedence whatever for the claims to jurisdiction over anadromous stocks wherever they are found on the high seas. But the implementation of customary international law works in mysterious ways. Who could have foreseen at the time that Truman's Proclamation of U.S. rights on the continental shelf, or Norway's delimitation of straight baselines along its North Sea coast, would eventually become accepted as tenets of international law?

It should be noted that in the terms of the Fishery Conservation and Management Act, the United States asserts jurisdiction over fisheries resources only. This regime differs from that envisaged in the "economic zone" concept as espoused in Law of the Sea Conference negotiations, in that the latter includes coastal state jurisdiction over environmental control and scientific research within 200 miles from shore. Also involved in the economic zone formula are coastal state rights out to 200 miles to regulate the construction of artificial islands and installations, and the production of energy from water, currents, or winds. Only time will tell if the United States may begin moves toward asserting authority over vessel-source pollution and other activities within the 200-mile fisheries conservation and management zone.

A final juridical belt is the continental shelf, extending seaward from the territorial sea to a depth of 200 meters, or just over 600 feet. The United States has exclusive jurisdiction over the exploration and exploitation of the resources of the seabed and subsoil of the shelf, including not only oil, gas, and placer deposits such as sand, gravel, and mineralized sands, but also living resources of the shelf — that is clams, mussels, and certain species of crab. Several years ago, the United States, in a unilateral move, included also lobsters as "creatures of the shelf." The outer edge of the shelf in some cases lies less than 200 miles from shore and in other cases is well beyond 200 miles. The authority claimed under the Fishery Conservation and Management Act does not extend to the seabed and subsoil.

The provisions of the 1958 Continental Shelf Convention contain a description of the outer limits of the juridical shelf as being at a depth of 200 meters, or beyond where the depth admits of the exploitation of the natural resources of the area. In other words, according to that convention, once a coastal state has the technological capacity to exploit the resources of the seabed and subsoil at depths greater than 200 meters, it can also claim jurisdiction over these resources. Most international lawyers agree that if one country demonstrates this capacity, and issues a claim to shelf areas beyond the 200-meter isobath, all other coastal states of the world can file similar claims. Ocean technology is a mobile element, and the capacity one country has can generally be purchased or otherwise made available to other countries as well. But since 1964, when the Continental Shelf Convention came into force, no coastal state has, on the basis of technological capacity, laid claim to shelf areas beyond the 200-meter depth. The deepest commercial oil exploration, for example, is currently at less than 500 feet.

It is anticipated that the exploitability criterion

will shortly be overtaken by events. At the current law of the sea negotiations coastal states are talking about national claims to the resources of the entire continental margin — shelf, slope, and rise — out to some point at the "outer edge" of the rise. What this point will be is still undetermined: the 2,500-meter isobath, a location some miles seaward of the contact line between the slope and the rise, a line based on the depths of sediment on the continental rise, or perhaps at the "last grain of sand" of the rise itself. But however the "outer edge" may be defined, it seems likely that state practice will soon be that coastal countries have jurisdiction over the living and nonliving resources of their entire continental margin.

Within the various zones of offshore jurisdiction the United States shares its authority with the international community. The U.S. is insistent on providing that the waters beyond territorial sea limits have the status of high seas, with their attendant freedoms for all nations to enjoy. Yet, given those rights which the United States itself maintains in these offshore zones, two questions emerge. First, which activities in the offshore areas come under the purview of the federal government, and which are the responsibility of the individual states? Second, within the federal and state branches of government, which particular agencies have authority over coastal belt phenomena?

The answers to these questions may be complex. For example, the National Marine Fisheries Service of the Department of Commerce has jurisdiction over fisheries matters within the 200-mile zone, but its authority is restricted (1) by the eight regional fisheries management councils; (2) by the coastal states with respect to fisheries which are carried out predominantly within coastal state waters; and (3) by the Department of State with respect to fisheries involving neighboring countries, and to the allocation of quotas of surplus catch to foreign states. As another example, the Bureau of Land Management of the Department of Interior has jurisdiction over the leasing of continental shelf areas for oil and gas exploration and exploitation, but the Environmental Protection Agency has a major role in the determination of acceptable pollution levels for hydrocarbon development. And the agencies of any state off whose shores oil- and gas-leasing is taking place become involved in environmental impact statements, inasmuch as pollution from activities on federally owned lands may soon come to affect state waters as well. Or consider the federal/state aspects of superport construction in the Gulf of Mexico or off the East Coast of the U.S., including the right of state veto of the federal license for an offshore port.

There are those who would argue that what we need is one superagency to handle activities in our offshore areas, including the seabed and subsoil. There are others who would say that what is required is a return of the National Council on Marine Resources and Engineering Development, or a similar interagency group, which can pull together the various federal units associated with coastal belt development. One could even go further than the national council concept and suggest some initiative in which the individual coastal states can themselves participate. I shall return to this interagency concept shortly; first let us consider the coastal zone concept as part of the coastal belt complex.

The idea of the coastal zone as a discrete geographical unit seems to have surfaced in the 1969 report of the Stratton Commission; it was formally embodied in the 1972 Coastal Zone Management Act. Two things are of interest here: the seaward and landward limits of the coastal zone, and the provisions in the act for federal/state interactions. The seaward limits of the coastal zone are the limits of the territorial sea, that is, three nautical miles from shore. Should the U.S. territorial sea eventually be expanded to twelve miles, under existing legislation the seaward limit of the coastal zone would also be twelve miles. The landward limits, as defined by the act, are left to the states. Specifically, the 1972 legislation states "The definition of the coastal zone in the Act recognizes that no single geographic definition will satisfy the management needs of all coastal states, because designation of the coastal zone for management purposes must take into account the diverse natural, institutional, and legal characteristics that are subject to decisions made in fulfillment of other requirements of the Act . . ."

The practice of states varies considerably so far as determination of this jurisdictional inland boundary is concerned. Texas, for example, defines its coastal area as comprising all counties having

tidewater shoreline; California and Oregon define the landward boundaries of their coastal zones as the crest of the coastal mountain ranges, while Delaware and New Jersey describe the inland boundary of the zone in terms of their highway system. Florida and Louisiana define the landward boundary of their coastal zones from the standpoint of the extent inland of maritime influences, while Rhode Island gives its Coastal Zone Management Council authority not over a fixed geographic area, but rather inland from the coast as far as necessary to conduct effective management programs.

Since all of these definitions are only a few years in existence, it is still too early to suggest which definitions are superior to other ones. But it should be noted that both the federal legislation and the responses of at least some coastal states imply the functional character of the inland coastal zone limit. This follows from the fact that the coastal zone itself is largely a functional phenomenon. But there may be an analogy between functional boundaries on land and certain of those in the sea. Might not offshore management make more sense in terms of concrete phenomena or processes than of rigidly proscribed limits? Some years ago, for example, the United States suggested that fisheries in its coastal waters beyond narrow territorial limits might better be handled from the "species approach" rather than from a sharply defined 200-mile limit. In years to come, coastal countries with well-defined commercial stocks, which at times pass more than 200 miles from shore, can be expected to retain management functions over these resources even when they are beyond the 200-mile zone. What is true of fisheries might also hold for environmental protection, and for the unity of deposits of offshore hydrocarbons.

In a system as complex as the coastal zone, state and federal jurisdictions often overlap one another, as do the jurisdictions of agencies at the federal, state, and local levels. The 1972 Act specifically excludes from the coastal zone those lands the use of which is by law subject solely to the direction of, or which is held in trust by, the federal government. The panelists this morning will go in some detail into aspects of federal/state conflict and conflict resolution in the coastal belt. But I would, in passing, like to point out one of the more interesting provisions of the Coastal Zone Management Act, Section 302(a) which reads in part "prior to granting approval of a State program the Secretary of Commerce must find that the [state] management program provides for adequate consideration of the national interest in the siting of the facilities which are other than local in nature." When we run out of suggestions on jurisdictional problems we might then turn our attention to addressing the issue of what constitutes the national interest.

The jurisdictional problems in the coastal belt are becoming increasingly complex. The United States may soon extend seaward its jurisdictional claims to the resources of the seabed and subsoil. It may soon increase its claims to competence within the 200-mile zone. It must soon work out its maritime boundary problems with neighboring states (and if one considers the offshore boundaries not only of continental United States, but of its territories as well, the number comes to over thirty-five). The U.S. must face increased problems not only of offshore oil and gas production, but of transportation of these products, as for example from Valdez, Alaska, to the U.S. west coast. In addition, the individual coastal states will be developing and implementing their own coastal zone management plans which must be tied in with the new offshore rights and responsibilities. What does all this portend in terms of jurisdiction?

In the panel presentations which follow this opening paper, you will hear many statements on jurisdictional issues from the standpoint of fisheries, oil and gas, transportation, and pollution. But let me return momentarily to my theme of the need for coordination. The coastal belt is a geographical entity, and as such its needs and opportunities should not necessarily be approached on a piecemeal basis. There could be a lead agency responsible for orchestrating activities in the coastal belt. Or there could be a return to an interagency organization with a coordinating role. Whatever the procedure used, one caveat is important. Whatever restructuring the federal government may undergo in the interests of the coastal belt, some mechanisms must be established for continuous interaction with the individual coastal states. This implies, of course, that the coastal states themselves will evolve appropriate institutions and procedures for responding to federal initiatives for interaction. Only in these ways can the new real estate which the U.S. has acquired be effectively organized and managed.

Implications of the Changes in Fisheries Law for the U.S. Coastal States

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During the past several years a number of significant changes have occurred in the area of fisheries law. I'd like to concentrate on how these changes affect state authority over fisheries and will address three broad areas: the effect of the Fishery Conservation and Management Act (FCMA) on the states, the opportunities presented by the Coastal Zone Management Act, and the effect of some judicial decisions on state law.

A number of court decisions have upheld the authority of the states to regulate fisheries within the three-mile territorial sea and this case law was further reinforced by the Submerged Lands Act passed in 1953. This act granted the coastal states ownership of and the right to manage the natural resources within the three-mile territorial sea. The FCMA is primarily concerned with fisheries beyond three miles and basically does not decrease or increase state management authority in the three-mile area. However, the FCMA does contain provisions which could have a potential impact on state authority. One of these is the provision that states may not directly or indirectly regulate any fishing outside of their territorial waters, unless the vessel is registered under the laws of that state. Extra-territorial control by the states is not a new idea. Back in 1948, the Supreme Court in the *Skiriotes* case upheld the right of Florida to regulate a fishery beyond three miles if the fisherman was a citizen of the state, if the state had a legitimate interest in the fishery, and there was no conflict with a federal law. Numerous cases since then have upheld the right of the states to regulate their citizens' fishing on the high seas. Last year the Supreme Court of Alaska adopted a radical extension of this doctrine by upholding the right of the state to regulate the harvesting of crabs by citizens and non-citizens alike in the Bering Sea, outside of Alaskan territorial waters. The court, in a broad interpretation of prior law, deemphasized the importance of the citizenship requirement and placed primary importance on the legitimate state interest requirement. The legitimate interest was the importance of crab-fishing to the Alaskan economy and the need to conserve the stocks wherever they were found. This argument may make sense from a fisheries management point of view but, from a legal standpoint, there was no basis for the exercise of state jurisdiction, since it was outside of state waters and the fishermen had no institutionalized connection with the state.

The FCMA may provide, through the "registration" requirement I mentioned earlier, the other connection necessary for state control of fishing outside their territory. This could be a potentially important management tool, depending on how aggressively and quickly the regional councils pursue their responsibilities. One example could have been the regulation of groundfish in the fishery conservation zone on the east coast. After United States withdrawal from ICNAF, there was no management authority over domestic fishermen outside of three miles. The fear was that, without regulation, our fishermen would hit the groundfish stocks hard and cause further depletion. This in fact happened to a limited extent in the ping-pong haddock fishery. NOAA used the emergency powers in the act to regulate U.S. fishing of groundfish and eventually the

Regional Council developed a permanent management plan for these stocks; if no plan had been formulated, the emergency regulations could only have been used for two 45-day periods. After that, there would have been no regulatory authority over domestic fishermen. In addition to this possible situation, there could also be cases where legal challenges delay implementation of a plan. It is in this gray area that a state, or states acting together through an interstate agreement, could impose management controls on all vessels registered in the state, even when the vessels were outside state waters. Again, the use of this mechanism depends on how the councils go about their work. A problem in this area is how to define registration. The FCMA is silent on this and most states do not have a direct registration law for fishing vessels. One alternative is to use the federal enrollment and licensing statute and the declaration under that statute of a home port. A second alternative would be the enactment of state registration laws similar to a recent Rhode Island statute that requires all fishing vessels operating *from Rhode Island* or in Rhode Island waters, to be registered with the state. This may give the states more latitude in extraterritorial control than would use of the federal statute.

A second area of possible impact for the states is the federal preemption provision (mentioned by Brian Rothschild). The FCMA does provide for preemption of state authority if three conditions exist: first, there must be a council management plan for the fishery in question; second, the fishing for that species must occur predominantly in the fishery conservation zone; and third, state action or inaction must substantially and adversely affect the management plan. As mentioned yesterday, NOAA would use both domestic and foreign landing statistics to determine where the predominant fishing was. The legislative history of this provision, combined with the fact that there are not many species that will meet the *"predominantly" definition*, indicates that preemption will not occur very often, if at all. But even if it only occurs in one case, it's going to raise a serious controversy. Therefore, it is in the states' interest to have the administrative and management flexibility to coordinate their management efforts with the regional councils. This is important not only to avoid preemption but also to ensure that state laws are incorporated as much as possible into regional council plans. The FCMA gives the councils discretion to incorporate state regulations into their management plans. This could be important to a state like California which has traditionally managed the shrimp fishery beyond her waters. Now that the councils have sole management authority over those areas, California has an interest in seeing their regulations incorporated into the regional council shrimp management plan. The North Pacific Council has recently voted to incorporate the Alaskan Limited Entry Program into its plan for the troll salmon fishery outside of three miles, and the recently promulgated Pacific Council troll salmon plan emphasizes the need for *close coordination and unity of purpose* between the council plan and the coastal states of Washington, Oregon, and California.

In order to achieve this coordination and unity of purpose, states should be able to react responsively. However, a major problem faced in many state agencies is that their management capabilities are severely constrained by the lack of adequate authority.

In some states, all rules and regulations concerning fisheries — for example, season dates, size limits — are specified in statutes and require legislative action for change. This is a very slow and often frustrating process, especially in those states where the legislature meets only for a short time each year or only every other year. This type of fisheries management arrangement is extremely inflexible and unresponsive, especially when compared to states like North Carolina or Rhode Island, where virtually all regulatory authority is in the administrative agency.

The Rhode Island legislation created a Marine Fisheries Council, which has the authority to set regulations concerning harvesting techniques, size, season, catch, and area limits, without going to the legislature. In North Carolina, the Marine Fisheries Commission exercises authority over "any and every aspect of cultivation, taking, possessing, transporting, processing, selling, utilizing, and disposing of fish taken in coastal fishing waters, whatever the purpose of the taking." This is the type of institutional flexibility that all state fishery agencies should have. In addition to the extremes of flexibility and inflexibility, some states have various types of mixed

authority; for example, in some states the management authority over a single stock is split between the administrative agency and the legislature for different purposes, such as regulation of commercial fishing as opposed to regulation of sport fishing. One state, California, has enacted a progressive law giving the State Fisheries Agency the power to make all state fishery laws and regulations conform to any plans promulgated by a Regional Council. Although it has still not been clarified how this particular statute relates to the existing fishery management framework in California, it is the type of legislation necessary to ensure the fullest cooperation between state governments and regional councils.

Just as the FCMA has potential importance for state fisheries management, another federal law, the Coastal Zone Management Act, also presents opportunities for the states in the area of fisheries management. One of these possibilities is the use of the federal consistency provision of the act to urge conformance of regional council management plans with the state fishery conservation and development scheme.

Federal consistency is one of the incentives provided in the Coastal Zone Management Act for state participation in the program. Basically, the act requires all federal activities, conducted or supported by a federal agency, which directly affect a state's coastal zone to be consistent with the approved coastal zone management program of the state. This applies to all federal agencies including the regional councils. Under the regulations promulgated by NOAA to implement the FCMA, council plans must be coordinated and consistent with state coastal zone programs. This is true even though the council plan will apply to the area *beyond* the three-mile seaward boundary of a state coastal zone.

The implication here is that if a state incorporates its fishery management regulations or a fishing facilities expansion plan into its coastal zone program, then the regional council management plan will have to be consistent. In this way, the states could ensure maximum coordination between council plans and state interests.

Traditionally, states have not incorporated specific fishery elements into their coastal programs. However, the possibility of doing this, in order to utilize the consistency provision, grows out of the ARCO controversy in the state of Washington over the state's tanker safety law. This statute, among other things, prohibits tankers of over 150,000 DWT from navigating Puget Sound. The law was challenged by the Atlantic Richfield Company on the theory that the Federal Port and Waterways Safety Act had preempted state action in this area.

The novel argument made in the case by the state of Washington was that the tanker law was part of their approved coastal zone management program and, therefore, all federal actions under the Port and Waterways Safety Act would have to be consistent with the Washington tanker law. The case is pending before the United States Supreme Court and regardless of the outcome on the federal preemption issue or on the consistency issue, the possibility of forcing compliance of federal agency activities with state laws and policies through the federal consistency provision remains viable.

The recently promulgated Pacific Council troll salmon management plan illustrates how a council plan could affect a coastal program that has incorporated fishery regulations and policy. If the shortened troll season of the plan is adopted immediately, it would shift fishing effort to state waters with more liberal seasons, causing a greater impact on salmon stocks and fishermen in those areas. The plan could also have a serious impact on existing commercial buying, processing, and marketing industries and their facilities.

I'm not suggesting that the states use the consistency provision to hamstring council operations, but only as a constructive vehicle for incorporating state interests into regional council plans. Again, because of state representation on the councils, and a similarity in state and council goals, this incorporation may occur anyway. Additionally, in order to use the consistency provision, state coastal programs must be developed with an opportunity for full participation by federal agencies. The success of the consistency argument will be directly related to how specifically and explicitly the state coastal plan incorporates the state fishery policies, plans, and regulations. This will require the state CZM people to work closely with the state fisheries agency.

The second possibility for using the Coastal Zone Management Act in the area of fisheries man-

agement is the 1976 Interstate Coordination Amendment to the Act. One of the primary problems of fisheries management in the United States is the fragmented jurisdictional framework among the various state governments. States have widely divergent and conflicting laws and regulations for the same stocks of fish. For example, in New England, there are three different minimum sizes for lobsters. The same situation exists for striped bass on the east coast and in the menhaden and shrimp fisheries on the Gulf. This often leads to confusion and ineffective fisheries management. Conflicting regulations assume importance when you consider that 70 percent of the domestic harvest is composed of stocks that migrate between jurisdictions.

It's interesting to note here that the original Senate version of the FCMA provided for the secretary of commerce to encourage cooperative action by the states, and the enactment of improved and uniform state laws for fisheries management.

Although mechanisms exist to resolve these conflicts and to coordinate fisheries management among the states, past efforts at coordination have generally failed due to either the lack of funding, or because the states have been unwilling to cooperate for political reasons. Among the methods that could be used for regional fisheries management are uniform state laws, reciprocal agreements between states, and the present marine fisheries commissions. Of all of these, the use of the marine fisheries commissions has the greatest potential for coordinating state management efforts, while relying on the information generated through the state-federal Fisheries Management Program. Both the Gulf States Fishery Commission and the Atlantic States Marine Fisheries Compact contain provisions which allow two or more states to designate the commission as a joint regulatory authority for a specific fishery. However, only the Atlantic Compact has utilized this provision, and only in one case — mesh size and season dates for the northern shrimp fishery.

The recently added Section 309 of the Coastal Zone Management Act may provide an incentive for the states to use mechanisms like the marine fisheries commissions for regional fisheries management. This section encourages the states to unify and coordinate state coastal zone policies and programs. The encouragement is provided through federal money for up to 90 percent of the cost of coordinating, studying, planning, and implementing interstate programs. It also gives a blanket congressional consent for any future interstate agreement in this area. I would think that fisheries management coordination would be a proper subject for Section 309 funding, and that may be enough of an incentive to eliminate some of the political barriers that now discourage regional fisheries management, leading to more institutional flexibility in the state programs.

The Office of Coastal Zone Management and the National Marine Fisheries Service have already begun some preliminary thinking on injecting fisheries management into the state coastal plans, and on using the interstate coordination provisions of the Act. Use of this provision could be facilitated by making some changes in the state fisheries management structure, since most fisheries agencies do not have the discretion to enter into reciprocal agreements with other states. North Carolina is one of the few states that grants its fishery agency the power to enter into conservation agreements with other states. Some states, such as South Carolina and Texas, provide no authority to their fishery agency to enter into any type of interstate agreement, while others, like Florida, grant the agency power to enter into limited agreements for access to the fishery, but not for management in general. The more flexibility the agency has in this regard, the easier it will be to utilize the Interstate Funding Provision of the Coastal Zone Management Act and to implement effective interstate fisheries agreements.

At the beginning of this paper, I briefly described the existing jurisdictional framework for fisheries management in the United States. I'd like to go back to this issue and discuss the recent United States Supreme Court decision in *Douglas* v. *Sea Coast Products* and its implications for state management authority. The case involved a challenge to a Virginia statute which prohibited nonresidents from fishing menhaden in the Virginia portion of the Chesapeake Bay and prohibited noncitizens from obtaining commercial fishing licenses for any kind of fishing in Virginia waters. The statute in question was designed to operate against fishing companies who, although incorporated in the United States, were wholly owned by foreign nationals. Sea Coast was a New York corporation owned by Hanson Trust, Ltd., an English

corporation, and was denied a license to fish by the state of Virginia. The federal district court opinion concluded that the citizenship requirement of the Virginia statute had been preempted by the federal enrollment and licensing laws for fishing vessels. These particular federal laws were first enacted in 1792 to confer American nationality on a vessel and to license it to engage in various activities. Furthermore, the District Court opinion seemed to imply that the states had been completely preempted by the federal government in the area of fisheries management — a situation that would be directly contrary to numerous court cases, the Submerged Lands Act, and the FCMA.

The Supreme Court affirmed the District Court opinion, relying on the famous case of *Gibbons* v. *Ogden*, which involved Robert Fulton and the use of the first steamboats. This case found that the intent of the federal enrollment statute was to give vessels the authority to carry on the activity for which they were licensed. Applying this to *Sea Coast*, the Supreme Court held that the Virginia statute, by prohibiting federally licensed fishing vessels owned by nonresidents and noncitizens from fishing in Virginia waters, violated the federal enrollment statute and was therefore illegal. In an interesting interpretation the court also held that the Submerged Lands Act, which granted control of fisheries to the states, did not repeal the earlier enrollment statute and its requirement of equal treatment for federal licenses. Most importantly, however, the court held that the states were not completely preempted in the area of fisheries management. States may impose reasonable, nondiscriminatory conservation measures for vessels fishing in their waters. *Sea Coast* prevents any discrimination or unequal treatment of nonresidents or noncitizens by the states in regard to fishing. This principle has been upheld before on the basis of the constitutional protections found in the Equal Protection clause, the Privileges and Immunities clause, and the Commerce clause.

However, the Supreme Court, to avoid unnecessary resolutions of constitutional issues, decided this case on statutory grounds. By not using constitutional grounds, the court decision would invalidate any state law that favors residents and excludes nonresidents in a particular fishery, and as pointed out in the argument to the Supreme Court, this would involve the statutes of twelve other states. In a companion case, *Massachusetts* v. *Wescott*, the court, following the same reasoning, struck down the conviction of a Rhode Island fisherman for violating a Massachusetts statute prohibiting nonresidents from dragging for fish in state waters during certain times of the year.

Another potential problem for state fisheries management, which unfortunately we don't have time to discuss, is the area of Indian treaty rights. I'm sure all of you are familiar with Judge Boldt's decision that gave certain Pacific Northwest tribes the right to 50 percent of all the harvestable salmon. This decision has created a lot of controversy and it's still unclear what the final outcome will be.

The second part of the Boldt decision, due in 1978, will deal with an even more controversial issue, the right of the Indians to influence decisions that affect fish habitats, such as antipollution laws, zoning regulations, building permits, and dragging practices. In Louisiana, the Choctaw Indians are suing the state on the grounds that state fishery regulations do not apply to Indians at all. I think you can see what types of problems these cases can create for state fisheries and coastal management.

One truth about all these cases and statutes was expressed by Jay Cronin, head of the Rhode Island Fish and Wildlife Division. He said that he's been in this business for twenty-six years and one thing it's never been is boring.

Legal and Jurisdictional Changes for Oil and Gas in the Coastal Belt

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The conceptualization and development of ocean law relating to exploration and exploitation of mineral resources, particularly oil and gas, have historically provided and will continue to provide that which is suggested by the title of this conference — promise, conflict, and conflict resolution. The event that perhaps signaled the beginning of our present interests in ocean law was the Truman Proclamation of 1945, which declared the sovereign right of the United States to exploit the natural resources of our adjacent continental shelf. The impetus for this claim was the recognition that these submerged lands "promised" to surrender vast amounts of oil and gas. The development of technology and the need for new sources of hydrocarbons had led us to pursue new ventures in the ocean. It was clear that there was a vacuum in international law regarding this potential wealth and "conflict" was likely.

Following the Truman Proclamation, customary international law on the exploitation of mineral resources of continental shelves developed with surprising speed and with little dispute as to its direction. The 1958 Geneva Convention on the Continental Shelf codified this recent addition to the law of the sea. While this was being accomplished with comparative ease and relatively little dispute, these efforts awakened much of the subsequent debate. To be sure, there are still disagreements on some of the particulars of the law of the sea concerning the exploitation of minerals from the continental shelf; however, this is not one of the central areas of dispute in the present Third United Nations Conference on the Law of the Sea.

While the international law of the sea relating to the minerals beneath the ocean, at least those within the coastal belt, has been agreed to with relative ease, the same cannot be said for the development of this law from the perspective of state-federal relations within our own country. The most significant legal cases (often referred to as the Tidelands cases), in terms of allocating the natural resources within the coastal belt, have been those associated with state-federal disputes over oil and gas. The jurisdictional and ownership conflicts between the coastal states and the federal government have been a continuing struggle, one which will continue as ocean law changes.

For purposes of this paper, the term "ocean law" refers to that combination of law of the sea and federal and state law and jurisdiction that interface. What are the changes in ocean law that we currently see taking place; how do these changes relate to previous trends that we have seen in the law to accommodate the various parties; and what can we determine from an examination of these changes and trends to help us resolve potential conflicts over minerals in the coastal belt? These will be the topics of discussion for the next few minutes. While the central focus will be the state-federal relationship, it will also be useful to review certain international law changes and trends as well as state-state implications.

Increasing State Participation

In recent years, there has been a significant trend to increase the participation of the several

states in federal activities and programs in the ocean and on the continental shelf beyond state boundaries. Legislation like the Deepwater Port Act of 1974, which, through the adjacent state provisions, gives states significant input into federal decisions, has altered the state-federal relationship considerably. The Fishery Conservation and Management Act of 1976 and its provisions for coordinating state, regional, and federal fisheries management efforts through the establishment of the regional fisheries management councils has further demonstrated the trend toward a greater partnership between the states and the federal government. Some legislation, such as the Coastal Zone Management Act of 1972 with its famous but perhaps elusive concept of "consistency," has yet to be proven. However, it at least demonstrates a congressional intent to further the cooperative efforts of the federal government and the states. A bill that is at present pending before Congress would dramatically increase state input into the decision-making processes surrounding the exploration and exploitation of minerals from the outer continental shelf.

On January 10, 1977, Senators Jackson and Metcalf introduced Senate Bill S.9 (the companion bill in the House was H.R. 1614 introduced by Representative Murphy). The bill, which is cited as the Outer Continental Shelf Lands Act Amendments of 1977, was referred to the Committee on Interior and Insular Affairs. If passed, this bill will greatly modify OCS development procedures. Of particular interest are the amount of information that would be made available to state and local governments before OCS development takes place and the opportunity for state and local government input into decisions on how, when, and where OCS development will take place. The following is a brief discussion of those provisions that involve state and local governments.

Two of the terms defined in the act are "affected state" and "development." "Affected state" is defined as: (1) a state whose laws are effective for that portion of the outer continental shelf; (2) a state which is connected by transportation facilities to the outer continental shelf; (3) a state which receives oil for processing from the outer continental shelf; (4) a state which has a substantial probability of environmental or social impact from outer continental shelf production; and (5) a state where a significant risk of serious damage from outer continental shelf disasters exists.[1] "Development" is defined to include "operation of all on-shore facilities" as well as geophysical activity, drilling, and platform construction.[2]

In the proposed act, there are six different national policy statements for the outer continental shelf. Numbers (4) and (5) should be of particular interest to the states. The Congress declares that:

> (4) since exploration development and production of the mineral resources of the Outer Continental Shelf will have significant impacts on coastal and non-coastal areas of the coastal states, and on other affected states, and in recognition of the national interest in the effective management of the marine coastal and human environments —
>
> (A) such states may require assistance in protecting their coastal zones and other affected areas from any temporary or permanent adverse affects of such impacts; and
>
> (B) such states are entitled to an opportunity to participate, to the extent consistent with the national interest, in the policy and planning decisions made by the federal government relating to exploration for, and development and production of, mineral resources of the Outer Continental Shelf;
>
> (5) the rights and responsibilities of all states to preserve and protect their marine human and coastal environments through such means as regulation of land, air, and water uses, of safety, and of related development and activity should be considered and recognized.[3]

These and other policy statements they accompany could provide the basis for some substantive judicial review of OCS development decisions.

The section entitled "Administration of Leasing of the Outer Continental Shelf" calls for the secretary to prescribe regulations for:

> (2) the cancellation of any lease or permit at any time, when it is determined, after hearings, that continued activity pursuant to such lease or permit would cause serious harm or damage which would not decrease over a reasonable period of time, to life (including aquatic life), to property, to any mineral deposits (in areas leased or not yet leased), to the national security or defense, or to the marine, coastal, or human environment.[4]

The section goes on to state that the lessee, in the event of cancellation, shall be compensated. This provision might provide a mechanism for states such as California to stop production in areas which they consider environmentally undesirable.

The leasing and bidding sections of the amendments direct the secretary, when soliciting nominations for the leasing of lands within three miles of

the seaward boundary of any coastal state, to provide the governor of that state with the following information:

> (A) an identification and schedule of these areas and regions offered for leasing;
> (B) all information concerning the geographical, geological, and ecological characteristics of such regions;
> (C) an estimate of the oil and gas reserves in the areas prepared for leasing; and
> (D) an identification of any field, geological structure, or trap located within three miles of the seaward boundary of a coastal state.[5]

If the nominations contain any lands which the secretary concludes may contain a field, geological structure, or trap located within both federal- and state-owned lands, he shall offer the governor the opportunity to lease these areas jointly.

The secretary would be directed to prepare a five-year leasing program. The program is to include as precisely as possible the size, timing, and location of leasing activity which he determines will meet the nation's energy needs for the next five years. Among the principles to be used in the preparation of the plan are the following:

> (2) timing and location of exploration, development, and production of oil and gas among the oil and gas-bearing geophysical regions of the Outer Continental Shelf shall be based on a consideration of —
> (F) laws, goals, and policies of affected states which have been specifically identified by the Governor of such states as relative matters for the Secretary's consideration;
> (G) policies and plans promulgated by coastal states pursuant to the Coastal Zone Management Act of 1972 which have been specifically identified by the Governor of such states as relative matters for the Secretaries' decision;
> (H) recommendations and advice given by any Regional OCS Advisory Board established pursuant to this Act.[6]

This section also directs the secretary to invite suggestions, during the preparation of the program, from the governor of any state which may be an "affected state." Upon completion of the program, the secretary must submit it to the governors of the affected states for review and comment, and then deal with these comments in writing. These provisions allow the states to have more input than they have had in the past in deciding what will be leased and the timing of the leases. This section also calls for the secretary to establish procedures for review by state and local governments which may be affected and for coordination with the state coastal zone management program to assure consistency to the maximum extent possible.[7]

One of the most significant provisions would allow the governors of affected states to form regional outer continental shelf advisory boards whose membership they would determine after consultations with the secretaries of Commerce and Interior.[8] Where a regional advisory board or the governor of any "affected state" makes recommendations as to the size, timing, or location of a proposed lease sale or a proposed development and production plan, the secretary is bound to accept them, "unless he determines they are not consistent with national security or overriding national interest."[9] This places the onus of justification on the Interior Department when states object to its plans.

The amendments provide that once a lease is obtained, the lessee is required to submit a development and production plan to the secretary for approval.[10] The plan would have to describe all facilities and operations (other than those on the OCS) proposed by the lessee which would be constructed or utilized in the development or production of oil and gas. The plan would necessarily include the location of the facilities and operations as well as their land, labor, material, and energy requirements.

This proposed legislation also contains an information program. It provides that lessees must provide the secretary with access to all of the data obtained and interpretations of data relating to exploration or development activities. The secretary must then supply the states with a summary of the data designed to assist them in planning for onshore impacts of offshore oil and gas production. The estimates in the summary include:

> (A) the oil and gas reserves in the area leased or to be leased;
> (B) the size and timing of development if found or both;
> (C) the location of pipelines; and
> (D) the general location and nature of onshore facilities.[11]

In addition, a designee of the governor may inspect the confidential records after the lease sales have taken place. This information should be an excellent asset to states in their administration of the coastal energy impact program.

Title III of the proposed act concerns the Offshore Oil Spill Pollution Fund. This has already been addressed by Professor Lutz.

There is no question that these amendments to

the Outer Continental Shelf Lands Act would constitute the greatest changes in the administration of that act since its inception, greatly increasing the role of the states in the administration of the OCS. While there appears to be considerable opposition to the proposed legislation, the provisions to increase the states' role do not appear to be extraordinary, since most of the states' roles have already been implemented in other contexts in previously passed legislation.

Implications from Changes in International Law

Changes in ocean law are currently taking place at the international, federal, and state levels. The changes in ocean law at the international level may be discerned from a review of the Revised Single Negotiating Text.[12] While there is much dispute overall, many of the topics (with potential for change) under discussion there seem to have such wide acceptance that they will surely result in customary international law regardless of the success or failure of UNCLOS III in bringing forth a new comprehensive treaty. The principal changes with regard to the legal regimes surrounding minerals that become apparent from a review of the Revised Single Negotiating Text are the concept of a twelve-mile territorial sea, an exclusive economic zone, a regime for the deep seabeds, a clearer and geographically expanded definition of the outer edge of the continental shelf, proposed archipelagic waters, and additional rules for determining baselines. While all of these topics have possible implications for changes in state-federal relationships, I will concentrate on the issue of a twelve-mile territorial sea.

It should be pointed out that the United States government can reject or adopt for itself the changes in international law. Only after the United States government has adopted changes in the law of the sea is it necessary to consider state-federal relationships. For instance, should the twelve-mile territorial sea suggestion be adopted by UNCLOS III and should the United States sign and ratify such a convention, the United States government would be in a position to adopt a new width of twelve miles as its territorial sea. On the other hand, the federal government might wish to maintain the present three-mile territorial sea. It is presumed that should a twelve-mile territorial sea be universally adopted the U.S. would, in fact, take advantage of the provision and adopt the greater distance. The federal government would have to take positive action for any of the changes in law of the sea to become operative for this country. Such changes as the twelve-mile territorial sea would not automatically take place merely because the principle is accepted as international law. Adoption could conceivably take the form of a presidential proclamation or a congressionally enacted statute. While the sovereign rights to the continental shelf unilaterally claimed by the United States were adopted through presidential proclamation and later confirmed in the Outer Continental Shelf Lands Act, the more recent adoption of our two-hundred-mile exclusive fisheries management and conservation zone was adopted initially by congressional statute. It appears likely that any change in the width of the territorial sea would be accomplished through congressional action. This, of course, means that there would be considerable opportunity to determine what the new state-federal relationship would include. It is essential that congressional action on issues such as the extension of the territorial width be taken with a view to the legal relationships that will necessarily change. There will be a need to amend several existing laws and not simply to adopt an extended territorial sea.

Should the territorial sea of the United States be changed from three to twelve miles, what will this mean in terms of the state-federal relationships that have been developed over the past three decades through court decisions and legislative actions? Ownership and jurisdiction questions come to mind immediately. Where would these coastal boundaries be, and will the coastal states have jurisdiction in the three- to twelve-mile belt of newly created territory subject to United States sovereignty? Will the coastal states or the federal government "own" the submerged lands and resources of the superjacent waters?

Initially, it should be recognized that the legal character of these lands will change from that of sovereign rights to explore and exploit the natural resources associated with the regime of the continental shelf to lands subject to sovereignty associated with the regime of the territorial sea. The

water column and its resources will change from high seas with concurrent contiguous zone sovereign rights to waters having sovereign character normally associated with the territorial sea.

When the United States was formed as a sovereign nation, the concept of a territorial sea had not crystallized as a principle of international law.[13] As a result, neither the individual states' nor the federal government's boundaries extended beyond the low water mark along our coast. The origins of the United States territorial sea can be traced to correspondence in 1793 between the then Secretary of State Thomas Jefferson and the ambassadors of Great Britain and France concerning this nation's neutrality in the war between the other two powers.

These letters discussed authorizations by the president of officers to exercise "territorial protection" a certain distance from our seashores. Mr. Jefferson's letter to Mr. G. Hammond on November 8, 1793, stated that a provisional distance of three geographical miles or one marine league from the seashore was being instructed for purposes of "territorial protection."[14] No formal presidential proclamation or congressional statute ever specifically pronounced that the United States was adopting a territorial sea with a width of three miles. There have been, however, numerous allusions in congressional statutes to the authority that may be exercised by the United States in a territorial zone of three miles. As early as 1794, Congress provided (in a statute dealing primarily with United States citizens being required to abstain from assisting foreign powers in their military efforts) "that the district courts shall take cognizance of complaints by whomever instituted, in cases of captures made within the waters of the United States, or within a marine league of the coasts or shores thereof."[15] It is a fact that the United States has for quite some time claimed and exercised sovereignty over this territorial sea. While the seaward claims of the United States and other nations were being acquiesced in and developing into customary international law, it is difficult to determine a precise moment when the territorial sea was established as three miles. Much of the discussion on this area was couched in terms of the marginal sea and not in terms of the territorial sea.

The seaward boundaries of the separate states have also had what might be described as a less than clear definition of their location. Some states, such as California, which came into the union after its formation have described in their state constitutions their seaward boundaries as extending three miles from shore, and these boundaries were ratified by Congress in the enabling acts that admitted the states into the union.[16] Some of the original thirteen states had formulated statutes declaring their boundaries to be coextensive with the breadth of the territorial sea.[17] These had never been ratified by Congress but were among the boundaries the courts had presumed to be legitimate for jurisdictional purposes. The states exercised jurisdiction, at least for police power functions, within these declared boundaries.[18] With the passage of the Submerged Lands Act in 1953, Congress specifically authorized any states which had not established boundaries of three miles seaward of shore to do so. It should be recalled that this act was for the primary purpose of quitclaiming title of submerged land to the coastal states, and it was not specifically to establish state boundaries. The act's purposes were stated in its title:

> To confirm and establish the titles of the states to lands beneath navigable waters within state boundaries and to the natural resources within such lands and waters, to provide for the use and control of said lands and resources, and to confirm the jurisdiction and control of the United States over the natural resources of the seabed of the Continental Shelf seaward of state boundaries.[19]

The fact that many of the states established their own boundaries and these were acquiesced in by congressional action and recognized by the courts suggests that there are no limitations on states to extend their seaward boundaries to a distance of twelve miles should this distance be adopted by the United States as the extent of its territorial sea. It had been customary practice for the states to exercise their jurisdiction for police power functions within such boundaries, and there seem to be no constitutional limitations on the separate states which prohibit them from exercising their sovereignty by extending their own boundaries. However, Congress is vested with the constitutional power to dispose of public property under Article IV, Sec. 3, Cl. 2, which states:

> The Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States; and nothing in this Constitution shall be construed as to Prejudice any Claims of the United States, or of any particular State.

This speaks to Congress's power to determine ownership of such lands, but does not seem to be controlling on the issue of boundary placement within the territorial sea. The states are limited in extending boundaries beyond those which have been established as the outer boundaries of the U.S., as this would presume upon the federal government's authority in the area of international relations.

A question might be raised as to whether or not the Submerged Lands Act would be interpreted by the courts as a limitation on the states' ability to extend their own boundaries to the outer extent of a newly established territorial sea. While the act provides a definition for boundaries, it should be pointed out that this was for the purposes of the act. In that act the following definition is found:

> The term "boundaries" includes the seaward boundaries of a State or its boundaries in the Gulf of Mexico or any of the Great Lakes as they existed at the time such state became a member of the Union, or as heretofore approved by the Congress, or as extended or confirmed pursuant to section 1312 of this title but in no event shall the term "boundaries" or the term "lands beneath navigable waters" be interpreted as extending from the coast line more than three geographical miles into the Atlantic Ocean or the Pacific Ocean, or more than three marine leagues into the Gulf of Mexico.[20]

Thus it may be possible to limit a state's boundary for ownership of submerged land to three miles, while boundary for sovereignty purposes might be placed at twelve miles. The Supreme Court has never rendered a decision on the states' rights to unilaterally declare their boundaries to be coextensive with the outer boundaries of the territorial sea where state boundaries do not extend that far. However, some clue to a possible decision on this point may be found in the 1947 California case.[21] While the court clearly stated that, as a result of the paramount rights of the federal government in the territorial sea, California was not the owner of the submerged lands within the territorial sea, it separated this decision from a decision on the existence of state boundaries. The court said, "Conceding that the state has been authorized to exercise local police power functions in the part of the marginal belt within its declared boundaries, these do not detract from the Federal Government's paramount rights in and power over this area."[22] From this and other references in this case it seems clear that the court believed that the states had established boundaries in the territorial sea, and there was no suggestion that this had been improper. The question of establishing the outer extent of state boundaries was addressed as dictum in *Manchester* v. *Massachusetts*, 139 U.S. 240 (1891). There the Supreme Court clearly stated, "Within what are generally recognized as the territorial limits of states by the law of nations, a state can define its boundaries on the sea and the boundaries of its counties."[23] It could be suggested that the large and continuous body of case decisions on states' boundaries extending beyond low-water mark and the states' legitimate exercise of their police power in this offshore territory was what prompted the Court to base its decision in the California case on the novel development of paramount rights. Historically, the seaward boundaries of the states' sovereignty have been considered to be coextensive with the seaward boundaries of the sovereignty of the United States, and it has been difficult to perceive a time when this would not be the case. To resolve the questions previously mentioned that might arise as a state-federal dispute, any extension of the United States territorial sea should be accompanied by a congressional act which clarifies the issues.

The question of ownership of the land between three and twelve miles, in the event of an extension of the territorial seas, appears to be a more clearly settled issue, although some legal argument might ensue. As a result of the California, Texas, and Louisiana cases,[24] the Supreme Court has stated that the federal government has paramount rights to the marginal sea. These paramount rights would presumably preclude the states from claiming ownership of the submerged lands beneath a new breadth of territorial sea. If a state made a claim to the ownership of these submerged lands, the principle of *stare decisis* would come into play in that future decisions of the courts would rely heavily upon these prior Supreme Court cases. While the principle of *stare decisis* was enunciated in the Maine case[25] as one of the principal reasons for finding that the Atlantic Coast states did not have ownership of the submerged lands beyond three miles, it is possible that the Supreme Court could reevaluate the positions of the states and the federal government. Certainly there has been much legal criticism of the California case, and perhaps the Court could adopt one of the alternative positions that have been suggested. For

instance, the Court could take the position that Justice Frankfurter adopted in his dissent on the California case,[26] that the principle of sovereignty includes both dominion (property and ownership) and imperium (political sovereignty), and consequently the federal government's paramount rights should be considered in the nature of the imperium with the dominion being reserved to the states. In the California case, the Supreme Court did not use terms normally associated with property, such as ownership or fee simple, but rather based its decision on the paramount rights it felt the United States possessed. A strong argument for *stare decisis* to be used is that a great many expectations (particularly economic) have developed over the past twenty-five years. It could be pointed out that significant expectations had developed prior to the California case that did not appear to carry much weight in that decision.

The argument that the Submerged Lands Act should be read as a congressional pronouncement that the states should have ownership of the submerged lands within the territorial sea should it be enlarged is a tenuous argument. However, it should not be discounted out of hand. Even though the act says specifically that the states have ownership out to a maximum distance of three miles, it is clear from the legislative history that Congress intended to return to the states that which they and almost all legal observers at the time thought they originally owned — those lands which were within the marginal sea. Clearly, what they thought they owned had to be measured in terms of what the marginal sea had been considered to be to that time. On the other hand, perhaps Congress intended that the states' boundaries and ownership of the submerged lands within the territorial sea should always be recognized.

Before the question of legislative intent could be looked to, the clear meaning rule would have to be overcome. The act clearly states that the distance of state ownership is three miles. Terminology that is on its face quite specific and clear has in the past been held by the Supreme Court to have a different meaning. In *Douglas* v. *Seacoast Products*, 97 S.Ct. 1740 (1977), a recent case interpreting language in the Submerged Lands Act, the Court interpreted "ownership" of natural resources (specifically fish) in the water column to mean jurisdiction and not ownership in the property sense.[27] The Court looked beyond the clear meaning of the word "ownership." The rationale that the Court gave was that fish could not be owned (in the property sense) by the state as long as they were wild things and had not been reduced to possession. The Court stated that Congress could only have meant the term "ownership" to describe the interests that a state has in controlling, managing, and regulating the fish while they are within that state's jurisdiction.[28]

If the United States were to adopt a twelve-mile territorial sea, the boundaries of the states were determined to extend to twelve miles, and the ownership of the submerged lands were determined to belong to the federal government, then the area would be federal lands within a state. Since only sovereign rights to these lands are being claimed at present through the Outer Continental Shelf Lands Act, there is a serious question as to whether this act would continue to be the operative legislation for the new territorial sea area. If not, would some other existing federal act be effective? The Federal Mineral Lands Act[29] is the present legislation which controls mineral leasing and production on federal lands within the boundaries of the several states. This would mean a considerable redistribution of the revenues from the mineral production on these federal lands. All of the revenues from the production of oil and gas and other minerals under the Outer Continental Shelf Lands Act are placed in the federal treasury. Under the Federal Mineral Leasing Act, the state in which the federal lands are located receives fifty percent of the generated revenues.

State-State Relationships

While jurisdictions for change in state-state relationships will not occur with great frequency from changes in ocean law, these state-state issues may be significant when they result from federal legislation. The 1976 Amendments to the Coastal Zone Management Act established a Coastal Energy Impact Program.[30] This program, established under Section 308 of the act, is designed to provide federal financial assistance to coastal states on which there may be impacts from development and production of minerals (particularly oil and gas) from the outer

continental shelf. This is a further example of the increasing recognition of the interrelationships between state and federal interests in events and programs beyond state jurisdiction but in proximity to the states. While the program has several controversial elements, the one I feel has the most significance in terms of ocean law affecting state-state relations is the establishment of lateral seaward boundaries of the coastal states.

The financial assistance available to the states includes loans, loan guarantees, and formula grants. The formula grants are to be based on a series of factors, including the amount of acreage leased and the amount of oil and gas production from those areas of the outer continental shelf adjacent to a state. For purposes of the act, acreage is adjacent to a particular state if such acreage on the outer continental shelf lies on that state's side of its extended lateral seaward boundaries. The act provides that the extended lateral seaward boundaries should be determined as follows:

> (i) If lateral seaward boundaries have been clearly defined or fixed by an interstate compact, agreement, or judicial decision (if entered into, agreed to, or issued before the date of the enactment of this paragraph), such boundaries shall be extended on the basis of the principles of delimitation used to so define or fix them in such compact, agreement, or decision.
>
> (ii) If no lateral seaward boundaries, or any portion thereof, have been clearly defined or fixed by an interstate compact, agreement, or judicial decision, lateral seaward boundaries shall be determined according to the applicable principles of law, including the principles of the Convention on the Territorial Sea and Contiguous Zone, and extended on the basis of such principles.
>
> (iii) If after the date of enactment of this paragraph, two or more coastal states enter into or amend an interstate compact or agreement in order to clearly define or fix lateral seaward boundaries, such boundaries shall thereafter be determined on the basis of the principles of delimitation used to define or fix them in such compact or agreement.[31]

If there is a dispute between states as a result of conflicting claims regarding their lateral seaward boundaries, the portion of a state's grant which is dependent on acreage and production in the disputed area will be impounded until the delimitation line is established. If the states have not agreed on their lateral seaward boundaries, then the associate administrator will make a delineation of these boundaries for purposes of this act only. While there appear to be no lateral boundary disputes between Pacific Coast states, the majority of Atlantic Coast and Gulf Coast states are disputing their lateral seaward boundaries; perhaps the most significant differences are between Louisiana and Mississippi. The states which have these disputes may be concerned that decisions that are made regarding these extensions of lateral seaward boundaries may prejudice or determine their claims to lateral seaward boundaries in the future even though these delimitations are only for purposes of this act.

Not only do state-state disputes on these extended seaward boundaries exist, but at present there exists a dispute regarding the four lateral boundaries between the United States and Canada. In making decisions on extended lateral seaward boundaries, the associate administrator should bear in mind that the methods, mechanisms, and procedures he uses may be carefully watched by Canada for future reference in U.S.-Canada negotiations over lateral boundaries on the continental shelf. These decisions of the associate administrator are only domestic matters for the limited purposes of the act. However, Canada may still insist on referring to them should the associate administrator's decisions on methods or procedures support their claims.

Most of the issues regarding extended lateral seaward boundaries may have to be resolved by the courts. In the meantime, the associate administrator may or may not use the same principles of law that the courts ultimately would use in deciding these boundaries. For purposes of the act, the lateral seaward boundaries which had been fixed by interstate compact, agreement, or judicial decision prior to an act would have such boundaries extended on the basis of the principles of delimitation used to define them in such compact, agreement, or decision.

There are some instances where states have agreed to a lateral seaward boundary, but Congress has not specifically consented to the agreement. Article 1, Section 10, of the Constitution states, "No State shall, without the consent of Congress . . . enter into any agreement or compact with another State, or with a foreign power." A number of states, such as Rhode Island and New York, have agreements which have been explicitly approved by Congress, and there should be no question on these boundaries. However, as Justice Field stated in *Virginia* v. *Tennessee*, 148 U.S. 508, "Compacts and agreements

might then very properly apply to such as regarded what might be deemed mere private rights of sovereignty, such as questions of boundaries."[32] Justice Field's opinion that certain agreements between states would not need the consent of Congress because they would not concern the United States has led some state courts to uphold agreements with other states which did not have the consent of Congress. The states of New Jersey and Delaware provide an example of two states with an agreement that was never explicitly approved by Congress. However, it may be possible for states in this position to demonstrate a tacit approval by Congress. In the *Virginia* v. *Tennessee* case it was held that the consent of Congress was to be implied from congressional recognition of the two states for judicial and revenue purposes. Where a state stood as a party to such an agreement which does not have the approval of Congress and now wishes to make a claim different from that provided in the agreement, it is unclear whether the associate administrator would or would not extend the lateral seaward boundaries according to that agreement.

For purposes of the act, the lateral seaward boundaries of the states which have failed to reach an agreement about these boundaries are to have them decided on the basis of applicable principles of law, including the Convention on the Territorial Sea and Contiguous Zones. One question which should be raised is whether or not the lateral seaward boundaries that may be established within the territorial sea would have to be extended in a straight line beyond the territorial sea. Whether concepts that have been developed for delineation of lateral boundaries on the continental shelf should be used as well appears to be unclear.

In determining a boundary line between states, the nature and history of the controversy with respect to the colonial grants or orders relied on as establishing the bounds must be considered (*Vermont* v. *New Hampshire*, 53 S. St. 708). All types of land claims and land grants as well as admission to the Union documents could be considered in solving this type of boundary. In the construction of statutes, as in the construction of deeds, the cardinal rule is to effectuate, if possible, the entire intention of the grantor; and, in ascertaining that intention, regard must be given to the situation and relative position of the parties and the objects which they had in view (*Louisiana* v. *Mississippi*, 202 U.S. 923). In addition, where there are conflicting titles, the elder shall be preferred (*Rhode Island* v. *Maine*, 12 Pet. 658). Also, between the states of the Union, long acquiescence in the assertion of a particular boundary and the exercise of dominion and sovereignty over the territory within it should be accepted as conclusive.

Article 12 of the Convention on the Territorial Sea and the Contiguous Zone, which is specified as an applicable principle in the act, states that:

> Where the courts of two States are opposite or adjacent to each other neither of the two states is entitled, failing agreement between them to the contrary, to extend its territorial sea beyond the medium line every point of which is equidistant from the nearest points on the borderline from which the breadth of the territorial sea of each of the two states is measured. The provision of this paragraph shall not apply, however, where it is necessary by reason of historic title or other special circumstances to delimit the territorial seas of the two States in a way which is at variance with this provision.[33]

In drafting this provision, the International Law Commission decided that the most equitable way was to draw the bounds by application of the principle of equidistance from the nearest point on the baseline from which the breadth of the territorial sea of each country is measured. The Supreme Court elected to use the equidistant principle in *Texas* v. *Louisiana*, 96 S.Ct. 2155 (1976), where the lateral seaward boundary dispute between those states was settled. The court also pointed out that the jetties of both states should be considered as part of the baselines. The CEIP guidelines direct the associate administrator, when necessary to delimit boundary lines, to use the baseline that the U.S. measures its territorial sea as shown on National Ocean Survey charts when the equidistant method is chosen.[34]

The simplest way to determine the boundaries would be to extend the land boundary out to sea. This method works quite well for areas where the coastline is relatively straight and where the land boundary between the two states reaches the shore at right angles. There are a few places in this country where those conditions are met; however, if they are not present, the resulting division could be very inequitable. Another method is to use a line perpendicular to the general direction of the coast. This

method was used in the 1909 arbitration award in the dispute between Sweden and Norway.[35]

In looking at the principles that have been developed in international law relating to the delimitation of lateral seaward boundaries of the continental shelf, attention should be focused initially on the Convention on the Continental Shelf. The Convention provides:

> Where the same continental shelf is adjacent to the territories of two adjacent states, the boundary of the continental shelf shall be determined by agreement between them. In the absence of agreement, and unless another boundary line is justified by special circumstances, the boundary shall be determined by application of the principle of equidistance from the nearest points of the baselines from which the breadth of the territorial sea of each state is measured.[36]

The central question seems to be whether or not to use the equidistance principle or to recognize the equity issues which might be raised as a result of special circumstances. A prior draft of this convention article by the International Law Commission had stated that "Such boundaries should be fixed by agreement among the states concerned. It is not feasible to lay down any general rule which states should follow; and it is not unlikely that difficulties may arise."[37] It was also suggested in that earlier draft that, failing agreement, "States should be under an obligation to submit to arbitration *ex aequo et bono*."[38] A reading of the legislative history of the convention suggests that the inclusion of the general principle of equidistance left much room for the consideration of equity resulting from special circumstances.

The International Court of Justice, in the North Sea Continental Shelf case,[39] stressed the equity principle, even though it based its decision on the principle that states should be entitled to the natural prolongation on the continental shelf of their land territory. The I.C.J. stated that the whole concept of a state's rights to the continental shelf are a direct result of its sovereignty over the land and that the continental shelf is merely an extension of this land domain. The I.C.J. did identify three criteria which should be taken into account in determining this natural prolongation. These criteria, which seem to be equitable criteria, include: (1) the relative concavity of the coastline; (2) the geology and geomorphology of the area; and (3) the relative lengths of the coastlines.[40] This still leaves questions as to the amount of concavity, the specific geological conditions, and which part of a nation's coastline should be used in determining the relative lengths.

Which of the applicable rules of law will be given the greatest amount of weight by the associate administrator in delineating the extended lateral seaward boundaries will not be clear for some time. Since the associate administrator's decisions will be substantive and therefore discretionary, any decision he makes will not be subject to review by the courts unless it is clearly arbitrary or capricious.

In summary, there are numerous changes in ocean law that have far-reaching effects. The trend to increase state participation in federal programs beyond state boundaries is likely to continue. Where implications for changes in state-federal relationships result from changes in law of the sea, it will be necessary for Congress to give consideration to possible effects on boundaries, jurisdiction, and ownership as separate but interrelated issues. Finally, while state-state relationship questions will not arise as often as state-federal issues, these issues, such as lateral seaward boundaries, should be given more careful attention when federal legislation is passed.

Notes

1. S. 9, 95th Cong., 1st Sess. Sec. 201 ("Sec.2(f)) (1977).
2. Id., Sec. 201 ("Sec. 2 (1)).
3. Id., Sec. 202 ("Sec. 3).
4. Id., Sec. 204 ("Sec. 5(a) (2)).
5. Id., Sec. 205 (b) ("Sec. 8(f) (1)).
6. Id., Sec. 208 ("Sec. 18(a) (2)).
7. Id., Sec. 208 ("Sec. 18(c)).
8. Id., Sec. 208 ("Sec. 19(a)).
9. Id., Sec. 208 ("Sec. 19(d)).
10. Id., Sec. 208 ("Sec. 25(a) (1)).
11. Id., Sec. 208 ("Sec. 26(b) (2)).
12. Revised Single Negotiating Text, A/Conf. 62/WP.8/Rev.1, May 6, 1976.
13. The Supreme Court has stated that "At the time this country won its independence from England there was no settled international custom or understanding among nations that each nation owned a three-mile water belt along its borders." *United States* v. *California*, 332 U.S. 19 (1947), p. 32.
14. II. Ex. Doc. No. 324, 42nd Cong., 2nd Sess. (1872) 553-554.

15. 3rd Cong., 1st Sess., Ch. 50 (1794), 381.
16. Cal. Const. 1849, Art. XII, Sec. 1; Enabling Act, 9 Stat. 452.
17. Massachusetts had established such a boundary in 1859 (see Stat. 1859, c. 289, as amended, Mass. Gen. Laws Ann. c.1, Sec. 3). Other states followed the same process. (R.I., Gen. Stat. 1872, c.1, Sec. 1), (N.J. Stat. Ann. Title 40, Sec. 18-5), (N.H. Laws 1901, c.115), (Acts 1916, p. 29, Ga. Code Ann. Sec. 15-101).
18. *Manchester* v. *Massachusetts*, 139 U.S. 240 (1891); *The Abby Dodge*, 223 U.S. 166 (1912); *Skiriotes* v. *State of Florida*, 313 U.S. 69 (1941).
19. Submerged Lands Act, 67 Stat. 29 (1953).
20. Submerged Lands Act, 67 Stat. 29 (1953), 43 U.S.C. 1301 (b).
21. *United States* v. *California*, 332 U.S. 19 (1947).
22. Id., p. 36.
23. *Manchester* v. *Massachusetts*, 139 U.S. 240 (1891), 11 S.Ct. 559 at 564.
24. *United States* v. *California*, 332 U.S. 19 (1947); *United States* v. *Texas*, 339 U.S. 707 (1950); and *United States* v. *Louisiana*, 339 U.S. 699 (1950).
25. *United States* v. *Maine*, 403 U.S. 949 (1975).
26. *United States* v. *California*, 332 U.S. 19 (1947), pp. 41–46.
27. *Douglas* v. *Seacoast Products*, 97 S.Ct. 1740 (1977), p. 1753.
28. Id.
29. Federal Mineral Leasing Act, 30 U.S.C. 191.
30. Coastal Zone Management Act Amendments, Sec. 308, Pub.L. 94–370, 94th Cong., 2nd Sess.
31. Id., Sec. 308 (b) (3) (B).
32. *Virginia* v. *Tennessee*, 148 U.S., 508, p. 511.
33. Convention on the Territorial Sea and Contiguous Zone, Art. 12(1), Ap. 29, 1958, U.N. Doc. A/Conf. 13/L. 52.
34. 42 Fed. Reg. 1184 (1977).
35. [1951] I.L.C. Yearbook (I)287, Para. 122.
36. Convention on the Continental Shelf, Art.6(2), Ap. 29, 1958, U.N. Doc. A/Conf. 13/L.55.
37. [1951] I.L.C. Yearbook (II) 143.
38. Id.
39. North Sea Continental Shelf Case (1969) I.C.J. 3.
40. Id., p. 51.

Jurisdictional Issues in Marine Transportation

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The jurisdictional issues involved in marine transportation are clouded by two factors: the inherent difficulty of state-federal relations law in an historically federal area now in conflict with the police power concerns of states seeking to protect fragile resources, and the fact that transportation itself also cuts across the fields of fisheries, oil and gas, and pollution, each of which has distinct concerns. Factual distinctions such as the location of the vessel within or without the territorial limits, the citizenship of parties involved, and the activities to be regulated all contribute to the conclusion that generality is of modest value.

As far back as 1917 the Supreme Court of the United States, in *Southern Pacific* v. *Jensen,* observed that it would be difficult if not impossible to define with exactness just how far maritime law may be changed, modified, or affected by state legislation. Nearly fifty years later in *Huron Portland Cement* v. *City of Detroit,* the Supreme Court recognized the right of states to impose regulations over matters of maritime transportation which are not preempted by federal law. Attempting to pinpoint the basic limitation of local legislative power, the court said that:

> The controlling principles have been reiterated over the years in a host of this court's decisions. Evenhanded local regulation to effectuate legitimate local interests is valid unless preempted by federal action.

Unfortunately, stating the terms of federal preemption has always been an easier task than identifying actual cases of it. Preemption, though *Huron* may be becoming dated, would seem to require a congressional intent to occupy a field, plus a field the nature of which is best suited for nationally uniform regulation.

The Commerce Clause of the United States Constitution, from which the great majority of federal regulatory law comes, was not intended to foreclose state participation in the regulation of interstate commerce. This is evident from the rejection by the framers of the Constitution of an earlier proposal which read:

> The United States and Congress assembled shall have the sole and exclusive right and power of regulating trade in the states, as well as with foreign nations, as with each other.

Huron made it clear that the Constitution was never intended to cut the states off from legislating on all subjects relating to health, life, and safety of their citizens, since these are the major reasons for the existence of state governments, even though such legislation might indirectly affect the commerce of the country. A state may not, however, impose a burden which materially affects interstate commerce in an area where uniformity of regulation is necessary because of the nature of the subject matter, or where the field has actually been preempted by a federal law.

The Federal Water Pollution Control Act is an example of an expressly nonpreemptive federal statute and at least fourteen states have adopted legislation similar to or more stringent than the provisions of the federal law. The Florida statute was examined in the *Askew* case, where a district court ruled that the Florida act constituted an intrusion into an exclusive area of federal substantive marine regulation. The Supreme Court, however, found that the liability provisions of the Florida statute fit into the waiver of exclusive federal control found in the FWPCA, noting specifically that the federal act dealt only with federal cleanup costs

while the Florida statute dealt with state costs and damages to state and private interests. Not resolved in *Askew* were questions dealing with state requirements with respect to shipboard equipment or to bans on ship movement or traffic through Florida waters. After the *Askew* case, in the *Portland Pipe Line Corporation* case, the Maine statute was upheld in the face of a multifaceted attack, including one based on the proposition that the act's license fee of one-half cent per barrel on oil transferred over water was an impost and therefore violated the Import-Export Clause of the federal Constitution. This difficulty was finessed by a finding that the fee was imposed on the activity of off-loading the oil, rather than on the oil itself.

Due in large part to the tremendous cargoes carried by modern oil tankers, a state may find it necessary to endeavor to regulate the scope of maritime transportation even though those activities take place beyond the territorial limits of the state. Such regulation or influence upon regulation may be indirect or direct.

States may indirectly affect activities involving maritime activities occurring beyond their territorial limits through their input into a variety of federal statutes which apply beyond three miles. For example, the FWPCA is expressly not preemptive and may, in many circumstances, require that federal permit-seekers also obtain state certification. The Outer Continental Shelf Lands Act through its application of state law on offshore structures, the Fish and Wildlife Coordination Act which requires consultation with state agencies, the veto provisions of the Deepwater Ports Act, the National Environmental Policy Act through state input into the environmental impact statement process, and the Coastal Zone Management Act through its consistency requirements, all provide a measure of state input into activities occurring beyond their boundaries.

A much more direct approach was taken in the Maine statute analyzed in the *Portland Pipe Line* case. This statute purported to extend Maine's jurisdictional control to twelve miles and the Maine Supreme Court upheld its application against the challenge that it was inconsistent with national treaties. In a rather unsatisfactory opinion the court said that the freedom of the state of Maine to act in this area is limited to that area considered by the United States to be within its territory. The court, in *Portland Pipe Line*, went on to add that their attention had not been called to any provision of a treaty, act of Congress, or decision of the Supreme Court of the United States limiting territorial jurisdiction of the United States to tidewaters within three miles of the coast. Unfortunately, this issue was not raised on appeal and the validity of *Portland Pipe Line* on this point may be open to dispute.

Adding to the questions of where are questions of who; a 1970 California case concluded that when a state's action did not conflict with federal legislation, the sovereign authority of the state over the conduct of its citizens on the high seas is analogous to the sovereign authority of the United States over its citizens in like circumstances. This year, the case of *State* v. *Bundrant*, while rendered perhaps less than definitive by the fact that fisheries were involved and by the later passage of the Fishery Conservation and Management Act, seems to have eliminated state citizenship as a requirement for the extraterritorial application of state law.

The law of pilotage has traditionally been a subject of state regulation. Federal law provides that:

> Until further provision is made by Congress, all pilots in the bays, rivers, harbors, or ports of the United States shall continue to be regulated in conformity with the existing laws of the states respectively wherein such a pilot may be, or with such laws as the states may respectively enact for the purpose.

It was held as early as 1851 that this statute was constitutional, since the mere granting of commerce power to Congress did not prohibit the states from passing laws to regulate pilotage, and that since commerce includes a variety of subjects, there may be need for a uniform rule for some situations and a different rule in different localities for others. It should be noted that this argument was resurrected in the *ARCO* case to which our attention will be turned in a moment.

It is significant to recognize though that the pilotage statute is merely a recognition of the concurrent power of states in the area until Congress chooses to act. For example, the federal government has now preempted the licensing of the pilots serving on vessels authorized to engage in the coastwise trade. The Rhode Island statute involved in the

recent case of *Warner* v. *Dunlap,* requiring each foreign vessel and American vessel under register for foreign trade to take on a Rhode Island pilot when traversing Block Island Sound, is consistent, since Block Island Sound was held to be a bay within the meaning of the federal statute. As well, Rhode Island could regulate the piloting activities of Connecticut-licensed pilots traversing the waters of Block Island Sound even though the routes utilized in piloting those vessels were more than three miles from the Rhode Island shore. It should also be noted that the *Warner* case would also seem to hold clearly that the issue of the state's territorial limits is distinct from that of its right to control navigation. Thus, in the pilotage situation, states have been permitted to assert the regulations as much as thirty or even fifty miles from their borders.

No discussion of state jurisdiction over marine transportation could be complete without reference to the case of *Dixie Lee Ray* v. *Atlantic Richfield* which is now pending in the Supreme Court of the United States.

The Washington statute involved in the *Atlantic Richfield* case regulates oil tankers operating in Puget Sound. The tanker law requires any tanker in excess of 50,000 dwt to employ a locally licensed pilot and absolutely prohibits supertankers, that is those larger than 125,000 dwt. Another section of the act proscribes minimum design specifications including shaft horsepower, twin screws, double bottoms, and twin radars for tankers between 40,000 and 125,000 tons, but waives these design specifications for tankers accompanied by an appropriate complement of tugboats. The district court was persuaded that the Federal Port and Waterways Safety Act had preempted the field by establishing a comprehensive federal scheme for regulating the operation, traffic routes, pilotage, and safety designs specifications of tankers. The court said that:

> Balkanization of regulatory authority over the most interstate, even international, of transportation systems is foreclosed by the national policy embodied in the Port and Waterways Safety Act.

Thus, the court concluded that the tanker law had been preempted. The court recognized that cooperative federalism had been a congressional policy for designing a United States environmental policy and that this policy of cooperative federalism had ensured state involvement in virtually all water-related regulatory programs, including the Coastal Zone Management Act. Citing a variety of other acts with similar thrust, the court observed that the federal statutes mentioned explicitly invited state participation, while the Port and Waterways Safety Act did not invite such participation or sharing of regulatory authority.

ARCO is now on appeal and numerous states have involved themselves in the litigation. Their contentions are of major interest. The states disavow any interest or desire to compete with the Coast Guard in regulating vessel safety and design and traffic control, but stress that states have a vital interest in protecting their freedom to make policy choices where substantial economic, social, and environmental policy issues arise.

The states point out specifically that the tanker law does not prohibit the entry of supertankers into all state waters and carefully limits the prohibition to the ecologically sensitive area of Puget Sound. Stress on the uniqueness of the area is an interesting argument since the appellant's brief also argues that every estuary is unique. If this means that every state could treat its estuaries differently, or even that a single state could treat different estuaries within it differently, the resulting Balkanization would seem to be extreme.

The appellants in *ARCO* also point out that the exclusion of larger tankers from ecologically sensitive areas is in furtherance of the intent and policy of Congress in enacting the Deepwater Ports Act to encourage the construction of deepwater ports for transferring oil well offshore and to keep tankers away from crowded inshore ports where the risk of environmental damage is greatest.

The appellants also insist that the tanker law is not one which imposes design or equipment safety standards on ships because the act does allow entry into the port with tug escort-assistance as an alternative.

The states appealing the district court decision urge that the tanker law is not one aimed at protecting local economic interest, nor does it impose undue burdens on interstate commerce disproportionate to the strong state interest in protecting unique marine environments. They further urge that:

> Every port, harbor, bay, and estuary throughout the world is unique in terms of its physical and ecological carrying

capacity. A state police power regulation that imposes reasonable limits to protect carrying capacity, even where incidental burdens on commerce result is not invalid.

While the district court emphasized that the Port and Waterways Safety Act, unlike most other water-related federal statutes, does not invite state participation, the appellants argue that neither is it expressly preemptive. Since the exercise of federal supremacy is not lightly to be presumed, and because the state interests are strong, the state argues that the Port and Waterways Safety Act is not preemptive of Washington tanker law.

It is interesting to note that the Port and Waterways Safety Act contains only one reference to state standards and it says that:

> Nothing in this Chapter supplants or modifies any treaty or federal statute or authority granted thereunder, nor does it prevent a state or political subdivision thereof from proscribing *for structures* only higher safety equipment requirements or safety standards than those which may be proscribed pursuant to this Chapter.

ARCO's position is that since the federal statute was designed for the prevention of damage to vessels, bridges, and other stuctures, the Savings Clause for more stringent state standards is "for structures only" since that is the language utilized in the clause, and that this constitutes therefore an express federal preemption of state regulation over vessels.

While it may be an overstatement to say that this preemption is clear, the states would seem to be equally guilty in saying that:

> The plain meaning of this Savings Clause is to allow the States to impose higher or more stringent safety equipment requirements or safety standards in a relatively narrow field, for structures only, than any existing Coast Guard regulations on the same subject.

The Savings Clause does not, continues the state argument, prevent the states from exercising their traditional regulatory authority over vessel operations in harbors, bays, and inland waters where the Coast Guard has not yet acted to regulate.

The states in *ARCO* also argue that if Congress had intended a federal preemption and a complete ouster of state regulatory authority it would have expressed intention in the same kind of unequivocal terms that are used in statutes such as the Clean Air Amendments of 1970.

The District Court view was that the Port and Waterways Safety Act established a *comprehensive federal scheme* for regulating oil tankers and authorized the Coast Guard to require tug escorts and to restrict or even exclude tankers from Puget Sound under adverse or hazardous conditions. The fact is, however, that the Coast Guard has not yet acted to regulate these aspects of oil tanker operations, but the parties disagree in the result of such inaction.

The interesting contention that the consistency provisions of CZMA require that federal agencies act consistently with the Washington tanker law, which at least allegedly was incorporated in Washington's approved coastal zone management plan, received modest consideration from the district court. Conceding that the tanker law is "related" to the approved coastal management plan, the court declined to rule that this somehow waived federal preemption of the area. Even assuming that the tanker law was a legitimate factor in Washington's approved coastal management plan, it does seem difficult to jump from that to the conclusion that the area is no longer preempted, if in fact it ever was.

The foregoing makes clear that the combination of legal, factual, geographical, and emotional factors involved in the discussion of state jurisdiction over marine transportation virtually precludes a cogent statement of widely applicable principles. From a policy perspective on a visceral level, the arguments for state authority are attractive, as no one can dispute the unique character of most local resources or the relative competence of state officers to handle them.

On the other hand, we are one country and it is hard to argue with the proposition that few enterprises are more interstate in nature than shipping. Fears of conflicting regulations are very real.

Law is a reflection of policy and the state of the law in this area reflects the absence of such a national policy. Congress' failure to enact or clearly repudiate a national oil spill liability act is indicative. Constitutional language may need breadth, but federal statutes could be explicit when it comes to the question of state authority. Until they are, one can expect states to continue to fill what they perceive as a vacuum in the laws protecting their coastal resources.

Getting into Deep Water: Emerging Environmental Regimes and Jurisdictional Conflicts of the Coastal Belt

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The title of this paper suggests some predictive capability on my part. Anyone attempting predictions, however, should be cautioned by something the famous economist Kenneth Boulding once said: If you predict the state of affairs for one hundred years and are 99 percent correct for each year, you will only be 36 percent correct when the hundred years has passed.[1] Since that is hardly a winning average, I will not attempt to launch a career as a soothsayer in this forum. Rather, after defining some terms, I will cite and discuss with current examples some trends in certain areas of coastal belt environmental regulation.

Some definition of terms is necessary to develop a framework for a meaningful discussion. Specifically, the terms "coastal belt," "jurisdiction," and "pollution control" require attention.

The term coastal belt is intentionally vague. It refers to a geographical area, the specific boundaries of which are undefined. It includes the area called the coastal zone[2] and something more. With the various extensions of coastal nation jurisdiction taking place[3] and the tremendous increase in ocean activities, the term coastal belt is undoubtedly designed to include the area of coastal nation jurisdiction asserted in these extensions as well as jurisdiction over the ocean activities occurring in those areas which may be of concern or interest to coastal nations. Thus, two jurisdictional characteristics predominate and assist in clarifying the term. First, as one goes oceanward from land, jurisdictions become more and more undefined and dynamic. Second, as one returns to shore and proceeds landward, jurisdictional boundaries become better defined, but overlap and change frequently.

Jurisdiction has to do with the legal right to assert authority over an area, resource, or activity. Usually pertaining to government's authority, the term has two different applications. One indicates the authority of a certain *level of government* to assert control over resources, a defined area (territory), or activity. The second aspect has to do with the *competence* of a certain unit or units of a level of government to exercise authority over the resource, area, or activity. In this second instance, jurisdiction can also be coordinated or concurrent among agencies or divisions within agencies. For example, although the federal government through the Department of Interior may have jurisdiction over exploration and exploitation of the seabed beyond three miles of the coast, the jurisdiction of Interior's Bureau of Land Management over leasing of outer continental shelf tracts is coordinated with its U.S. Geological Survey authority to issue and implement regulations regarding exploration and exploitation activities.[4] Jurisdiction becomes more complicated when agencies within the same level of government have concurrent jurisdiction. For instance, in California both the Energy Commission and the Coastal Commission have jurisdiction over aspects of the siting of electric energy facilities in the coastal zone.[5]

Last, pollution control is a term often incorrectly employed to refer to the environmental management

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efforts of government. While pollution control is a primary approach to environmental regulation in the coastal belt, it does not constitute the sole technique employed, nor is it necessarily the essential concern; it sometimes suggests an unacceptable after-the-fact, rather than preventive, approach to environmental problems. Thus, planning approaches, *inter alia* (constituting a large part of the environmental regulatory approach of coastal belt activities[6]), should be considered along with pollution control as part of the package of environmental management efforts.

An inventory of the emerging environmental regimes and potential jurisdictional conflicts suggests that they can be organized for analytical purposes into the following categories:

(1) Direct and de facto jurisdictional extensions;
(2) Cooperative federalism problems from the expansion and suppression of state regulatory initiatives;
(3) Intragovernmental conflicts;
(4) Extent of public-private, cultural, and non-human rights; and
(5) New international regimes.

Each issue area will now be discussed with examples in an attempt to clarify some of the legal issues involved.

Direct and De Facto Jurisdictional Extensions

Jurisdiction can be extended in at least two ways. One is direct, accomplished by the bald claiming and taking control of areas beyond established areas of jurisdiction. The second may be more subtle; it is a de facto extension accomplished by asserting control within the established jurisdictional area when that area is serving as a conduit for activities beyond that boundary. That is, by controlling the passage of the activity *through* a specific jurisdiction (e.g., state authority to regulate pipelines from O.C.S. development which travels ashore through its three-mile jurisdictional area) sufficient leverage may be possessed to exercise control with respect to activities occurring outside the jurisdiction. A slight variation is the type of de facto jurisdiction asserted over activities beyond the protected area in order to prevent harm within the jurisdictional area. This would be limited to activities which are generally acknowledged to cause harm within the controlled area. Although more subtle in conceptualization, this type enables more direct control over activities occurring beyond established jurisdictions. The instances of both direct and de facto jurisdictional extensions include: state extensions into federal areas of jurisdiction; state extensions into areas or activities beyond its boundaries; and federal extensions into areas or activities beyond its boundaries.

State Extensions into Federal Areas of Jurisdictions

Energy activity in the California coastal area has raised a number of state-federal jurisdictional conflicts which are examples of both direct and de facto extensions. Each arises from the specter of air pollution within state boundaries resulting from sources beyond its territory over which the state at present has no clear legal control, and required control over activities in an area where the federal government generally has authority.

De facto: air pollution control beyond three miles. Under the Clean Air Act,[7] states are delegated the authority to develop and enforce state implementation plans which are approved by the administrator of the Environmental Protection Agency. This confers authority upon the state to set emission standards from particular stationary sources in an air quality region in order to achieve primary and secondary national ambient air quality standards. Beyond the three-mile state territory (the territorial sea), neither the state nor the federal government has clear authority over air pollution, except with respect to deepwater ports and oil exploitation activity.[8]

The argument proposed by California in the current negotiations over the siting of a Sohio oil tanker terminal at Long Beach[9] is that a state may be able to exercise regulatory authority over activities occurring beyond its territory in order to protect air quality in its territory.[10] The limitation on this jurisdictional extension, however, is that enforcement could only be exercised within state territory, specifically while vessels are in its ports; but such enforcement could be exercised with respect to conduct occurring outside the three-mile limit.

Direct: OCS activities. A more direct approach to air pollution occurring from sources beyond state territory has been proposed by some amendments to the

Outer Continental Shelf Lands Act.[11] At this time facilities and operations on the outer continental shelf enjoy a sort of exemption from the Clean Air Act, because under that Act there is no clear E.P.A. authority beyond three miles, and because the Department of the Interior, which regulates offshore facilities, has no regulations specifically pertaining to air emissions — no operating procedures or equipment are specified to minimize air emissions. Of course, operations occurring in this area can have a severe impact on air quality within the territorial limits of the state. For example, Exxon's Santa Ynez tanker-loading operations, three and one-half miles off the California coast and approved by the Department of the Interior,[12] could increase onshore ozone readings by 93 to 160 percent, in violation of federal ambient air quality standards. The proposal, therefore, is to establish the authority of E.P.A. to enforce compliance with air emission controls for the outer continental shelf through the state implementation plan of the particular state.[13]

Direct baseline extension. California and other states are no strangers to the technique of extending their territorial jurisdictions by way of redefining the baselines from which their territorial seas are measured.[14] While opportunities are limited and the delimitation rules are relatively well defined, efforts to do so nevertheless continue.[15] Moreover, lateral boundaries between states have been subjects of dispute, particularly when stakes are financially important, as they could be under the Section 308 of the Coastal Energy Impact Program.[16]

With the internationally proposed establishment of a twelve-mile territorial sea,[17] states may also make efforts to acquire, in the additional nine miles of area, interests they currently hold in the three-mile territorial sea, under the Submerged Lands Act. Although there is some speculation that this will be accomplished by litigation, the more likely approach is that this will occur either through administrative delegation of regulatory authority over certain pollution sources or by way of legislation, as was accomplished in 1953 by the Submerged Lands Act.[18]

State Extensions into Areas or Activities Beyond Its Boundaries

These extensions differ from those discussed above in that the state does not extend its jurisdiction into areas or over activities where there is a clear or potential conflict with federal jurisdiction. In two instances regarding out-of-state energy development beneficial to California, state laws have been held administratively to have extraterritorial application. In the first, the California Environmental Quality Act (California's environmental impact statement law)[19] was interpreted by the opinion of a California Attorney General. The opinion stated:

> CEQA clearly requires public agencies to consider the direct or ultimate impact of a project upon the environment of California — whether the cause of that impact originates within the boundaries of the state or outside of the state . . . The other part to this question is whether these same agencies must consider those environmental impacts of a project which occur beyond the boundaries of the state and which will arguably not have any foreseeably direct or ultimate impact on the environment in California. The California Legislature, in enacting CEQA, could not have been so parochial in its thinking as to encourage California agencies to export their pollution by exempting those agencies from responsibility for out-of-state pollution occasioned by the California agencies' demands. Also, the success of preserving and enhancing the environment of California is dependent on other states respecting California's environment and not permitting their state and local agencies to degrade the quality of California's environment . . .[20]

In the second, the California Public Utilities Commission (PUC) ruled that California-based utilities must get PUC approval before they can build plants outside the state. The PUC, in a 4–0 ruling, declared that California utility rate-payers should have some voice in how plants are built and financed, regardless of their location. "At a minimum, someone should determine whether the bill-payer needs the goods before the time comes to pay."[21]

Federal Extensions into Areas or Activities Beyond Its Boundaries

Impact Statements. In similar fashion to the California agency extensions mentioned above, the National Environmental Policy Act (NEPA)[22] has been held to have extraterritorial reach. Notwithstanding a number of judicial opinions to that effect,[23] Russell Peterson, then the chairman of the Council on Environmental Quality, in 1976 issued to the heads of federal agencies the following memorandum regarding the application of NEPA's impact statement requirement to environmental impacts abroad:

> [W]e advise that NEPA requires analysis and disclosure in environmental statements of significant impacts of federal actions on the human environment — in the United States, in other countries, and in areas outside the jurisdiction of any country.
>
> We believe that by taking account of likely impacts abroad before deciding on a proposal of action, federal agencies can obtain the same benefits of NEPA review that accompany the development of projects or actions with domestic impacts. Moreover, we believe that such analyses can be accomplished without imposing U.S. environmental standards on other countries, and without interfering with the execution of foreign policy.[24]

Pollution zone. There has also been substantial interest in the last few years in the federal extension of the current twelve-mile pollution zone,[25] especially since Canada, to protect its environment and Arctic resources, in 1970 extended its zone to one hundred miles.[26] In the United States, this idea is manifested in Senate Bills 885 and 886, which propose an extension of the current marine pollution control zone to 200 miles. While this extension has been viewed as unnecessary and contrary to international law,[27] support for it grows with the lack of success in the law of the sea negotiations.[28]

Cooperative Federalism Problems from the Expansion and Suppression of State Regulatory Initiatives

Basic to our federal system are the enumerated powers of the federal government to perform certain functions and the residual authority vested in the states to perform those functions not specifically conferred upon the federal government. In recent decades, a "new federalism" has emerged from this relationship. In many federal environmental laws,[29] states are conferred authority to achieve broad conservational or resource allocation goals by employing methods which allow them to consider local needs and impacts. This is accomplished by the delegation of authority to the states in areas in which the federal government has paramount authority to legislate and implement laws.[30]

Recent events, however, raise new questions of the meaning of this cooperative federalism.[31] A number of examples demonstrate the "tug-and-pull" that has occurred and will ensue, and will undoubtedly be one of the major jurisdictional issues in the coastal belt for years to come. In these examples, one will recognize instances of conferring new types of authority, the retraction or suppression of authority previously allowed or conferred by the federal government on states, and the dynamic definitional development, primarily by the courts, of new state-federal approaches initiated by federal legislation.

Expansion: State Control of Offshore Pollution

For the last few years, states have valiantly resisted, with inadequate legal tools, the rapid development of OCS lands off their coasts, development which may have severe environmental, social and economic impacts within their territory. Most challenges to federal government development of these areas have been procedural (via such acts as the National Environmental Policy Act, the Coastal Zone Management Act, and the OCS Lands Act,[32] requiring the federal government to consider onshore impact and other state interests in deciding whether or not to lease OCS lands. Such acts merely give states a right to challenge the process of federal decision-making and do little to provide states with a substantive and active role in the decision-making process, even though there may be significant economic, social, and political impacts resulting from such development.[33]

Arising from this concern have been efforts to expand state involvement in the federal leasing of offshore development rights, specifically with respect to environmental regulation. The possible roles being proposed for states in the legislation to amend the OCS Lands Act[34] range from a veto authority to be exercised only in a very limited number of situations and subject to federal override for a "national interest"[35] to some degree of state participation in a regional advisory board.

Suppression: Oil Spills

In the situation of state regulation over oil spills, the state flexibility made possible by a Supreme Court decision in 1973[36] is being dramatically limited by proposed federal legislation to establish a "superfund."[37] The proposed fund would compensate for spills in any U.S. waters and would cover both persistent and nonpersistent oils spilled from ships and barges as well as from terminals, pipelines, refineries, drilling rigs, production platforms, and

deepwater ports. It would replace all existing federal funds and preempt duplicative state oil spill liability and compensation laws. Among others, the proposed fund would allow for recovery of "economic damages" to "natural resources" and would establish the state as a settlement agent, preempting much of its present ability to collect under its own specific oil-spill legislation.

Expansion or Suppression? CZMA's "Consistency" Clause and the Cloaked Club of "National Interest"

In a third example, involving "consistency" of federal permits and projects with state coastal management programs,[38] states are trying to locate the "carrot" given them for participating in the federal coastal zone management process. Under the federal Coastal Zone Management Act of 1972 (CZMA),[39] states were provided with planning and implementation of funds by the federal government, as well as the consistency clause, in return for their development, under federal criteria, of state coastal plans. Although this process was not mandatory, all "coastal states" under the act have participated.

In the first effort to define the meaning of "consistency," *Arco* v. *Evans*,[40] the state of Washington discovered that it was not quite as much as it thought it was. In that case, Arco sued officials of the state of Washington to enjoin the enforcement of a 1975 Washington law regulating oil tankers operating in the Puget Sound. Washington had incorporated that law into its coastal program as one of its enumerated tools for implementing the plan. It argued, therefore, that once the program was approved by the secretary of commerce, federal actions had to be "consistent" with the law.

The court held that federal law (specifically the Ports and Waterways Safety Act of 1972 (PWSA))[41] preempted the field in that it established a comprehensive federal scheme for regulating the operations, traffic routes, pilotage, and safety design specifications of tankers. The court also held that since the PWSA was preemptive of Washington's tanker law, "consistency" could not otherwise eliminate the conflict with the preemptive federal law.[42]

Contrasted with the purported "carrot" of consistency is the potential club of "national interest" which is available under the CZMA and other federal laws.[43] That is, while laws such as the CZMA provide a framework for state environmental programs such initiatives can be overridden, in limited circumstances, by the federal government's determination that an action may not be in the "national interest" or a state program may be altered by a federal project that is determined to be in the national interest. Thus, until this elusive term receives some definition, it remains a card in the federal government's deck and states possess little to contend with it. It will no doubt be more and more difficult to entice states into federal programs when the security of their position is constantly threatened by the exercise of this very flexible and federally accommodating provision.

Cooperative Federalism: Special Treatment for Unique States and Regional Institutions to Solve Regional Problems

A state's geographical, economic, or demographic uniqueness or the interests of states in certain environmental issues of a regional nature suggest a possible new dimension to cooperative federalism. Exemptions or exceptions to national regulatory programs are sought[44] for unique environmental situations presented by states such as Hawaii or Alaska, and new regional institutions are being created to attend to regional problems (e.g., energy and water) in the eleven western states.[45]

One of the implications of these approaches is that environmental issues will be dealt with on a much more local basis than previously; more than one standard will apply and each will be tailored to the unique characteristics of the area involved. While certain latitude is allowed for state differences in our federal system, the prospect of economic dislocation as a consequence of broad nonuniformity, however, is usually the very reason supporting federally imposed regimen.[46]

Intragovernmental Conflicts

Central to many conflicts within a certain level of government is the priority or preemptive effect of one agency's jurisdiction over another's. With the rapid enlargement of the field of environmental law at both the federal and the state levels, this is becoming a significant point of conflict.

This situation is illustrated well on the federal level by the Arco case mentioned above[47] in which there is at least a state-perceived overlap of the authority of the Department of Commerce under the CZMA and the Coast Guard in the Department of Transportation, operating under the PWSA. Equally as illustrative is the conflict between the Department of Transportation, which has the authority to license the construction of deepwater ports under the Deepwater Ports Act 1974 (DWPA)[48] and the Federal Trade Commission, which has the responsibility to prevent monopolistic restraints of trade.[49] These sorts of overlapping jurisdictions and conflicts of jurisdiction as well as uncoordinated administrative enforcement lead increasingly to uncertainty for the private sector which depends upon a certain stability of regulation and implementation policies to finance many of their projects. The problem is particularly severe in the energy development area.

At the state level, conflicts do occur among state agencies and difficulties also arise in cases where agencies have concurrent or cooperative jurisdiction. But most interesting for environmental management concerns is the interrelationship of state and local governments. Traditionally, of course, local government was delegated authority to deal with land-use questions within its boundaries. But as land-use decisions were recognized as including aspects of broader concern beyond traditional political boundaries, such as environmental impact, or beyond the capacity of the local decision-maker, states resumed greater control over many local land-use decisions.

Thus, in many state coastal zone management schemes, the state delegates to local authorities the initial decision-making and planning functions, but retains supervisory and some enforcement authority. In addition, local government may be obligated to function in accord with certain state-established criteria. In California, local governments are responsible for developing local implementation plans (LIPs) to carry out the policies of the state coastal act and state coastal plan.[50] The California law, however, requires each city and county to adopt a "comprehensive long-range general plan" and if the experience accumulated under this law is any guide to the future success of such practice,[51] the development and implementation of the LIPs will take longer than the prescribed time, will require substantial state agency assistance, and will necessitate active state oversight.

Extent of Public-Private, Cultural, and Nonhuman Rights

Public-Private Rights

Public trust doctrine. While jurisdictional questions usually involve the level of government and its boundaries of assertive authority, or the competence of a particular agency within a level of a government to regulate a certain activity, jurisdiction might also concern the extent to which private rights may be subjected to the rights of the public. This is an issue which is directly confronted in the application by many states of the public trust doctrine. The doctrine, quite broadly stated, holds that some types of natural resources are held in trust by state governments for the benefit of the public. Thus, even though certain lands may be held for private persons, the public trust doctrine imposes a public servitude upon the use of those lands.[52]

Historically, the doctrine has been confined to navigable waters, the foreshore and park lands. The public activities promoted in such areas are delineated in this quote from a late nineteenth century case:

> [The people of the state are allowed to] enjoy the navigation of the waters, carry on commerce over them and have liberty of fishing therein, freed from the obstruction or interference of private parties.[53]

The public trust can be asserted in a number of ways: by the state against private parties; by private parties challenging government action involving public trust areas; defensively by a citizen who wishes to resist a governmental action involving his/her property; or by one private party (acting as a member of the public) against another attempting to enforce a public right to a particular public resource area.

Vested rights. A second instance of the public-private rights controversy arises in the frequent claim by private parties that they have rights of development in property they own which vest before public regulatory authority is authorized. That is, any action taken by a governmental agency which interferes with the assertion of this private development right is

unconstitutional without compensation, a "taking" of property, an ex post facto law, or violation of due process.

Various approaches have been employed by courts and legislators to determine when rights vest to develop land. Some provide that a right vests when the last discretionary act is taken by a regulatory body having jurisdiction, and others determine the point of vesting by specifying which types of permits must have been obtained (e.g., grading permits) before vesting takes place.

Whatever the determination, the consequences for public regulation of private property are substantial. The earlier the vesting, the more favorable it is to the private owner. Thus, if the former standard applies, depending on the regulatory system, the right is likely to vest later in the course of developing the property than if the latter applies.

Expediting the process and delimiting the citizen's role. Efforts to enlarge or diminish private citizen participation in public decisions or their rights to represent the public interest can also have an impact on where the division between private and public rights is drawn. Developments, both judicial and legislative, to expand the standing to sue of private citizens when they represent public interests have resulted in bringing many more environmental issues before bodies performing judicial functions.[54] More recently, purportedly in order to instill more certainty into the permit process, legislators have attempted to limit the private citizen exercise of such rights by either narrowing the instances in which standing was available for them or by setting strict time limitations upon their exercise. In addition, deadlines for the processing of permit applications have been proposed and consolidation of agency public hearings involved in a specific project have been administratively and legislatively imposed.[55]

These reforms, in many cases, are needed and long overdue; in other cases, they threaten to diminish the role of citizens in environmental management. In view of the positive role generally played by citizen participation in these processes, one must therefore be careful to avoid stifling effects in the name of reform. Most important, excessive curtailing of the rights of participation that citizens previously enjoyed — even though they were provided gratuitously in the past — may now amount to a due process violation.

Cultural Rights v. Public Regulation

A different type of jurisdictional conflict is presented by that which pits cultural rights against governmental regulation. While there is not a preponderance of situations in which this issue arises, there are likely to be instances of this problem in the future. At present, however, the current and apparent accession of the federal government to the International Whaling Commission's one-year moratorium on subsistence hunting of the Bowhead whale presents such a case. The governmental action has been described as a "plot to exterminate . . . the Inupiat of Alaska" of whose cultural, economic, and nutritional well-being the Bowhead is an integral part. For the Inupiat Eskimo,

> the whale is more than food . . . it is the center of our life and culture. We are the people of the whale. The taking and sharing of the whale is our Eucharist and our Passover. The whaling festival is our Easter and Christmas, the Arctic celebration of the mysteries of life.[56]

Nonhuman Rights and Private Rights

Reverence for the species with which we share the earth has long been recognized by segments of our population as an essential function of government. For many years, however, government's fulfillment of this goal was generally limited to setting aside areas for protection as public nature preserves and assuring that these areas were managed on the multiple use and maximum sustainable yield principles.

Only in very recent times has the notion of protecting species of special significance to humans or those species threatened with extinction been an important approach to wildlife preservation and management. Under the Endangered Species Act of 1973[57] and the Marine Mammal Protection Act of 1972,[58] various species receive, in effect, rights protected by administrative agencies and even protectable in the courts by citizens.[59] External to those protections provided by legislation, there is also a growing support in the legal community for the idea that nonhumans in certain instances do have rights of insufficient status to compete with private

and public rights in property, and that such rights could be adequately represented in legal fora by a type of guardian ad litem.[60]

New International Regimes

The creation of new international regimes can raise a myriad of potential conflict situations. By redrawing the boundaries of national control, various questions of definition and measurement are raised; reason for dispute is also provided if one nation's new area of control merges into any areas previously claimed by another nation or national. In a federal system such as ours, in which federal-state jurisdiction is constantly in dispute, reassessment of the respective rights and interests of states and the federal government is inevitable. International creation of new regimes also raises jurisdictional issues regarding the new rights and obligations the new regimes may impose directly upon the nation (and thus in the U.S. how state and federal authority should be distributed), as well as how those rights and obligations may be exercised by other countries and the impact of that exercise on our various state and federal interests.

The Law of the Sea

In the international system today, the United Nations Conference on the Law of the Sea raises numerous prospects for jurisdictional conflict at the international level between the U.S. and other countries and at the national level with respect to federal-state concerns. These arise primarily from the redefinition of coastal nation jurisdiction in the coastal belt.

Discussion of changes. Among the significant jurisdictional changes proposed by the current law of the sea negotiations[61] will be the international stipulation that the territorial sea is twelve nautical miles in breadth. This alters the situation existing at present, under the 1958 Convention on the Territorial Sea,[62] which leaves to each nation the obligation of setting its own territorial sea. The new breadth conforms to the present territorial claims of the majority of nations, but it would expand the territorial sea of the United States from three to twelve miles. And, although the right of international commerce to innocent passage through this area is still maintained, the rights of coastal nations to assert pollution-control jurisdiction over activities in this area will be limited.

Beyond the twelve-mile territorial sea of coastal nations, the law of the sea negotiations propose an area designated the "exclusive economic zone," which is not to exceed two hundred miles from the baseline from which the territorial sea is measured (or 188 miles from the outer boundary of the territorial sea). While the precise juridical status of the EEZ is not clear yet, there is consensus regarding some of its aspects. Generally within the EEZ, the coastal state will have sovereign rights with respect to exploring, exploiting, conserving and managing the living and nonliving resources of the seabed, subsoil and the superjacent water column. Along with port and flag states, coastal states will have enforcement authority over polluting activities in this area, but the traditional rights of commercial transportation are maintained, and exclusive jurisdiction over scientific research in this area is vested in the coastal nation.

The new proposals also reject the technological standard of the 1958 Convention on the Continental Shelf which determines the extent of coastal control over the resources of the continental shelf by allowing exploitation to a depth of 200 meters or to the extent of exploitability. The proposals now rest jurisdiction over "continental shelf" resources on a geological determination (the "natural prolongation of the land") and, in any case, extends a coastal state's exclusive jurisdiction over the seabed resources (primarily oil and gas) at least 200 miles from the baseline to conform to the EEZ extension. If the shelf extends beyond 200 miles, the coastal state maintains jurisdiction but must share its revenues from such exploitation with the International Seabed Authority.

That which is beyond national jurisdiction is considered an international area. Under the 1958 Convention on the High Seas,[63] this area is open to all nations for free navigation, overflight, the laying of cables and pipelines, and fishing, subject to the duty of each nation to adopt or cooperate in the adoption of measures necessary for the conservation of the living resources of the high seas. The law of the sea negotiations introduce a new approach to the management of shared resources by proposing that

the seabed and subsoil of those areas beyond national jurisdictions (in most instances areas beyond the EEZ) be controlled by a new international organization, the International Seabed Authority, of which all parties to the new Law of the Sea Convention would be members.

Also within the overall scheme proposed by the negotiations, priority is given to developing countries for the exploitation of resources in their particular region and special rights of access are accorded landlocked nations. Protection of environmentally sensitive ice-covered areas is provided and areas within a nation's EEZ which are subject to severe climatic conditions creating obstructions or hazards to navigation may be protected by special laws of that nation.

Impacts on federal and state government. Notwithstanding the possibility that the law of the sea negotiations may be unsuccessful, many of these provisons may survive the negotiations with sufficient status to be considered international customary law;[64] thus, despite a convention agreement and ratification, some of the negotiation's provisions may have sufficient universal acceptance[65] to have international legal effect.

Whatever their nature — conventional or customary — the new law of the sea with respect to environmental regulation of the coastal belt will have some impact on both federal and state governments. The impacts will be felt in terms of boundary and enforcement jurisdiction, imposition of new rights and obligations, and the imposition of new regulatory systems upon U.S. nationals by foreign countries. A brief discussion of some of these follows.

(1) National government. The current negotiations will affect U.S. environmental interests in at least three major areas of regulation: vessel-source pollution control, marine scientific research, and deepsea mining.

The traditional coastal state authority to set standards for vessel safety or discharge in the territorial sea[66] is replaced by a specific prohibition against national vessel-safety laws (if they are different from international ones) and a general prohibition indicating that national laws must conform to "generally accepted international rules."[67] What this means to the United States' environmental efforts, for example, is that actions currently available under the Port and Waterways Safety Act[68] (e.g., with respect to segregated ballasts or double bottoms) are prohibited. Moreover, the "generally accepted international rules" may prohibit use of the U.S. Federal Water Pollution Control Act's "visible sheen" test for oil pollution and limit the U.S. to the percentage test under the 1954 Convention (that is, if the 1969 Amendments to the Convention[69] are not considered "generally accepted").

Beyond the territorial sea, in the EEZ, only "applicable international standards" may be enforced. If a violation occurs, then the flag state of the vessel will have an opportunity to preempt the coastal state's jurisdiction. With the miserable record of flag state enforcement, this may be the "escape hatch." Whether the exception to this preemption — that the flag state has repeatedly disregarded enforcement or the violation has caused severe damage to the coastline — will be adequate to overcome preemption when coastal state interests are paramount is yet to be seen.

In overall evaluation, therefore, the coastal state has a limited opportunity to effectively protect its marine environment in, say, an *Argo Merchant*–type oil spill[70] (which occurred beyond twelve miles), except after the damage is done.

Violators are held to the liability requirements established by international law for any damage attributable to them. What this means is that the approximately $17 million limit of the 1969 IMCO Convention, as initially agreed on, applies even though clean-up costs and damage to natural resources and other victims of the pollution (e.g., beach resorts, etc.) may in fact cause damages in the hundreds of millions of dollars. Thus, such funds as provided for in legislation recently proposed in the U.S.[71] could not be employed.

Marine scientific research, so important for the development of an adequate international data base for the oceans, is the subject of substantial negotiations at the law of the sea negotiations.[72] Under the draft, a "consent regime" is established whereby coastal states have jurisdiction to permit research activities within their EEZs and on their continental shelves. As finally adopted in the draft proposals, consent will be given by the coastal state in "normal circumstances," unless the research

involves a matter of direct significance to the exploration or exploitation of its natural resources (living or nonliving), drilling into the continental shelf, the construction of artificial islands or other types of installations, or there is a falsification or inaccuracy of information submitted to the coastal state.[73]

The ICNT provisions regarding scientific marine research are disappointing in light of the tremendous reliance that must be placed on the development of such information to ensure the environmental integrity of the oceans. While the consent regime proposed by the ICNT restricts the normal production of research, it does establish some uniformity and some protection against requirements which may be unilaterally determined by coastal states.

While the provisions of the ICNT regarding deepsea mining are fundamentally unacceptable to a number of developed countries from a financial and institutional perspective, they are also, upon reflection, remarkably deficient from an environmental one. In short, they provide minimal environmental safeguards, if any at all, for an activity in an area of the ocean about which we know very little.

First, the ICNT provisions regarding environmental assessment are vague;[74] they provide few, if any, standards for their application (e.g., timing) and will be administered by the Authority's Technical Commission which will have a developmental-promotive orientation.

Second, while national laws, which are at least as strict as international ones, may be imposed on installations and vessels flying that nation's flag, the Authority is primarily responsible for developing regulations for the protection of the marine environment.[75] For this purpose, the ICNT states no standards nor suggests any guidelines.

Third, although possibly a concession to developed country interests regarding the security of investment in deepsea mining ventures, there is no latitude for contract modification or the imposition of additional environmentally inspired conditions for a specific deepsea development venture, even when a significant technological or scientific breakthrough occurs *except* where such an event qualifies as a "special circumstance."[76]

Fourth, the dispute-settlement procedures under the ICNT provide that discretionary actions of the Authority are immune to challenge and the promulgation of rules and procedures of the Authority's Assembly or Council cannot be reviewed for its conformity with the ICNT provisions.[77] The impact of these exclusions from the "mandatory" dispute-settlement procedures, of course, leaves a large number of environmental management actions outside the purview of anyone. The prospects for abuse by the Authority or nonenforcement of the environmental obligations of the ICNT are, therefore, enormous without sufficient safeguards.

(2) State governments. State governments have little direct involvement in international negotiations even when their interests are substantially affected.[78] In the case of the LOS negotiations, various provisions of the proposals, namely the expansion of the territorial sea, the creation of the EEZ, redefinition of the continental shelf, and exploitation of deepsea minerals may have significant economic impact on state interests as well as producing certain state-federal conflicts over environmental control. Questions such as: What interest does California have in the EEZ with respect to pollution control? What are its interests in coastal and long distance (e.g., tuna) fishing? and What control will it have over the on-shore siting of mineral processing plants for deepsea minerals? may be legitimately raised by California in an effort to analyze and protect its interests. In attempting to answer these and other questions, states are cast into a long-range planning posture which they are generally ill-equipped to undertake. However, in this fast-changing world, states will increasingly find they cannot afford to merely respond to international changes, and will want to become a greater part of the effort to shape national policies in these international negotiations.[79]

The prospect of these changes also suggests that states may want to reconsider their present position under the Submerged Lands Act of 1953, which provides for the ownership of the seabed and the resources in the three-mile territorial sea.[80] This could be attempted by either the adjustment of the baseline,[81] judicial decision,[82] or amendment of the Submerged Lands Act[83] or other acts to provide for some regulatory control.

While the preceding was an attempt to anticipate future environmental jurisdiction conflicts in the

coastal belt, the jurisdictional plight of the coastal belt may be summarized by the following observations. First, jurisdictions in the coastal belt are multiple, overlapping, and fragmented in some areas, where, with respect to other activities and areas, there are large gaps of coverage. Second, environmental problems and, in particular, pollution do not respect political boundaries. Effective regulation, therefore, will often require transboundary management — an approach which has had limited success nationally and internationally. Third, jurisdictional conflicts will increase as competition-producing activity increases in the coastal belt. There will be competition for the exclusive use or multiple use of ocean space; for the priority of use; and for the control of that use among levels of government (state, federal, international) and between units of government. Fourth, some of the most difficult and pivotal of future issues involve those identified above in the section on cooperative federalism. Resolution of these conflicts will probably rely on the judicial and administrative determination of the substance of several essential concepts: preemption, de facto control, and national interest. Each has to do with defining the scope of acceptable state initiative and expansion of jurisdiction which *cannot* or *will not* be overridden by the federal government.

Many of these conflicts will be resolved by the courts. Others will be resolved by legislation. Some conflicts, however, may not be the appropriate subject of either process. Jurisdictions are not normally established by caprice and, in most instances, they possess a constituency of interests and political power. Thus, some jurisdictional conflicts may be healthy for our system of government and may be best served by the ordinary give-and-take of negotiations based on a bargaining of interests.

Notes

1. Paraphrase of an anecdote presented in M. Schwartz, "Emerging Patterns in American Law," *Pac. L.J.* 8 (1977): 523.
2. Under the Coastal Zone Management Act, 16 USC 1451 *et seq.* the "coastal zone" is defined as the "coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder), strongly influenced by each other and in proximity to the shorelines of the several coastal states, and includes transitional and intertitle areas, salt marshes, wet land and beaches. The zone extends, in Great Lakes waters, to the international boundary between the United States and Canada, and in other areas, seaward to the outer limit of the United States territorial sea. The zone extends inland from the shorelines only to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters." *Id.* at section 1453.
3. E.g., the Fishery Conservation and Management Act. 16 USC 1801 *et seq.*; the Mexican extension of its resource management zone to 200 miles primarily to protect its offshore oil claims; and the North Korean imposition of a "military zone" of 200 miles into which civilians and military craft are barred without permission.
4. See generally, the Outer Continental Shelf Lands Act, 43 USC 1331 *et seq.*
5. Cal. Pub. Res. C. §25000 *et seq.* Cal. Pub. Res. C. §30000 *et seq. Id.*, at 30400.
6. E.g., The National Environmental Policy Act, 42 USC 4321 *et seq.*, and the Coastal Zone Management Act, *supra* note 2.
7. 42 USC §185 *et seq.*
8. See Deepwater Ports Act, 33 USC 1501 *et seq.* and the Outer Continental Shelf Lands Act *supra* note 4.
9. Sohio proposed to build a $500,000,000 oil terminal in Long Beach to receive Sohio's oil from Alaska's north slope and transport it through a pipeline to Texas, where it will be refined. From that point the oil will be carried by truck and train to Sohio's markets in the midwest. Sohio's proposal indicates it will reverse the flow of a natural gas pipeline which now brings gas from Texas to California to accommodate the need for transporting oil from California to Texas.
10. The issue has arisen because of the smog problem in the Los Angeles Air Basin. The California Air Resources Board fears that the smog problem will be exacerbated because of the common practice among tanker captains of flushing out their oil compartments with sea water after unloading oil. As the water fills the compartments it displaces large volumes of oil vapors into the air. The same thing happens when tankers fill their oil tanks with water ballast after unloading. Together, the two practices are capable of adding as much new air pollution to the smoggy Los Angeles Basin as the exhaust from 3.5 million additional cars.
11. Outer Continental Shelf Lands Act Amendments of 1977, Senate Bill 9; See also testimony of Bill Press, Director of the Governor's Office of Planning and Research, State of California, before the Senate Energy and Natural Resources Committee, April 25, 1977.
12. Comments to suggested amendments to the Outer Continental Shelf Lands Act Amendments of 1977, submitted by Senator Alan Cranston May 24, 1977.
13. See also, HR 1614, Outer Continental Shelf Lands Act Amendments of 1977, §5.
14. E.g., the United States vs. California, 332 U.S. 804 (1947); and United States vs. California, 381 U.S. 139 (1965); and United States vs. California, 382 U.S. 448 (1966).
15. See generally, H.G. Knight, *The Law of the Sea: Cases, Documents and Readings* (1975), 133-281.

16. Coastal Zone Management Act Amendments of 1976, P.L. 94-307, 90 Stat. 1013, 16 USC §1451 *et seq.*; see also, the Coastal Zone Management Act Amendments Act of 1976, tailoring coastal zone protection to expanded offshore oil production, 6 ELR 13193 (1976).

17. See the Informal Composite Negotiating Text ICNT, A/Conf. 62/WP. 10, 15 July 1977 (hereinafter cited as ICNT); see R. Lutz, "National Hegemony and International Suzerainty in the Oceans: the Environmental Implications of the Law of the Sea Negotiations," *International Business Lawyer* (1977).

18. Submerged Lands Act of 1953, 43 USC 1301 *et seq.*

19. Cal. Pub. Res. C. §21000 *et seq.*

20. 58 A.G. Opin (Sept. 26, 1975), 614; 616–617.

21. B. Stall, "PUC Claims Right to O.K. Out-of-State Power Plant," *Los Angeles Times*, October 26, 1977.

22. E.g., the National Environmental Policy Act. 42 USC 4321 *et seq.* and the Coastal Zone Management Act, *supra* note 2.

23. E.g., Sierra Club vs. U.S. Atomic Energy Commission, 4 ELR 20685 (D.D.C. 1974) and Environmental Defense Fund vs. United States Agency for International Development, Civil Action No. 75-0500 (D.D.C., filed April 8, 1975). See also international application of NEPA: Environmentalists Challenge Pesticide Aid Program, 5 ELR 10086 (1975).

24. Congressional Record, E 5394-5395 (October 1, 1976).

25. Convention on the Territorial Sea and the Contiguous Zone, 516 UNTS 205, 15 UST 1606, TIAS No. 5639 (in force September 10, 1964).

26. See the Arctic Waters Pollution Prevention Act; see also Bilder, the Canadian Arctic Waters Pollution Prevention Act, in Alexander, ed., *The Law of the Sea: the United Nations and Ocean Management* (1971), 204; and Bilder, "The Canadian Arctic Waters Pollution Prevention Act: New Stresses on the Law of the Sea," *Mich. L. Rev.* 69 (1970): 1.

27. Ninety percent of vessels traveling in U.S. territorial seas come into one of our ports, enabling the United States to exercise jurisdiction, design, construction, personnel and equipment of foreign ships. See R. Lutz, *supra* note 17.

28. See Senate Bills 885 and 886, 95th Congress, First Session.

29. C.R. Walston, *Ecology L.Q.*, 6 (1977): 429. *Id.* at note 2 in which several acts are cited and described. Among them are the National Environmental Quality Improvement Act of 1970, 42 USC §4371-74 (1970), the Atomic Energy Act of 1954, 42 USC §§2011-2296 (1970); the Outer Continental Shelf Lands Act, 43 USC §§1331-43; the Deepwater Ports Act, 33 USC §1501-24; the Coastal Zone Management Act, 16 USC §1451-64.

30. The extent to which the federal government can exercise authority in these areas is determined by the commerce clause (U.S. Constitution, Art. 1, §8), the supremacy clause (U.S. Constitution, Art. 6, clause 2), and the Federal Navigational Servitude (which originates from the commerce clause).

31. To some degree, these issues are suggested by R. Walston, *supra* note 29.

32. See *supra* note 29.

33. See e.g., P. Baldwin and M. Baldwin, *Onshore Planning for Offshore Oil* (1975).

34. See S.9, Outer-Continental Shelf Lands Act Amendments of 1977.

35. See "Offshore Veto Asked by Brown", in *Sacramento Bee*, April 26, 1977; see also Testimony of Bill Press, Director of the California Office of Planning and Research, before the Senate Energy and Natural Resources Committee, April 25, 1977.

36. Askew vs. American Waterways Operators, Inc., 411 US 325 (1973).

37. See H.6803, Comprehensive Oil Pollution Liability and Compensation Act.

38. Section 307(c) of the Coastal Zone Management Act; see R. Hildreth, "The Operation of the Federal Coastal Zone Management Act as Amended," *Nat. Res. Lawyer*, 10 (1977): 211.

39. 16 USC §1451 *et seq.*

40. Arco v. Evans, U.S. District Court, Western District of Washington, No. C75-648M (September 24, 1976).

41. 33 USC §§1221 *et seq.*

42. Arco v. Evans, *supra* note 40.

43. See Section 307(c)(3)(B)(iii) and 307(d). See generally, Hildreth, "The Operation of the Federal Coastal Zone Management Act as Amended," *Nat. Res. Lawyer*, 10 (1977): 211, 219.

44. For example, because Hawaii is able to deposit its sewage in the ocean through a long-distance outfall, it feels that the secondary and tertiary treatment of sewage required under the Federal Water Pollution Control Act Amendments of 1972 is unnecessary. Similarly, Alaska, with its very rich fisheries, feels it deserves treatment unique from other states. Thus, under the Fishery Conservation and Management Act of 1976, *supra* note 3, Alaska has its own Regional Council to develop regional fishery management plans.

45. For example, in June 1977 senators from California and ten other western states formed a Senate Western Coalition to promote and protect regional interests on such diverse issues as water and land development. This is a step in the "growing trend of fragmentation in Congress along regional . . . lines. Southerners in Congress have long worked together in an informal Dixie bloc. More recently, there has been the formation in the Senate of a northeastern caucus and a midwestern caucus, both to protect regional interests." See "Western Senators Form Unit to Protect Regional Interests," *Sacramento Bee* (June 10, 1977). See also the Fishery Conservation and Management Act, *supra* note 3, which provides for Regional Councils to develop regional fishery management plans and the proposed amendments to the Outer Continental Shelf Lands Act, *supra* note 11, which suggests that state participation in the tract-selection process be confined to participation in regional boards.

46. See notes 39-42.

47. See *supra* note 40 and accompanying text.

48. 33 USC §1501 *et seq.*

49. See 8 *Coastal Zone Management Newsletter* (August 3, 1977).

50. See Cal. Pub. Res. C §30500 *et seq.*

51. See Cal. Gov't Code §65300.

52. See generally, W. Rodgers, *Environmental Law* (1977): 170-185.

53. Illinois Central R.R. vs. Illinois, 146 US 387 (1892).

54. See generally, S. McCaffrey and R. Lutz, eds. *Environmental Pollution and the Rights of Private Citizens: An International Symposium* (1978).

55. See generally, Bosselman, *The Permit Explosion* (1977); see also efforts to amend the California Environmental Quality Act (CEQA) in A.B. 884. Many such efforts may legitimately raise concerns about due process. For an international perspective on this issue see McCaffrey and Lutz, *id.*

56. See Hopson, "Alaskan Mayor Calls Bowhead Hunt Vital for 'People of the Whale,'" *Los Angeles Times*, November 6, 1977. See also, P. Rich and A. Wickham, "With Goodwill and Good Sense," *Not Man Apart*, 7 (mid-October 1977): 7; and "Of Eskimos and Whales," *Not Man Apart*, 7 (October 1977): 9.

57. Endangered Species Act of 1973, 16 USC §1531 *et seq.* See also L. Wood, "§7 of the Endangered Species Act of 1973: a Significant Restriction for All Federal Activities," *ELR* 5 (1975): 50189.

58. 16 USC §1361 *et seq.*; see generally, Gaines and Schmidt, "Wildlife Population Management Under the Marine Mammal Protection Act of 1972," *ELR* 6 (September 1976): 50096, and J. Nafziger and J. Armstrong, "The Porpoise-Tuna Controversy: Management of Marine Resources After Committee for Humane Legislation, Inc. vs. Richardson," *Env. Law*, 7 (1977): 223.

59. See Comment, "Special Status of Wildlife Receives Judicial Approval," *ELR* 6 (December 1976): 10270.

60. See the seminal article by C. Stone, "Should Trees Have Standing? Toward Legal Rights for Natural Objects," *S. Cal. L. Rev.* 45 (1972): 450.

61. The Third Law of the Sea Conference is being conducted under the auspices of the United Nations and was first convened in Caracas, Venezuela in 1924. Since then three attempts at a negotiating text have been issued. The first was the Informal Single Negotiating Text (A/C 62/WP. 8/Parts I-III). The second text was called the Revised Single Negotiating Text (RSNT), (A/Conf. 62/WP. 8/Rev. I/Parts I, II, and III, 6 May 1976, and the fourth part on settlement of disputes, A/Conf. 62/WP. 9/Rev. 1/6 May 1976). The third negotiating text is the Informal Composite Negotiating Text (ICNT) (A/Conf. 62/WP. 10, 15 July 1977).

62. Convention on the Territorial Sea and the Contiguous Zone, 516 UNTS 205, 15 UST 1606, TIAS No. 5639 (in force September 10, 1964). The following discussion of the Law of the Sea Conference is taken in part from R. Lutz, *supra* note 17.

63. Convention on the High Sea, 450 UNTS 82, 13 UST 2312, TIAS No. 5200 (in force September 30, 1962).

64. See J. Laylin, "Emerging Customary Law of the Sea," *International Lawyer* 10 (1976): 669.

65. Therefore, there are two basic elements to custom, first a generalised repetition similar acts by competent State authorities, and secondly a sentiment that such acts are juridically necessary to maintain valid international relations. The first element is mere usage, which by itself does not make law; the second is an intellectual conviction according to which identical situations of fact should lead to similar reciprocal behaviour patterns. Looked at in this way the law is dependent, not upon unanimity, but only upon generality of will. The dissenting minority of States are as much bound by the formulated rule as those who actively participated in its creation, the source of their obligation residing in the moral necessity which underlies observance of all law.
O'Connell, *International Lawyer*, 1 (1970): 15.

66. N.b., The territorial sea breadth established by the ICNT (i.e., 12 miles) is the same distance from the baseline as the contiguous zone was under the 1958 Convention. In that area coastal states were allowed to "exercise the control necessary to prevent infringement of its . . . sanitary regulations within its territory or territorial sea" (1958 Convention of the Territorial Sea and Contiguous Zone, Art. 24). This provision was interpreted to permit coastal states to establish environmentally protective regulations applicable to vessels.

67. ICNT, Art. 21(2).

68. P. L. 92-340.

69. *See generally* F. Grad, *Treatise on Environmental Law*, 13-55 to 13-74 (1977).

70. McManus and Schneider, "Shipwrecks, Pollution and the Law of the Sea," *National Parks and Conservation Magazine*, (June 1977): 15.

71. *See* J. Reynolds, "Oil Spill Liability and Compensation (Superfund)," in *Proceedings of the 1977 Oil Spill Conference (Prevention, Behavior, Control, Cleanup)* 15 (March 8-10, 1977).

72. *See*, for example, A. F. Vysotsky, "Freedom of Scientific Research in the World Ocean," *Ga. J. Intl. & Comp. L.* 7 (1976).

73. *See generally* ICNT, Art. 247; ICNT, Art. 247(3); ICNT, Art. 247(4)(a); ICNT, Art. 247(4)(b); ICNT, Art. 247(4)(c); ICNT, Art. 247(4)(d).

74. ICNT, Art. I(1), 145, and 210(1); ICNT, Art. 161(1)(b), 163(2)(iv), 163(2)(xii), 160.

75. ICNT, part XI, Section 5, and Annex II, Para. 11(b)(5), and para. 11(x) and (xii).

76. Annex II, para. 13(a).

77. ICNT, Art. 163 and 191.

78. E.g., in the instance of a U.S.-Great Britain Tax Treaty, the State Department proceeded with negotiations of much of the treaty without concern for the impact on particular states. The treaty purportedly would prevent California and other states from taxing multinational corporations on what is called a unitary basis, taking into account their world-wide operations as well as those in California. It is reported that the abandonment of the unitary method of taxation would cost the state $125,000,000 in annual revenue (see Walters, "Unitary Tax Switch — Brown Hit on 'Sell-Out'," *Sacramento Union* [September 30, 1977]). Similarly, in the controversy over the moratorium on the Bowhead whale,

Eskimos reportedly received very short notice of the action of the Department of Commerce and of the International Whaling Commission. See *supra* note 56.

79. E.g., see hearing by California Senate Subcommittee on Land Use Planning, "New Ocean Law: Its Meaning to Western States," Sacramento, California, July 14, 1977.

80. See text accompanying notes 17-18, *supra*.

81. The California Attorney General's office has made persistent efforts to clarify and in some cases redefine the baseline for California. Conversation with Russell Iungerih, Deputy Attorney General, State of California, Los Angeles, California.

82. See text accompanying note 18 *supra*.

83. See notes 11-13, *supra*.

Goals for Public Management

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The title of this brief paper is ambiguous. Are we discussing today regulation of the private economic system in the public interest? If this is the case we must justify:

(1) Intervention at all. We may regard the argument over intervention as a public cost/benefit calculus, but it also has ideological content, i.e., is it better to intervene in the public interest or let market forces prevail? If time permits, it may be possible to comment on the different aspects of this issue, at least in response to questions.

(2) The extent and kind of intervention. Does public management of fisheries really require a, b, and c, or perhaps just a and b.

Or are we discussing the creation of public management bodies to supplant the private market system?

It is important to sort these basic questions out since the Fishery Management and Conservation Act of 1976 has, in my opinion, a basic internal contradiction in that it confuses two objectives: (1) improving the management of our fisheries; and (2) providing protection and support for primary producers of fish.

Historically the grounds for intervention have been based on some defect — real or alleged — in the operation of markets and/or the institutional arrangements of industry and property that require intervention. The common property legal condition of fisheries resources is one such institutional condition that requires intervention to improve the efficiency of market operations.

A second possibility for grounds for intervention in the marketplace is that because of certain structural conditions — massive economies of scale, etc. — an activity is best managed as a monopoly. In this case the question becomes the relative desirability of public versus private monopoly and management, e.g., the argument for creation of a body such as a port authority.

Let us begin with a few fundamentals about the role of government in an economy which, despite (in my opinion) many defects in the operation of markets, remains essentially a market economy, i.e., we will take as given the idea of markets with imperfections as central in the allocation process. This will allow us to avoid Daniel Bell, Irving Kristol, and Milton Friedman, on the right, and J. K. Galbraith, legitimate socialists, and certain environmentalists on the left. I may as well be candid and say that in my opinion the defects in markets are structural and, therefore, require intervention, especially those defects which involve the level of knowledge, decision-making under uncertainty, and differential time horizons.

We will briefly discuss the three broad functions usually suggested as the appropriate criteria for evaluation of government intervention: allocation, distribution, and stabilization. Then we will make certain comments about the current status of fisheries management under the Fishery Management and Conservation Act of 1976 and, finally, some comments on the research needs required to provide efficient management in the public interest.

The preamble to the constitution states two of our national goals are to ". . . provide for the common defense . . ." and to " . . . promote the general welfare . . ." The first, in economic parlance, is a public good and these are largely supplied directly

by government, i.e., public management. The second class of goods operating under the usual assumptions about markets in the United States has been provided by the private sector of the economy constrained by a competitive market system. Our national objective or social welfare function is Pareto Optimality, which, crudely put, suggests that if by a change someone is made better off while no one is injured the system is optimal.

Let us keep Pareto Optimality in mind as a goal while we examine specific economic activity, assuming we have grounds for intervention, based upon clearly identifiable correctable defects in the market system, i.e., our assumption of competition in the market place is violated by a structural condition, not by some common law conspiracy by producers attempting to escape the rigors of competition, a condition which the antitrust laws should rectify.

Criteria for Intervention: Allocation

The public demands two types of goods: (1) those supplied by the private sector in response to public demand as expressed in the market place, i.e., as consumers indicate their preferences, by voting their dollars; (2) those goods which cannot be supplied or traditionally have not been supplied by the private sector—defense, law enforcement, and conservation, that euphemism for fisheries management.

Under the allocation criteria for intervention, the important questions involve how much of the second type of goods should be supplied to the market, since demand is not directly observable — i.e., measurable. In general the criterion for supplying both types of goods is the same: the opportunity cost of resources allocated to the public sector should not exceed the value of the goods produced to meet the public sector demand.

More simply put, the free lunch is never free and therefore the real cost of public goods must be considered relative to other possible production. This criterion is a useful guide, but it does not answer a number of key questions, i.e., is it better to have public management supply municipal water or is it better to have a regulated private monopoly as the water company.

The question currently so much in the public mind of the value of regulation and deregulation centers on this criterion. Clearly regulation of private firms in the public interest is an extremely complex problem, a problem not foreseen by those who thought that the public interest would be protected if the railroads could be tamed by the creation of the I.C.C.

Distribution

The distribution criteria in legal terms implies equity. For instance, the basic justification of our progressive income tax is equity (fairness) and the idea of a minimum consumption level is inherent in our social security programs. But despite the general concern with equity the public does not have any specific income distribution pattern in mind when it considers fairness. However, all or almost all intervention in the private sector, from monetary policy to a school lunch program, affects income distribution. This is a key point; one must consider the distribution implication of public management and intervention — e.g.,the quarrel between the environmentalists and the oil companies is a conflict of two goals, creation of public good with benefits diffused to all versus profit maximization under the market system where benefits are generalized by price companies.

Stabilization

Monetary and fiscal policy involves tax rates, interest rates, etc., and they are the obvious illustrations of stabilization policies. These policies have important allocation and distribution effects. The current struggle between liberals and the Federal Reserve over our current monetary growth is a case in point. If the target is raised and money made easier, presumably unemployment would be reduced and income distribution improved — possibly at a cost of a greater rate of inflation.

The Fishery Act of 1976

These interrelationships between allocation distribution and stabilization can be spelled out in formal theory. Given these tools, what can we say about intervention in the public management of ocean activity, specifically with reference to the

Fishery Act of 1976? Let us begin with a relevant quotation from Adam Smith.

> People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices. It is impossible indeed to prevent such meetings, by any law which either could be executed, or would be consistent with liberty and justice. But though the law cannot hinder people of the same trade from sometimes assembling together, it ought to do nothing to facilitate such assemblies much less render them necessary.[1]

The quotation indicates that competition regulated by the market is the structure that will yield our optimal solution. Conspiracy against the public interest equivalent to monopoly raises prices by reducing the quantity of output and has important income distribution effects.

We note that Smith is talking about a market, and also that in the development of any country or economic system the size of the market is important. Assumptions about markets are that factor mobility and price flexibility will iron out regional and sectional differences and that the general welfare has precedence over particular interests.

We note with some trepidation, therefore, that the 1976 Act creates a management structure composed of local interests. For the moment, we may ignore whether they are local producers or consumers.

It is legitimate to be concerned about local issues — e.g., local school boards, local police and fire protection, etc. — but it is not so legitimate when the output from local economic activity is sold in a national market, e.g., fish. This is true since all consumers in the national market are affected by local decisions. If, furthermore, the local interests represented are primarily producers, the model fits the conditions so vividly described by Smith two hundred years ago.

Decisions made to protect local producers may yield lower real income for consumers by raising prices for an element in the food supply. There are other issues that become important if management reverts to the local level. The question of the time horizons of different interests is important. By and large, individual producers, particularly if they are small firms under financial pressure, have the shortest time horizon. Their production decisions focus on the short-run need to survive, to make profit right now. The history of the Alaska salmon fishery, which continually struggled to extend each season to make a profit, is a good illustration of these pressures. A monopolist with control of supply can take a larger view, while the government may consider the general welfare view. Divorced from immediate pressures, management in the public interest can consider many more relationships, such as the needs of future generations, in arriving at decisions about what to produce and when to do it.

Therefore, we may conclude that a goal of public management is to maximize the welfare of the citizens and, if possible within this framework, assist the needs of the producers. Unfortunately, time does not permit examination of a host of particular problems that arise under the act. Let me list just three: (1) potential policy conflicts between regional councils; (2) potential policy conflicts between particular councils and the department of state, and potential conflict within each council between commercial and sports fishing interests; (3) the adequacy of the new structure to carry out the complex research necessary for effective public interest fisheries management.

Notes

1. Adam Smith, *The Wealth of Nations*, Cannan, ed., Book 1, p. 28.

Federal Mechanisms for Management

Robert W. Niblock

Program Manager, OTA Oceans Program, U.S. Congress

Only yesterday did I finally learn what coastal belts are, or at least I was able to get some general feel for what people were talking about when they mentioned the term. Today I have several general thoughts on the topic.

Yesterday you heard some logical explanations of how various laws passed in recent years melded into something that we might describe as an overall scheme for the coastal belt. Within this framework it seems to me that there are two elements of judgment about management effectiveness which are difficult to cope with. The one is our limited experience in implementing legislation.

A second element is that coastal belt management to date has largely been carried out on a piecemeal basis, with the result that overall goals and objectives are not agreed upon at the federal level, or possibly at any other levels. I think that comprehensive management, on the scale that we are discussing here, has bogged down, although this is understandable when we consider some of the basic groups involved in the management process. We have a variety of federal agencies, state and local governments, regional agencies, and traditional industries, such as oil and gas shippers, shipbuilders, and the fishing industry. When you consider the complexity of the issues, and the general enormity of the task, the obvious questions come to mind: Is the undertaking possible at all, and are the overall benefits to society worth the costs? Beyond these is the issue of the mechanisms to be used in coastal zone management. At the very least, some of these mechanisms have already been put into operation through the federal coastal zone management programs.

A minimum need at this time is a comprehensive, long-term planning program, which is built on strong policy foundations and is pursued on a continuing basis. We have all seen various commissions and councils related to management issues, and we continuously hear that something dynamic must be done. Long-term planning for the coastal belt should be carried out primarily at the federal level, although implementation of the plan may be blocked at all levels of government.

I think that the Coastal Zone Management Act and the Fishery Conservation and Management Act provide interacting models for planning and decision-making. I do feel that more experience is needed with these pieces of legislation before we begin to make any sorts of judgments as to how effectively they have been planned and implemented. I think that the use of offshore oil and gas resources represents another area of need for federal management, although at present no office, public or private, is responsible for analyzing policy on developing programs for ocean use on a comprehensive scale, which take these resource uses and other interests into account. A number of recent studies have found increasing interest in using the oceans for industrial and energy purposes. These same studies have also found no mechanisms for assessing these uses, for analyzing potential conflicts among them, and for recommending priorities of use in future federal policy. The eventual forms these mechanisms for ocean planning and ocean use take could perhaps be a loosely structured federal, state, and local coordinating agency with overall responsibility for handling coastal belt activities.

Regional Mechanisms for Management

Frank Gregg

Chairman, New England River Basins Commission

I might offer a quote of my own from Leslie Corbit, an official of the Pacific Gas and Electric Company and Planning Director of the State of California, who addressed a meeting in Williamsburg, Virginia, in the fall of 1968. At the meeting, when the need for a coastal zone program was mentioned, he said, "If you marine scientists think that you are going to change the power structure of the United States because 80 percent of the political officials allegedly own some part of their time in eastern systems, you are out of your skulls."

I think that one of the problems we are dealing with here is that people who are knowledgeable about, or care deeply about, the coastal and marine environment would like to see the governmental system restructured to reflect the unique conflict of interests and concerns in relationships that arise in the coastal and near-shore environment. I also think our expectations tend to be unrealistic, and I mean to offer several observations in support of this belief. Basically, however, I would like to do three things. One concerns the plan I just talked about, the regional management of coastal resources. Such management is meant to be a focal point which everybody agrees to refer to, where conflicts are going to be rated against one another, where serious evaluations are going to be made, and where decisions are going to be made and implemented. But I feel that such regional management is not going to happen at this time, nor should it happen. There is no general purpose government now at the state and regional level, and no accountability for regional management decisions.

The second point I would like to make is that New England has all kinds of regional mechanisms which are influencing coastal zone decisions every day. The problem is not whether there is a regional mechanism, the problem is in remembering the initials of all the regional mechanisms we now have.

The governors meet and deliberate on a regional basis on top-policy provisions for ocean management. A case in point is their energy policy statements of a couple of years ago which particularly endorsed the expansion of nuclear base loads. The governors run on a regional economy and they look specifically at transportation, energy, and economic development. The River Basin Commission, which I run, tries to address water and land issues and makes recommendations as to how those problems ought to be solved. This work includes establishing priorities for federal investments and for the activities of federal agencies in the river basin, including the coastal areas. We work very closely with the coastal zoning groups to get their advice on matters which we ought to be recommending. Each federal agency has an office in this region, as well as mechanisms for getting the agencies together and for interacting among them. We have here in New England a Regional Organization for Economic Development, the Reserve Bank gives regional talks about coastal management, and the Sierra Club is concerned about regional matters.

If we restate the question and ask: Are we interested in the region being addressed as a single unit, and in providing information about the regional interest to institutions which have direct management authority? then the answer is yes. There is a great deal of regional activity going on, and I would

like to give you a couple of tangible results of these activities. New England was well-equipped in advance concerning the O.C.S. issues that started back in 1972. We have impressed the Bureau of Land Management with the sophistication of the state people in this region, who argue with the Bureau of Land Management about every conceivable detail. This is how the O.C.S. process takes place, and the same situation exists with respect to the level of sophistication so far as other decisions are concerned which have an impact on the region. We could take the River Basin Commission itself, which is getting started on a regional port study containing recommendations for a regional port system. The commission recently issued a fisheries, oil, and gas study, as well as an offshore pipeline study, and the Corps of Engineers has recently asked the commission to work with them on coordinating dredging activities in the region.

In order to help stimulate discussion, let me repeat that I do not believe we are going to get a strong institutional structure at the multistate level, but that we should approach the management of coastal resources from a regional perspective utilizing many agencies at the state, regional, and federal levels.

State Mechanisms for Management

Lois Ewen

Vice-Chairman, California Coastal Commission

California coastal planning was born of citizen effort after years of frustration at the legislative level to initiate responsive government action to protect California's endangered coastal resources. The forerunner to the present legislation was the Bay Conservation Development Commission, established in the 1960s to manage the resources of San Francisco Bay.

The California coast is 1072 miles long, including 387 miles of offshore island shoreline. The coast is diversified — from the rich, damp redwood forests, long pastoral meadows, rocky coves and headlands of the north, to the highly urbanized and industrialized areas of Southern California. But the north, like the south, is coming under intense land-use pressures.

All the complex problems of land-use planning and management exist on the California coast, where 85 percent of our 21 million people live. Sixty-nine local governments exist within the present coastal zone boundary: fifteen counties, fifty-four cities, and numerous special districts. A significant portion of the state's economy lies within the coastal zone.

A citizen initiative in 1972, Proposition 20 on the California ballot, established a temporary four-year state commission with six regional components, whose charge was twofold: review development permits in the short-term, while a coastal management plan was developed for the long-term. Extensive hearings were held statewide on the plan, prior to an equally extensive (and intensive) evaluation by the legislature. The Coastal Act of 1976 was signed into law by the governor in the summer of 1976.

The framework of the new management system looks much like the old, with one important difference: management of the coast will pass into the hands of local government as each of the more than sixty-nine local entities prepares its local programs in conformance with the policies and criteria of the Act. Additional legislation governing the coastal program includes a bill to protect wetland areas, a state bond to acquire land for urban and coastal park use, a bill that establishes a conservancy agency mandated to acquire and restore degraded lands, including wetlands, but whose primary thrust is to initiate "innovative" planning mechanisms.

The issues in California (as in all coastal areas) are extremely complex: large-scale energy production, development, and distribution, including transport and delivery of Alaskan oil and gas; potential construction of liquefied natural gas facilities and increased offshore oil drilling; limited public access to the coastline; second home build-out; the need to protect coastal agricultural lands from increasing pressures of development;the preservation of wetlands and habitats; the expanded development of ports and industry; and coastal recreation — whose, and how much?

A speaker yesterday identified the problem of removing revenue-producing lands from the tax rolls, when such land is acquired for public use. This is an issue being debated by government all over the country and the question may never be resolved satisfactorily for all interests. But the state of California — through its coastal management program and other parkland acquisition efforts throughout the state — has decided that this is an obligation it will assume for the greater benefit and good of all

citizens by providing a resource for all citizens, not just those with special interests and needs.

I have been asked to comment on the advantages of state land use decision-making versus local decision-making. Coastal management in California evolved as the direct result of incremental and fragmented policy decisions dictated by local political boundaries and special interests that did not respond to regional or intraregional needs. One can only hope that the goals we have set for ourselves — responsible local governmental implementation of management programs — will, in fact, be realistically possible.

In addition to guiding local government in the development and certification of such programs, the State Commission is mandated to prepare programs and studies in conjunction with other state agencies, dealing with such varied issues as power-plant siting and the siting of liquefied natural gas facilities and forestry management. One of the "plusses" of the entire coastal management effort in California is the attempt to coordinate the plethora of conflicting objectives and actions of state and federal agencies. The attempt has yet to be put to a real test, however, though expectations remain high.

Of course, there are problems, and there will continue to be problems in the future. Monitoring and enforcement of local government implementation of coastal programs — the need to see that local government is carrying out its responsibilities under the Act — will be a continuing problem, in some instances. *Citizen advocacy* is crucial in this effort! Paramount, too, is the question of "federal consistency": Will it work? Some of us, in looking at the past track record of federal government, are skeptical. But the federal government has undertaken an extensive commitment toward the management and protection of coastal resources and we can only hope it means it. We would hope, too, that the federal government will look at interagency policies and regulatory authority, as we in California have done, and will stand by the commitment to coordinate efforts toward achieving this goal.

The problem of "national interest" — what is it? who defines it? — is another worry. What does the clause in the federal management act really mean in terms of energy development, production, and distribution, for example? California will very quickly have the opportunity to judge for itself when confronting the aforementioned energy supply and distribution issues of Alaskan oil and gas, increased offshore drilling or the seeming "either-or" choice of the present administration's proposed energy program, which advocates use of nuclear or coal capabilities. We agree that we must bear our share of energy distribution responsibilities and we accept the criticism heard in some quarters that California has thrown up roadblocks to a speedy resolution of the problem. It is true that we have adopted a "go slow" attitude. But we have done so only to carry out responsive resource and land use management practices that include a critical review of potential impacts associated with environmental, health, and growth-inducing concerns.

Resource allocation is another issue confronting California's coastal management efforts — the equitable balancing of *uses* between competing interests. How to accommodate people's needs and strike the appropriate compromise between private and public uses of the coast? Or the fine-tune implementation of consistency between various political boundaries? These are all problems of extreme complexity, as I am sure you will agree.

But we are proud of our accomplishments, too. We have succeeded in arousing citizen awareness *of the need for* resource conservation and protection. We have increased public access to beaches and tidelands granted to our citizens under the California Constitution. We have initiated interagency dialogue and the beginnings of what we truly hope are coordinated goal objectives on a local, regional, state and federal level.

And perhaps most important of all, we have been able to effect expanded citizen input into the decision-making process, into decisions directly affecting citizens and their health and welfare. No other program in California's history has benefited as much from public involvement.

Should we attempt to do "social engineering," to answer many of society's ills through such a management system? To provide housing opportunities for the low and moderate income, for example? Many think not, yet in attempting to deal with the greater public benefit and good versus the special interest, private rights issue, the state *has*, rightly or wrongly, made a commitment to a broader public policy, one that accepts the obligations of responsive and responsible goal objectives in decision-making.

Will it work? Time will tell.

Comprehensive Oil Pollution Liability and Compensation Legislation

Barbara D. Burke

Director of Legislation, American Institute of Merchant Shipping

The entire maritime industry is deeply concerned over the increasing proliferation of federal and state laws on liability and compensation for damages arising from spills of petroleum oil. The result has been a legal morass which deters victims of oil pollution damage from obtaining the relief to which they are entitled, burdens commerce, and adds unnecessarily to consumer costs.

The American Institute of Merchant Shipping (AIMS) believes that those involved in the production and handling of oil should share responsibility for all proven economic losses, not just government cleanup costs, which may result from oil pollution, to the extent the U.S. has jurisdiction. Obviously, those handling oil — whether they be vessels or facilities — should have "front line" responsibility for cleaning up a spill and offering compensation to those who suffer damage. However, the vast majority of these vessels and facilities are owned by independent companies which would be unduly burdened if they were not allowed reasonable and clearly defined limits on their liability. We believe that, as a general rule, owners and operators should be in a position to insure against a potential polluting incident arising from their particular vessel or facility. The liability limit of such an owner or operator should, as nearly as possible, be equal to the cost reasonably anticipated to arise from his own potential spill. Oil cargo owners, on the other hand, should contribute on a risk basis to a supplementary fund which would be used to back up a spiller and provide relief to claimants in those extraordinary cases where the spiller cannot be identified, when the spiller's liability limit is exceeded, or when the accident was caused by a circumstance completely outside the spiller's control. The comprehensive legislation which we support fairly allocates, between oil handlers and oil owners, the risk of pollution from a commodity which must be moved to meet a national need.

This legislation would ensure that no person, corporation, or governmental entity damaged by an oil spill goes without fair and expeditious compensation. A brief description of the patchwork of federal, state, and common law which has been evolving due to legitimate concern for protecting the marine environment will reveal *wasteful duplication, confusing overlap* and *serious gaps in coverage.*

The Federal Water Pollution Control Act (FWPCA) makes the owner or operator of a vessel which is the source of a spill strictly liable for the government's cleanup expenses, up to a limit of $100 per gross registered ton (GRT) of his vessel, with a $14 million ceiling; facilities are similarly liable, up to $8 million. This law provides four defenses, unless the owner or operator's gross negligence caused the spill, in which case liability is unlimited. Federal and qualified state government cleanup expenditures are covered by a $35 million revolving fund, into which fines and other monies recouped from vessel or facility owners are deposited.

Since the Federal Water Pollution Control Act deals only with cleanup costs and not the other two categories of oil pollution damage — namely, third-party claims and natural resources injuries — a series of federal and state laws have been enacted in recent years in an attempt to ensure compensation for these other damages. These laws are usually tied to the

geographical location of an oil spill or the source of the oil which caused the spill.

On the federal level, in addition to the FWPCA, we have the Trans-Alaska Pipeline Authorization Act (TAPS) and the Deepwater Ports Act, all of which prescribe strict liability for oil-pollution damage. The TAPS law covers damage from the Alaskan pipeline oil, with vessel liability of $14 million and a back-up fund of $100 million, built by a 5¢ per barrel fee on that oil. The Deepwater Ports law covers damages from oil spilled in a prescribed "safety zone" with liability for a vessel not moored at the port set at $150 per GRT and a backup fund of $100 million, built by a 2¢ per barrel fee on oil received at a deepwater port.

Presently pending in Congress are proposed amendments to the Outer Continental Shelf Lands Act, which would create another liability and compensation scheme, this time to cover damage from oil spilled in connection with OCS operations. Liability of vessels and production facilities would be backed up by a $200 million fund built by a 3¢ per barrel fee on that oil.

Virtually all coastal states, and some noncoastal ones, either have their own oil pollution liability and compensation laws or are actively considering legislation. As with the federal laws just described, each one differs in its approach, but none can effectively deal with a problem that involves interstate and foreign commerce.

An example of the inadequacy of existing laws is provided by the *Argo Merchant*, which recently ran aground and broke up off the coast of New England. Fortunately, the oil from this ship was carried out to sea by the currents and winds. Under the existing patchwork of federal and state statutes, common law and industry agreements, if the oil had been driven to Nantucket and Cape Cod or over the Georges Bank fishing grounds, a claimant would have to rely on oil companies' voluntary commitments or contend with complex litigation. With comprehensive legislation such as we are supporting today, the natural resources under federal or state jurisdiction (including fish since the Fishery Conservation and Management Act took effect March 1, 1977) as well as all proven property damage and other economic losses would be covered under a simple administrative procedure.

Another example should adequately illustrate that a piecemeal approach to liability and compensation for oil pollution damage is not the proper one. Both California and Alaska have their own oil-spill laws. Alaska is now preparing regulations to charge oil handlers (vessels and facilities) an insurance premium, called a "risk avoidance charge," to build a compensation fund. California repeatedly proposes to amend its law to build a fund from a tax on each barrel of oil transferred in the state. Most of the oil which might pollute the waters of those states will also be covered by the $100 million compensation fund set up by the TAPS Act, under which separate certificates of financial responsibility are being required. If nothing is done to change these plans, each barrel of oil moving from Port Valdez to California could be taxed three times and insurance coverage for those involved will become a worse legal and financial nightmare than is already the case.

In summary, industry is burdened by trying to cope with all of the legal liabilities and funds in the FWPCA, the TAPS law, the Deepwater Ports Act, the proposed fund for offshore oil development, and the laws of virtually all of the coastal states. The victim of oil pollution damage is faced with confusing and potentially costly claims procedures and derives no benefit whatsoever that could not be provided fairly and expeditiously through comprehensive legislation. Also, the consumer of oil ultimately pays for most of the extra costs inherent in a fragmented approach. A sound solution is offered by the comprehensive legislation, which would triple the existing federal liability level for tankers and set levels for facilities ranging up to $50 million.

Those who oppose federal preemption of state laws have argued that if comprehensive federal legislation works as well as we believe it can, then states will recognize that their citizens are thereby adequately protected and proceed to repeal their liability laws and eliminate their funds and the agencies set up to administer them. AIMS views this contention as politically unrealistic. We recognize the difficulties inherent in this sensitive area but must strongly urge a prohibition on other liability schemes and other funds with their varied approaches to serving the purposes covered by this legislation. The consolidation of laws which we are supporting would bring under one comprehensive

liability and compensation scheme spills of petroleum on inland and ocean waters under U.S. jurisdiction, resulting from all sources including ships, barges, terminals, pipelines, refineries, drilling rigs, production platforms, and deepwater ports. To place this proposed scheme on top of the present patchwork of federal and state laws would only add to the problem instead of solving it.

AIMS believes that the source of a spill should be given at least sixty days to try to settle damage claims voluntarily. Following the mandated report of a spill, the source of the spill should be required to advertise his identity in accordance with regulations. The advertising requirement should, however, be flexible enough to allow administrative discretion when potential claimants can be notified by other means.

If a claim is not settled on the "front line" within the allotted time, it should be adjudicated through a simple administrative process. If a proposed settlement is disputed, the case could be referred for decision to an administrative law judge or a special three-member panel, with rights to appeal protected.

Following adjudication, a replenishable national fund would be available for paying damages. This fund would be raised by a simple per-barrel fee of up to 3¢ on oil received by terminals for export or import, or received by any refinery, except that each barrel would be taxed only once. The fund could be maintained at up to $200 million, but it should have authority to borrow from the U.S. Treasury in the unlikely event that the money on hand is insufficient. The fund should, of course, be initially available for cases in which the spiller is not known or not subject to U.S. jurisdiction. We believe that the fund's only defenses should be an act of war and negligence of the claimant. We also believe that the fund should be under the same time constraint as the spiller, sixty days for example, to settle a claim. Such a restriction is completely reasonable inasmuch as the time period does not begin until after the damage is discovered and assessed, and a claim is presented. However, there should be an outside limit on claims of six years from the date of the incident which caused the damage.

We are optimistic that this legislation, which is in the best interests of all who are affected, will be enacted into law this year. I sincerely hope that you will recognize its importance and lend your support.

Oil Pollution Liability and Compensation Legislation

Prepared by the American Institute of Merchant Shipping

Comprehensive oil pollution liability and compensation legislation now pending before Congress would replace the present proliferation of federal, state and common law which fails to ensure that persons, corporations or governments damaged by an oil spill are fairly compensated.

This legislation would create a replenishable national fund raised by a simple per barrel tax of up to 3¢ on oil received by terminals for export or import, or by refineries, with each barrel being taxed only once. The fund would be administered by the Department of Transportation with a minimum of bureaucracy to handle damage claims not settled voluntarily by the spiller (a vessel or facility) within sixty days. The fund would be maintained at between $150 million and $200 million, but there is really no limit on the amount of compensation that can be paid for proven oil pollution damage due to the authority to borrow from the U.S. Treasury.

The patchwork of law which has evolved in recent years deals inadequately with the three categories of oil pollution damage — namely, cleanup costs, third party claims and natural resources injuries. The result has been wasteful duplication in some cases, confusing overlap in others, and *still* serious gaps in coverage exist. The proposed legislation consolidates these laws and fills the gaps without adding unnecessarily to the cost of oil to the consumer.

Supporters of this comprehensive approach believe that a spiller's liability should be high enough to cover most spills, but also insurable, and that a back-up compensation fund should be available to take care of catastrophes. This approach fairly allocates, between the handlers and the owners of the cargo, the costs resulting from an oil spill. To have unnecessarily high liability on the spiller *and* a compensation fund would be redundant. Trying to prevent spills through a punitive liability system is not only ineffective but also unnecessary since *other* laws have as their principal objective minimizing the risk of oil spills through safety regulations.

The proposed legislation would triple for tankers and ocean-going oil barges the $100 per gross registered ton level of liability set in the 1970 Federal Water Pollution Control Act (which covered Government clean-up expenses only) and raise the $14 million ceiling to $30 million. Inland barges (certificated for service on rivers and bays) and vessels not carrying oil as cargo would see their liability increased by 50 percent. Facilities would have liability levels ranging up to $50 million, depending on the risk they pose to the marine environment. The right to limit liability is conditioned on the absence of negligence on the part of the owner or operator of the vessel or facility.

Claims not settled voluntarily by the spiller within sixty days for any reason, such as costs exceeded his liability limit or the accident was caused by an act of war, God or someone else, would bring the fund into play. These claims would be awarded after evaluation by a private adjuster (or possibly federal or state personnel). Disputes on judgments would be referred to an administrative law judge or a special three-member panel. Rights to appeal are protected.

This simple administrative process is a vast improvement over the existing legal morass which now faces victims of oil pollution damage and those handling oil to meet this country's energy needs.

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