



# **Resource Use and Use Conflicts in the Exclusive Economic Zone**

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# **Resource Use and Use Conflicts in the Exclusive Economic Zone**

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# Preface

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 help resolve them. We have addressed a variety of issues including: fish vs. oil on Georges Bank; the United States without the Law of the Sea Treaty; and international shipping policy.

This workshop, the second in a series of meetings addressing issues of the Exclusive Economic Zone (EEZ), is representative of the focus that the Center will have for the next three years. The 1983 Presidential Proclamation, establishing an Exclusive Economic Zone for the U.S., has posed a number of ongoing questions with which the nation must deal. Among these are:

- What types of resource use activities within the EEZ must be managed and at what levels of government?
- How are conflicts between EEZ areas and between administrative groups to be accommodated?
- How can regional diversities and interests within the U.S. EEZ be adjusted to conform with the overall goals and policies of EEZ management?

Questions such as these are comprehensive and far reaching; but, in the early stages of EEZ development, means must be found for organizing them into manageable units and for devising procedures whereby the units can be meaningfully handled. This workshop is specifically addressing resource use and use conflicts.

The addressing of the issues of resource use and use conflicts was divided into five parts. The presenters in Part one gave two overview presentations that set the stage for the following two days. Part two included presentations by representatives of a variety of user groups identifying present inter-industry conflict situations. The evening session, Part three, addressed conflict resolution mechanisms and experiences. Specific living and non-living resource uses — present and potential — were addressed in Parts four and five — with an eye toward intra-industry problems.

By the end of the two-day period, it was felt by many participants that a greater understanding of the present and potential problems in the EEZ relating to multiple resource use was gained.

I hope that the production of these proceedings provide to others, unable to participate, a handy reference to the variety of considerations that should be taken into account when making management decisions for our exclusive economic zone.

\* \* \* \* \*

This workshop required the efforts of numerous individuals, all of whom I thank, some of whom I will specifically mention. I was fortunate to have assisting me on the planning committee four members of the University of Rhode Island faculty: Lewis M. Alexander, Director, Center for Ocean Management Studies; Richard Burroughs, Assistant Professor, Graduate Program in Marine Affairs; John Gates, Professor, Resource Economics; and Thomas Grigalunas, Assistant Professor, Resource Economics. Without their help in the planning stage and their participation as session chairs, the meeting would not have addressed as much nor run as smoothly as it did. Many thanks. Without the presentations from the participants there would be nothing to put in print. Critically important to any meeting are the funding sources. For this meeting we were fortunate to have funding from: Minerals Management Service, National Marine Fisheries Service, United States Coast Guard and Sea Grant.

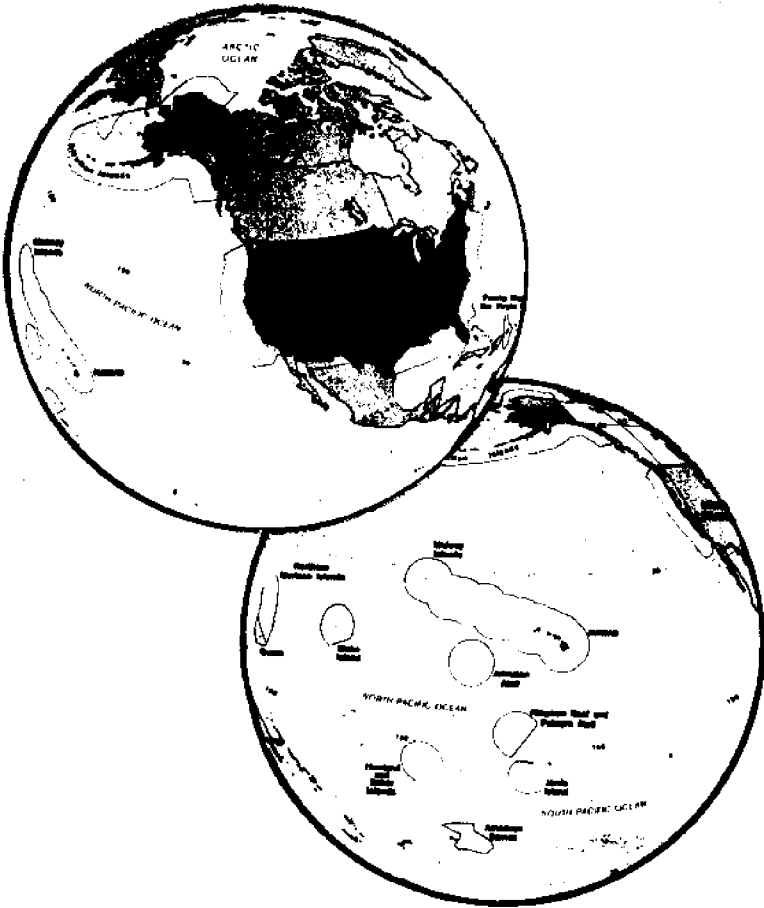
No office runs with just one person. For their logistical and technical support I would like to give special recognition to the COMS staff. A well deserved thanks goes to Carol Dryfoos, COMS Coordinator and Janet LaCroix, COMS Secretary, for their special efforts on these proceedings. And finally, a number of students from the Graduate program in Marine Affairs helped with driving and notetaking: Candyce Clark, Nathalie Peters, Kate Daly, Amy Stone and Jocelyn Curl.

Lynne Carter Hanson  
*Conference Chair and Executive Director  
Center for Ocean Management Studies  
University of Rhode Island  
Kingston, Rhode Island*

# PART ONE

## An Overview

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Part one is intended to serve as a background for the rest of the program. The two overview papers will set the geographical stage and juridical scope.

Lewis Alexander, former Geographer of the United States Department of State, discusses the U.S. Exclusive Economic Zone (EEZ) in relation to other coastal states. Not only the size relationship but the important concept of maritime boundaries as well. Dr. Alexander also suggests the concept of regional management of the EEZ, patterned after the NMFS regional council system.

Brian Hoyle's presentation addresses the issue of what was gained through the exclusive economic zone proclamation. The resource and juridical gains have been a boon not only for national exploitation but also for international fishery negotiations and our method of carefully crafting the EEZ proclamation can be looked upon as a plus in our role in international leadership.

Lynne Carter Hanson

*Executive Director*

*Center for Ocean Management Studies*

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*Kingston, Rhode Island*

## CHAPTER 1

# The Geography of the U.S. Exclusive Economic Zone

LEWIS M. ALEXANDER

*Director*

*Center for Ocean Management Studies*

*University of Rhode Island*

*Kingston, Rhode Island*

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### GEOGRAPHICAL SCOPE

Through the Presidential Proclamation of March 10, 1983, the United States has acquired an Exclusive Economic Zone (EEZ) — measuring about 2.3 million square nautical miles in area, or nearly 3.1 million square statute miles — a figure equal to 83 percent of the land area of the United States. It is the largest EEZ in the world, about 10 percent greater than that of the nearest competitor, Australia, and some 40 per cent greater in size than that of the Soviet Union, which is in fifth place. As we shall hear today, the U.S. EEZ is very rich in both living and non-living marine resources.

Underlying the U.S. EEZ is the fourth largest continental shelf in the world, measuring 548,000 square nautical miles — the measurements here being out to the 200-meter isobath. The first three largest continental shelves belong, in order, to Canada, Indonesia and Australia (again the Soviet Union is in fifth place).

There are only a few areas in which the legally-defined shelf, however calculated, will probably extend beyond the 200-mile limit. One is off southern New England and another is to the east of southern Georgia and northern Florida. There is a "window" of extended shelf in the Gulf of Mexico — an area shared by Mexico, the United States and Cuba. It is unclear to me what will happen to the ridges off the west coast extending beyond the 200-mile limit, but we unquestionably have a "window" in the Bering Sea which we share with the Soviet Union, and the Chuckchi Plateau, north of Alaska, extends to well beyond the 200-mile limit.

## MARITIME BOUNDARIES

One aspect of the EEZ concerns maritime boundaries with our neighbors. For the continental United States, there are nine such boundaries: four with Canada, two with Mexico, and one each with Cuba, The Bahamas, and the Soviet Union. In none of these situations is there complete and final agreement as to the boundary delimitation. We have an 1867 agreement with the Soviet Union, fixing our mutual border in the Bering Sea/Bering Strait area, and north into the "frozen ocean," but there is disagreement as to the exact location of the line. This results from uncertainties as to what the projection was of the charts which the negotiators used. If it were a Mercator projection, the straight line joining the appropriate turning points would be rhumb line — a position favored by the Soviets. If, however, a Polyconic projection were used at that time, the straight line would follow the arc of a Great Circle and be closer to Siberia. The areal difference between the two lines, in the Bering Sea, comes to over 14,000 square nautical miles.

We have concluded an agreement with Mexico defining our common maritime boundaries both in the Gulf and the Pacific, but the U.S. Senate, thus far, has failed to ratify the agreement. Some Senators, apparently, suspect the Federal Government of partaking in a "Great Giveaway." We have an interim fisheries agreement with Cuba, but there is no agreement on a seabed boundary. No formal negotiations have yet been carried out with The Bahamas. As for Canada, both countries have, even now, delegations at The Hague for oral arguments before a panel of The International Court of Justice over the boundary delimitation in the Gulf of Maine/Georges Bank area. There are no negotiations now in progress on the other three U.S.-Canada maritime boundaries.

In addition to the maritime boundaries in North America, we have 20 boundary situations involving our overseas commonwealths and territories. Of these only one has been finalized with the agreement in force. This is the maritime boundary between Puerto Rico and Venezuela. We are making progress on the delimitation of boundaries between American Samoa and the islands and island groups surrounding it, as well as through Mona Passage between Puerto Rico and the Dominican Republic and to the east between the American and the British Virgin Islands.

## THE REGIONAL APPROACH

There is great geographic diversity within our enormous EEZ, which stretches from New England to Puerto Rico to Guam. There is also the natural tendency on the part of the individual coastal states of the U.S. to expand various forms of authority out into the EEZ, in order both to protect their shorelines and to reap some of the benefits afforded by the zone. But there is great inequity with respect to access to the EEZ among the several states. Connecticut is zone-locked, cut off from the open sea by the presence immediately offshore of New York's Fishers Island. New Hampshire and Alabama have extremely short coastlines. Pennsylvania borders on Delaware Bay but not the open ocean, although it experiences many ocean-related problems.

One approach to these issues of diversity is through regional action, a course which has already been tried by the National Marine Fisheries Service. Through the Magnuson Fisheries Conservation and Management Act of 1976, eight regional fisheries management councils have been established, reflecting the diversity of interests in fisheries throughout the various parts of the EEZ. The suggestion here is that a similar approach might be adopted for other marine-related activities in the EEZ as well.

Traditionally, regional marine approaches have been looked upon to accommodate four general types of activities. First, regionalism reflects geographic differences in an area. Second, it can respond to phenomena which cut across unit boundaries — in this case, state boundaries extending out into the EEZ. Third, regionalism can foster inter-state action on problems of common concern. Finally, it may facilitate information gathering, and the distribution of benefits — ie. federal assistance.

Admittedly, it is easy to recommend a regional approach to problem solving when other solutions seems uninspiring. However, there are often problems with regionalism. How, for example, will disputes among members of a regional organization be resolved without destroying the unit itself? How will the benefits and costs associated with regional action be equitably distributed? By what criteria will "borderline" units be assigned to one regional bloc or another? But we do have, already before us, a regional mechanism which has been in operation with respect to the EEZ for a number of years, and there is, presumably, much that we can learn from the National Marine Fisheries Service (NMFS) experience.

There are two specifics I would like to mention here. First, some thought should be given to adopting conservation and management plans with respect to such activities in the U.S. EEZ as environmental protection and preservation, ocean dumping, the exploration and exploitation of offshore hydrocarbons, and — landward of the EEZ — coastal zone management. In the drafting of legislation for these plans there is much to be learned, both good and bad, from the NMFS experience. Consideration must also be given to the interactions among the various agencies charged with these regional programs which brings up my second point.

At least initially, the regional breakdown of these conservation and management plans should follow the NMFS pattern. It would be unnecessarily cumbersome for the Environmental Protection Agency (EPA) to have one set of regions for the EEZ, the Department of Interior (DOI) another, and perhaps the Department of Transportation (DOT) still another. The NMFS regions could, I believe, be combined for certain purposes. For example, it might be found that in some instances New England and the Middle Atlantic might be combined, as could the three West Coast states. But, the fundamental system of regional divisions would remain, at least in the initial stages of this operation.

Under the iron law of administrative growth would the various regionally-organized groups eventually be combined into an overall EEZ management structure? I do not know, nor do I think at this point that the question is really an important one. Regionalization may prove to be one answer to a whole host of vexing questions which arise when government seeks to provide uniform rules and regulations to a highly-diverse geographic area of the size the U.S. EEZ has turned out to be.

## CHAPTER 2

# The Exclusive Economic Zone Proclamation: What Have We Gained?

**BRIAN HOYLE**

*Director*

*Office of Ocean Law and Policy*

*Department of State*

*Washington, DC*

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### RESOURCE BENEFITS TO THE UNITED STATES

The establishment of the Exclusive Economic Zone (EEZ) of the United States has provided several immediate benefits for the United States. First and foremost, is the extended and enhanced resource jurisdiction created by such a zone.

The EEZ Proclamation brings within U.S. jurisdiction resources that are rightfully ours under international law and economic activities that are properly ours to control. The Reagan Proclamation confirms U.S. sovereign rights and control over the natural resources — living and non-living — (with the exception of highly migratory species of tuna) of the seabed, subsoil and superjacent waters within 200 nautical miles of our coast.

The EEZ will allow development of extremely interesting discoveries of strategic mineral deposits located beyond the geologic continental shelf but within 200 nautical miles of our coasts. These include polymetallic sulfides and cobalt/manganese crusts. These recent discoveries hail an opportunity for the U.S. to reduce its reliance on unstable polymetallic sulfides sources for certain strategic minerals.

In the case of polymetallic sulfides, the U.S. Department of the Interior (DOI) has issued a draft environmental impact statement, and called for public comment as a prelude to leasing an area offshore Oregon and Washington, known as the Gorda Ridge. The DOI activity presages development which may not begin until the future decades, but which the U.S. must nevertheless begin to prepare for now. The EEZ Proclamation clearly establishes U.S. jurisdiction and control over the seabed minerals contained in the

area off the shelf but within 200 nautical miles. There is no doubt that the EEZ will provide a more favorable investment climate for the exploration and development of these ocean mineral resources.

But, new economic benefits will not accrue from mineral development alone. Within the EEZ, activities aimed at harnessing energy from ocean thermal gradients, winds, waves and tides, will be placed under United States jurisdiction as well.

## **REGULATORY BENEFITS**

I would note that the regulation of specific activities within the EEZ, such as ocean thermal energy conversion, exploitation of non-living resources, and expansion of marine pollution authority will require appropriate congressional action. The Administration is working with the Congress to implement the EEZ Proclamation.

The fishing industry has, as you know, operated within a 200-nautical mile fisheries conservation zone since enactment of the Magnuson Fisheries Conservation and Management Act of 1976 (MFCMA). The MFCMA exempted tuna from U.S. jurisdiction. The U.S. neither recognizes nor asserts jurisdiction over highly migratory species of tuna. The Reagan proclamation has enhanced our negotiating position with foreign nations seeking to fish in our EEZ by clearly establishing our sovereign rights to the resource as opposed to the present "exclusive management authority."

Our hand in negotiating Governing International Fisheries Agreements (GIFAs) and making allocations has been strengthened by the Reagan proclamation of the EEZ. Prior to the EEZ Proclamation, some nations had disputed our right to impose the "fish and chips" policy as a condition of access to U.S. fisheries on the grounds that we only had the right to scientifically manage and conserve the fishery resources of our 200-mile zone. The establishment of the EEZ resolves any doubts of this in favor of the U.S. The U.S. is entitled to obtain economic benefits in return for allocations to foreign nations desiring to fish within our EEZ. Under international law, the Exclusive Economic Zone provides the coastal State sovereign rights with exclusive rights to develop, conserve, and manage the fishery resources of the EEZ. Access by foreign nations is a privilege which must be earned, not a right. The term "sovereign rights" is used to emphasize that the coastal State's rights are in the management and development of the coastal resources of the zone and not territorial sovereignty in the zone itself. At the same time, "sovereign rights" gives the United States a superior

qualitative interest in our resources to that provided by "management rights" under the MFCMA.

It cannot be emphasized enough that the EEZ is an area beyond the territory of a nation and that the rights of the coastal State are limited to coastal resources and activities associated with their development. By having carefully crafted the EEZ Proclamation to emphasize this point of international law, we believe we have established a check on creeping coastal State jurisdiction which could endanger U.S. fisheries, navigation, and marine scientific interests.

The sovereign rights of the United States in the coastal resources of our EEZ have been recognized in all GIFAs negotiated since March 10, 1983. The German Democratic Republic, Bulgarian, and Romanian GIFAs have recognized and accepted our EEZ rights. In addition, all foreign nations receiving allocations from the Department of State must accept our rights in the EEZ. No nation has contested our right under international law to do this, nor to implement the policies associated with the EEZ.

## **THE TUNA QUESTION**

With regard to U.S. laws and policies designed to protect and promote our distant water tuna fleets, I would like to add that the United States does not recognize coastal State jurisdiction over highly migratory species of tuna. This policy is embodied in the MFCMA. It is confirmed by the Reagan EEZ Proclamation. It is consistent with the U.S. position taken at the Third United Nations Conference at the Law of the Sea and is consistent with our interpretation of customary international law as reflected in Article 64 of the 1982 Convention.

The rationale behind the U.S. approach is straightforward. Tuna are not a resident resource of the EEZ. They are only found within the EEZ temporarily and may migrate far out into the ocean waters beyond. Therefore, the coastal State does not have the ability to manage and conserve tuna, nor does it have an exclusive interest in their development. Although many coastal States claim jurisdiction over tuna within 200 nautical miles, it is my opinion that none can exercise, conserve, and manage effectively through purely domestic measures. Only through international agreements have States actually managed effectively the highly migratory tuna species. In fact, the U.S. has led other nations in developing a regime of tuna management through international agreements such as the



recent Eastern Pacific Ocean Tuna Fishing Agreement, signed by the U.S., Costa Rica, Panama, Honduras, and Guatemala. Accordingly, customary international law precludes the coastal State from establishing sovereign rights over tuna. In the U.S. view this is evidenced by Article 64 of the Law of the Sea Convention, which requires cooperation between coastal States and distant water fishing nations to manage tuna, both within and outside the EEZ, on a regional basis, through an international organization. It is the view of the U.S. that Article 64 precludes the coastal State from establishing sovereign rights over tuna.

The U.S. is working hard to develop favorable international arrangements for the management of tuna. President Reagan's reaffirmation of our tuna position in his Oceans Policy Statement and our desire to work out international arrangements have helped in our negotiations with foreign countries. We are optimistic that international arrangements will provide our tuna industry with the greatest possible access to the resource while satisfying the legitimate concerns of coastal States in various regions where tuna are found. For example, the successful conclusion last year of a regional tuna licensing agreement with several Latin American countries will, upon entry into force, assist our tuna industry in its operations in that region. Under the Eastern Pacific Ocean Tuna Fishing Agreement international licenses will be made available to fish tuna throughout a broad area of the eastern Pacific Ocean, including the 200-mile zones of contracting parties. The license fees collected would be distributed among the contracting parties in proportion to the amount of tuna taken within 200 miles of their coasts. By providing internationally recognized fishing licenses, the Agreement will reduce the problem of seizures of U.S. tuna boats and the imposition of retaliatory embargoes.

In addition to the eastern Pacific area, we must look to other regional arrangements for tuna, particularly in the western Pacific, an area which has become very important to the U.S. tuna fleet. We have had some initial discussions with western Pacific nations and our future international policy will include a high priority effort to conclude a favorable access arrangement in that area.

## **SECURITY INTERESTS**

Up to this point, I have emphasized the economic and conservation benefits that will accrue from the EEZ. I will conclude by

stating that U.S. strategic and security interests are also more secure under an EEZ.

The United States is a leading maritime nation and unimpeded commercial navigation and military mobility are vital to our national interest. It is important that the United States act to insure that traditional high seas freedoms are retained within the EEZ. Therefore, the President specifically indicated that the United States is limiting its claim of sovereign rights and jurisdiction and is expressly preserving the high seas freedoms of navigation, overflight, and other lawful uses of the EEZ. The United States believes that by carefully shaping the EEZ to permit maximum freedom of the seas consistent with U.S. rights to resources and related jurisdiction, we may influence the behavior of other nations.

This concludes my discussion of how the EEZ can and will benefit the U.S. as well as how it will assist the U.S. in ocean policy formulation and negotiation. I have not touched on all of the issues but am available for any questions that you may have.

## **SUMMARY**

In summary, the President's Proclamation of an Exclusive Economic Zone is a positive, forward-looking element of United States ocean policy. The Exclusive Economic Zone is a lawful claim of sovereign rights and jurisdiction under customary international law and brings within United States jurisdiction and control those natural resources which are rightfully ours while simultaneously preserving to the maximum extent the traditional high seas freedoms of navigation and overflight.

## Discussion

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**Hanson:** What is the relationship between Article 76 and the '58 Convention?

**Hoyle:** Having looked into this recently, I don't think there is a real difference between Article 76 and the '58 Convention. At the recent Law of the Sea Conference, where the margin extends beyond 200 miles, the outer limit of the margin is basically the point where the slope meets the rise but also beyond that with the Irish or the modified Hedburg formulas we go basically to the extent of the consolidated sediments underlying the rise. Then with Article 76 of the Law of the Sea Convention that gives us our natural prolongation.

I'm not sure how many of you are familiar with the '58 Continental Shelf Convention, but it was elaborated on throughout the International Law Commission's discussions of the 1950s. I consider that the Commission had great foresight in the 1950s, and for those of us who are lawyers, it points out how one has to be very careful in drafting legal documents that one doesn't lock oneself in. The '58 Convention adopted a statement, which basically refers to the rights of the coastal State on the adjacent continental shelf out to 200 meters or beyond that when the resources are explorable and exploitable. By 1958, the drafters of the '58 Conference thought that the exploitability test would last for the rest of the century, and they could let other generations of lawyers worry about the area beyond 200 meters, since there was no way you could drill for oil out there. Well, in the early 1960s people like Jack Flipse started publishing articles on manganese nodule research and development, and others started deep sea drilling projects that showed that holes drilled into the deep sea bed, or at least certainly the deep shelf beyond 200 meters could be reentered. This will allow future commercial development of oil and gas wells in deep waters. This made the 200 meter criteria certainly obsolete.

The next question raised is how far the rights of the coastal State go. I remember some of my friends in the mid sixties arguing "Well the exploitability test would be used to control exploitation out to the the median lines." Well, I think in 1969 that that was laid to rest on the U.S. continental shelf so that's why I'm not

really involved in the outer limits of the margin. The question did refer to the basic underlying document of the continental shelf principle to be a natural prolongation. So the coastal State under either the '58 Convention or Article 76 would be entitled to the full extent of the natural prolongation.

**Alexander:** How do you define natural prolongation?

**Hoyle:** Well, I would say this, it's a state of mind. You might call these precise definitions simple to come up with, but most of the alternative definitions provide that you get about the same results. I might add, one might think he has a better definition, one will actually provide the United States with an area that is equal to or greater than, we would achieve under Article 76. One definition was inserted in a recent piece of Exclusive Economic Zone legislation which was meant to obtain the last grain of sand for the U.S., and I think that the drafting of one section of the bill left out one word and ended up achieving much less than we were entitled to. So you have to be careful of how you play with words here. But I think the international limit, basically customary international law was set by Article 76.

**McManus:** You said in your remarks with respect to tuna that the U.S. does not recognize coastal State jurisdiction over highly migratory species of tuna. Has the State Department given any thought to making such a statement or having the President or the Secretary of State make such a declaration in stentorian tones because I think it would be a good idea?

**Hoyle:** You don't think we were especially clear on the Ocean Policy Statement?

**McManus:** No.

**Hoyle:** We could certainly do it. That is clearly the policy of the U.S. and it is clearly, as the Ocean Policy Statement says, it was the policy of the President establishing the EEZ not to change U.S. jurisdiction and the policy relating to the fisheries development. Including those relating to highly migratory species.

**McManus:** Well, all right, the statement says that the Proclamation doesn't change existing U.S. policies with respect to highly migratory species of tuna, which I suppose could be a reaffirmation of the jurisdictional exclusion of the Magnuson Act. Then note in the Proclamation itself, the operative paragraph which establishes sovereign rights, does not exclude tuna or anything else, it says all living and non-living resources. I suppose putting those two things together you could forge an argument to the effect that

although we are not asserting jurisdiction over tuna, we may not be prepared to resist the assertions of jurisdiction over tuna by foreign coastal States which I think is why people are nervous.

**Hoyle:** Well the Manguson Act, as I remember, provides that we will not recognize foreign jurisdiction over tuna. And I do not think it was the President's intention that the Proclamation or the Oceans Policy Statement would violate the law.

**McManus:** I know that.

**Cruikshank:** If we don't recognize the LOS Convention, we automatically fall back to the '58 Convention, is that not so?

**Hoyle:** We are still parties to the '58 Convention. We have not denounced that Convention. However, in reading the '58 Convention you have to look at what the state of the law is today, how much has the '58 Convention been interpreted, or modified, by customary international law since 1958, among the parties to the '58 Convention. Even though the '58 Convention is open-ended because of the exploitability test, they did call it the Continental Shelf Convention which would lead you to believe that they had some idea of limitations to the outer edge of the shelf. The term continental shelf was used to indicate that there was not this intent to simply extend this all the way out into the mid ocean.

**Gordon:** I don't want to put you on the spot, but what's the current thinking in the State Department in the dichotomy that we have by excluding the billfishes from highly migratory when increasingly the evidence points to some of the billfishes being more highly migratory than some of the tunas?

**Hoyle:** Thanks for putting me on the spot.

**Gordon:** One of our major management problems with the billfishes is the fact that they are having a good year. And it is going to be increasingly evident as some of the people focus on that. Are you prepared to start new treaties or how are you going to deal with it?

**Hoyle:** I'm really not sure. I'm not sure this is something that a great deal of thinking has been done on.

**Cruikshank:** What are the NMFS areas? How many are there?

**Alexander:** Eight.

**Gordon:** Do you have them in your paper?

**Alexander:** No.

**Gordon:** I'll help you with it. There are: the *New England* down through and including Connecticut; *Mid-Atlantic*, New York through

Virginia; *South Atlantic*, North Carolina through the east coast of Florida; the *Carribbean*, Virgin Islands and Puerto Rico; the *Gulf*, the west coast of Florida through Texas; the *Western Pacific*, Hawaii and the Island possessions and territories; the *Pacific*, California, Washington, Oregon and Idaho has the migratory operative movement of salmon; and then *North Pacific* Alaska.

**Nyhart:** I would like to follow up on the last question, I find your regional idea interesting, but when you said that it wouldn't be rational to establish within the different regimes coherent or similar regions, have you given thought to whether the interest of the major regulatory agencies in fact would be so coinciding that you could get some consistency among regions? I mean about regional boundaries among the different regulatory interests?

**Alexander:** I haven't really gotten into what happened there. Some time ago, I tried to break down the coastal zone of the U.S. in terms of various agencies of government and what they thought their regions were and I found that the agencies' regional units are all overlapping one another. There is no consistency. And so I thought that if you are dealing with this single EEZ you ought to settle that early on. Now maybe there is a better way to do it than NMFS has, but I can't think of one.

**Nixon:** Coast Guard's way, I think they are going to volunteer a slightly different breakdown in regions.

**Shkor:** Sure, well everyone's welcome to match our regions.

**Hoyle:** One of the things I didn't touch on is that at most of the EEZ discussions one of the great "benefits" which is always raised is rationalization of management and solutions to the problems of which agency manages which activities. We now have the opportunity to change all of this and setup either one agency or some sort of unified management system, or we can create something on the order of a U.S. Authority of the Oceans. This Authority would manage the entire oceans area and provide better conflict resolution among the competing uses of the EEZ.

The observation I would make about this, is that I sat through about three hours of discussion at Airly House, in November, and I was left with the feeling afterwards that the basic discontent was not with present ocean government systems in the U.S. or conflict resolution. The fundamental distaste was for the system of government we have in the U.S. and the system of checks and balances written into the Constitution. Coupled with this was a desire to basically overhaul the U.S. government so that those that were regulators could have a system in which administrative agencies

could make administrating decisions that were not subject to review by courts. Those that were in private industry wanted systems that, of course, gave them access to the courts. Those from Congress wanted the ability to legislate quickly, so that the executive's hands would be tied. The administration didn't want Congress to be able to pass laws that overturned administrative decisions any more than it wanted the courts interfering. I don't see this super agency as a benefit of the EEZ, *per se*. During the past 14 years I have watched proposals for the Department of Natural Resources, or a super-NOAA independent of everything else with all urgent responsibilities left for it. There has been this ebb and flow depending upon who comes up with a new management idea. All of them have basically been defeated, not because of any desire by the administration to inhibit change in management of resources offshore, but by congressional jurisdiction among committees. Committees on the Hill are getting empires over certain subjects and don't want to see those change, which they would if you have new management decision areas.

The other thing I am not sure of is that you don't already have, in this country, as good a system of resource management as you can come up with, as long as there is a sort of underlying litigious and adversarial attitude in this country between government and industry and between various groups within government as opposed to each other.

**Alexander:** That same argument was used in the days of the Stratton Commission. One of the big arguments then was that any expanded ocean agency would change around the jurisdiction of the committees; therefore, don't plan such an agency.

**Hoyle:** The fact is as long as you have the seniority system on committees, the committees themselves don't want to change around jurisdictions.

**Alexander:** So change it anyway.

**Hoyle:** Well, for one thing it would require an act of Congress to move agencies around.

**Ashe:** In defense of what you said about House committees, I realize there is a lot of jurisdictional jealousy over the programs, certainly I think the Merchant Marine Fisheries Committee probably likes to think that it was one of the greatest impediments to the creation of a Department of Natural Resources. But what it boils down to, I think, is the real opposition from people like the Forest Service, and that's where the power came from. The

Agriculture Department didn't want to give up its service to other departments of management.

**Hoyle:** You are talking about one specific DNR proposal.

**Ashe:** And it is the same when you come to creating a super NOAA. The Department of Interior doesn't want to hear about the oil and gas bill. So, you've got opposition to those types of ideas coming from the executive management.

**Hoyle:** Sure, they come from a lot of different groups. Actually the cattle grazing association was responsible for the prior proposal stubbing it's toe eventually. On the other hand, you could have moved NOAA without the Forest Service, because NOAA really doesn't have the constituency that the Cattlemen's Association provides.

I was in NOAA's general counsel's office working on that natural resources proposal, and there were two effects in NOAA at the time. One was that the proposal interfered with everything NOAA tried to do for about two years because the attitude was that "Well we are going to get moved to a different department, we can't really make that decision now. We don't know what the policy is going to be when we move to a different department." The same sort of thing happened in dealing with Congress and with the constituency, so you kind of threw up your arms and said "Well, you know, we can't really make that decision because we don't know where we are going to be six months from now." So, I think that proposal for port management might interfere with many management decisions certainly short term many of those are critical in the long term.

**Stewart:** The person who took the most credit for trying to save the DNR proposal was Senator Hollings.

**Hoyle:** Well, that may be that Senator Hollings really didn't kill the DNR proposal. The DNR proposal was killed by the grazers in the West. They were afraid of what would happen to their grazing rights on the lands administered by the Forest Service if they were moved to the Department of Natural Resources. Working in NOAA at the time, it's a wonderful example of who has audible clout in Washington, and who doesn't. No oceans industry really tried to block the DNR proposal. On the other hand, the western grazers were out there in force. And those who don't think NOAA should be in the Department of Natural Resources, should write a thank-you letter to NOAA. As you go further back in analyzing the kinds of decisions that are made in Washington, NOAA is in Commerce and not Interior, because Nixon was mad at Wally Hickey



for writing a letter criticizing the Vietnam Policy. Nixon had a proposal for a Department of Natural Resources and Energy and that one went down the tubes partly because of his uncertain tenure at the time but this was clearly a congressional committee issue, because it cut across too many congressional committees. The Nixon proposal ran into too many challenges on the side; they were very strong challenges, and the committees did not want to lose oversight over the things which they felt important to them.

**Black:** One additional thought on the regionalization approach, rather than allowing the interagency jealousies to give up a boundary definition, why not approach boundaries from the point of view that the census bureau approaches? Let data collection drive the boundary definition rather than politics. At least to start from that point, it would seem to me that data collection, which is going to be an essential element in all of this, might indeed factor out some very logical and reasonable census districts, if you will, for the marine environments similar to what we have for population.

**Alexander:** Does NMFS collect data on the basis of regions over states?

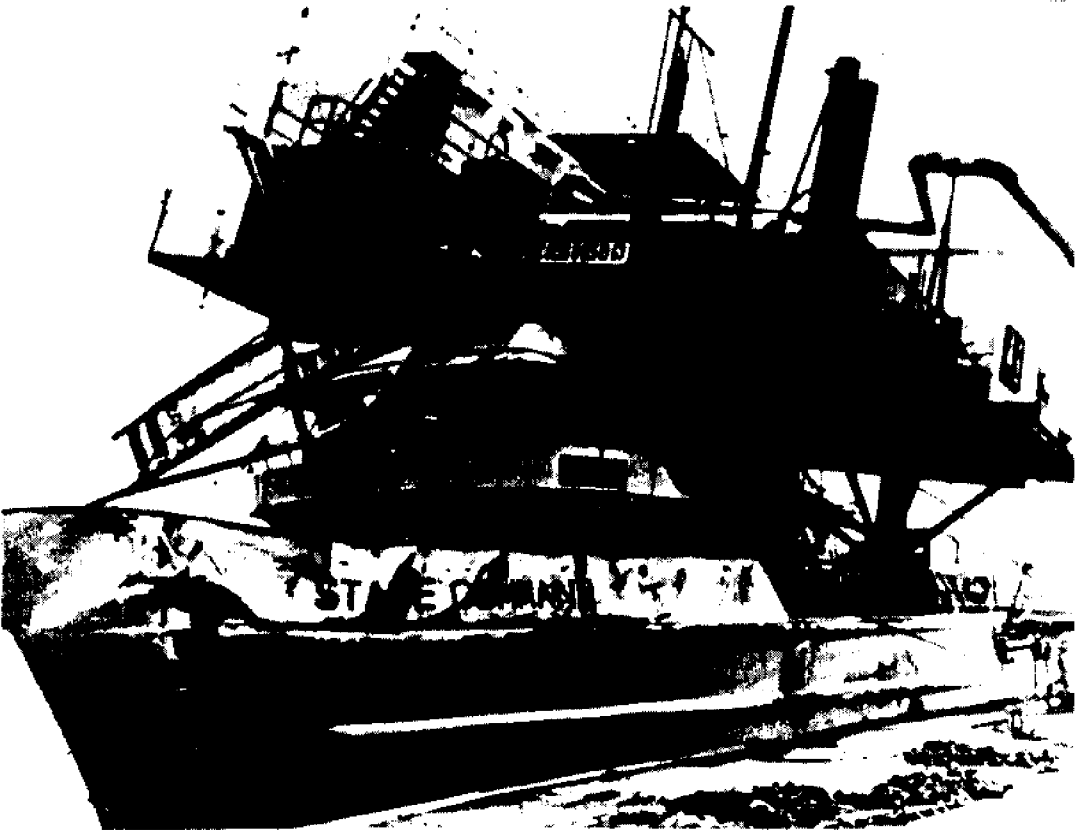
**Gordon:** Which doesn't necessarily coincide wholly with the council system.

**Crutchfield:** There is a simpler answer to the regionalization problem anyway — there's Alaska and the rest. We deal with that all the time.

# PART TWO

## Managing Conflicting Uses

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As the title to Part Two indicates, we are concerned with uses of the Exclusive Economic Zone (EEZ) that tend to be conflicting. To address this issue we have tried to include as many of the user groups as possible. This session includes presentations from representatives of: the environmental community; the oil and gas industry; the fishing industry; marine transportation including both the Coast Guard and commercial perspectives; the National Oceanic and Atmospheric Administration; the Departments of Defense and Interior; and the States of Oregon and Texas. Two presentations were cancelled by representatives of the Environmental Protection Agency and the State of Massachusetts.

The charge that the participants were given and asked to address was: "What are the problems/irritants that each of the industries/levels of government, that you represent, must contend with in carrying out their work in relation to the other industries/levels of government that use the resources in the new EEZ?" We felt that if a better understanding of the inter-industry problems was achieved, then when considering a number of alternatives in terms of management decision-making the chosen alternative would reflect this wider range of understanding and be acceptable to a greater variety of resource users.

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## CHAPTER 3

# Marine Environmental Aspects of the Exclusive Economic Zone

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## INTRODUCTION

I have mixed feelings about being first as we move beyond the overview because it is always easier to react to others if you are later in the session. On the other hand, I think it is an excellent opportunity to lay out some of the marine environmental concerns before we address the more traditional uses in relation to the Exclusive Economic Zone (EEZ). I have several concerns that I would like to address, with examples in some instances.

A theme that I address repeatedly on behalf of the environmental community — whatever the issue might be, whatever the forum — is the need for development and implementation of management concepts that provide for protection, conservation, and sustainable utilization and development of the marine environment. It applies to any issue-specific area and it applies constructively to the EEZ, overall. It reflects principles that have been most articulately espoused by the World Conservation Strategy, which was released by the International Union for the Conservation of Nature and Natural Resources, headquartered in Switzerland, in 1980 in collaboration with several international organizations.

It is interesting to note that we are dealing here with an area that is 3.9 billion acres — 1.7 times larger than the U.S. land area. It is a gigantic new resource area that is being dealt with in a much more comprehensive way than has ever been the case before. Granted we have had jurisdiction over certain uses on the shelf and out to 200 miles with respect to fisheries but now we have a whole panoply of uses that have come under U.S. sovereignty or jurisdiction. A delicate balancing is required as we try to achieve

a responsible mix of protection, conservation, sustainable utilization and development approaches.

As we look at resource use and use conflicts within the EEZ of our nation, also, out of necessity, we need to look at the international implications and considerations. Forty percent of the planet falls within the EEZ as the result of the provisions in the Law of the Sea Convention and otherwise emerging customary international law. There are at least 135 coastal nations and 59 nations that have EEZs of some type. As we grapple with EEZ concepts for this country, our decisions will have important implications for the manner in which the EEZ doctrine is developed throughout the world. I think the U.S. has been a leader with respect to marine environmental concerns as we have approached use, exploitation, protection and conservation of resources in our EEZ. Having said that, I also think we have lessons to learn, solutions to be drawn from approaches being adopted elsewhere in the world community through national actions, through regional compacts — especially through the UNEP-sponsored Regional Seas Program that has been evolving, within which there are now ten compacts involving over 120 coastal States — and through global approaches.

The Law of the Sea Convention (LOS) addresses all sources of pollution in the marine environment. One of the concerns I have expressed on several occasions is that, as this nation moves forward unilaterally, given this Administration's decision not to sign the Convention, we cannot just pick and choose those issues which are most convenient for exploiting resource potential without concomitantly taking into consideration the protection/conservation concerns. The LOS Convention, in Part XII, is focused on protection of the marine environment. There are far fewer references to environmental protection in Part V of the Convention — the EEZ section. Part XV, however, addresses conflict resolution, a matter that has substantial implications for environmental protection. I find myself at times seriously questioning whether U.S. decision-makers are or will systematically incorporate provisions into national EEZ policies and programs which deal with: global and regional cooperation within the EEZ, technical assistance for others, monitoring and environmental assessment, enforcement measures and protection and conservation measures for our marine resources.

The United States needs to avoid fragmented or special-interest use, development and exploitation focused decision-making which fails to recognize and implement adequate marine environment/pollution measures. While some opportunities exist for examining the effects of decisions in one EEZ-related sector on others,

decisions are too often made with inadequate consideration of intersectoral connections, or without basic scientific information or impact-related understandings. I would like to address several issue-specific areas in the context of these broader concerns.

## ISSUES

### *Land-based Sources of Pollution*

Land-based sources of pollution obviously originate landward of the EEZ, but they have significant implications for the degradation of our EEZ. They are by far the worst problem affecting the marine environment. In the U.S. we are fairly good at throwing some money at treatment approaches, but we have not used, effectively, a holistic approach that addresses adequately source reduction and other cradle to grave related approaches. In the U.S. we have essentially a federated group of nations along the coastlines; each have their own jurisdictional fiefdoms that make it difficult to regionally approach the issue of land-based sources of pollution. I think we can learn some things, as a nation, through better use of regional approaches. Models exist elsewhere. The Mediterranean/Barcelona Convention has one of the most advanced approaches to land-based sources of pollution that effect both territorial waters and the EEZ. The U.S. has been involved informally in deliberations sponsored by UNEP — the *ad hoc* group of experts on land-based sources of pollution — that most recently met in Geneva in November, 1983. I think that our continued involvement there can have some payoffs for how we approach this issue within the U.S. In relation to land-based sources, we need to develop — both for our own needs, and *vis-a-vis* other EEZs in the world — a global treaty approach that will establish minimum standards.

### *Oil and Gas Exploitation in the EEZ*

From an environmental perspective, we may be trying to bite off too much of the apple at one time with the area-wide basin approach to leasing. We may not be moving slowly or cautiously enough in some of our frontier areas. We are moving ahead without waiting for adequate information on environmental impacts and without understanding the technology needs, both for extraction and for dealing with the inevitable risk of pollution as a result of

such activities. I think that this is a prime example of the need for consistent involvement of state programs. It is an example of a misguided approach, as laid out by the Supreme Court decision in January, that does not allow for the systematic involvement of all affected parties at each stage of the planning process. Rather, if you take the approach that was set out by the Supreme Court decision, i.e., not involving state or local government in the oil and gas leasing stage in the offshore areas in our EEZ, you risk having unnecessary hurdles at later stages rather than trying to more effectively resolve them early on.

With oil and gas I think the U.S. has been a leader in its efforts to address this responsibility, even though improvements are needed. This is an issue where the United States could advance some global standards, drawing on our knowledge and experience, and that of others, such as in the North Sea, and being of assistance to other countries as they move into their shelf regions for exploitation.

### ***Deep Sea-bed Minerals***

Polymetallic sulfides were previously mentioned, along with other hard rock minerals, as one of the resources within our EEZ. This is an example, to me and to a number of environmental groups I work with, of the concerns I raised earlier in relation to fragmented, special-interest decision making with inadequate consideration of: intersectoral connections, conflict reduction, scientific information, impact-related understandings, or our technology understanding. I think the Minerals Management Service (MMS) effort in the Gorda Ridge is a classic example of moving too quickly without knowing what we are dealing with and causing unnecessary confrontation from a resource management perspective. It also raises significant jurisdictional questions that would be nonexistent if MMS and others moved in a more rational and systematic fashion in relation to exploitation of those resources.

A bill was introduced recently by Representative Douglas Bosco, HR5403, which calls for a five-year moratorium on leasing in the Gorda Ridge by any federal agency. It urges that there be developed a Memorandum of Understanding for a comprehensive research program between federal agencies; and it calls on the President, i.e. the federal agencies, to develop a feasibility report within the next four years dealing with the types of issues that, I think, need to be addressed before moving forward with leasing.

## **Navigation**

As I started preparing for this session, I sat down and read the recent Woods Hole Ocean Policy Round Table Statement, and I reviewed a draft of the National Advisory Committee on Oceans and Atmosphere (NACOA) EEZ report. One of the things that they both flagged and that others have mentioned is the concern, in relation to navigation, that we not do anything involving environmental protection measures that would cause unreasonable burdens on commercial shipping. I share that concern, but I think it is more a red herring than a real problem.

As I looked at the Law of the Sea provisions, for example, I found innumerable constraints or qualifications that guard against States taking precipitous or other actions that would hinder navigation. I say this as a backdrop to my view that, within our EEZ, we need to look at opportunities and possibilities for improving vessel source pollution control in the EEZ, as necessary. It may be that, through aerial surveillance, we will find that there are not any real problems in terms of operational discharges, but I do not think that we should just matter of factly back away from doing anything because of the risk that it might provoke unilateral actions elsewhere.

I think that there are some good guidelines internationally that guard against nations adopting measures, such as marine sanctuaries, that are unreasonable in terms of inhibiting freedom of navigation. In EEZs elsewhere, two nations have already put into a legal framework a pollution-free zone — Oman and Sri Lanka. But they have not done anything that suggests that they are going to put barriers around a particular area of the ocean such that it would prohibit freedom of navigation. I think we do need to look constructively at opportunities for insuring that vessel source pollution is effectively dealt with.

Liability and compensation for vessel source pollution is a subset of this issue as we look at protection within the EEZ. Most major accidents that might occur are going to happen closer to shore than the EEZ, but there are possibilities for such incidents in shipping lanes further out. For the U.S., we have a fragmented, hodgepodge of domestic laws including the Outer Continental Shelf Lands Act (OCSLA), the Deep Water Ports Act, the Clean Water Act, and the Trans-Alaska Pipeline Act, which address oil spill liability and compensation. We really need to address this issue in a more intergrated fashion and to include our EEZ within the scope of coverage.



## **Fisheries**

I think that this issue reflects U.S. leadership through the approaches we have taken with our regional compacts under the Magnuson Fisheries Conservation and Management Act (MFCMA). The issue of overexploitation is being fairly well addressed. The question of habitat degradation is one that we need to devote much more attention to as we try to insure that the spawning/nursery areas for fisheries are effectively protected.

## **Ocean Dumping**

There is dumping, such as that at the New York Bight 106 dumpsite and the pipe discharge going out from San Diego, that is putting waste into the EEZ. You have sewage sludge, dredge spoils and industrial waste. You do not have radioactive waste dumping, although there has been some interest in recent years in putting those wastes in our EEZ. Incineration is a subset of dumping; though it is different, it is often discussed in that broader context. Those issues need to be addressed in an integrated fashion.

In relation to our EEZ, the London Dumping Convention — to which the U.S. is a party — requires that before any nation adopts its own particular EEZ provision, it needs to collectively define rights and responsibilities in that zone with other nations. I heard last fall that the U.S. was considering a unilateral statement on EEZ dumping, since under present law we cannot really control foreign dumping beyond our contiguous zone. My concern at the time I heard that was that, environmentally, it would be good to move in that direction, but we should address it in the context of our treaty obligations, along with others, under the London Dumping Convention.

## **Protected Areas**

“Protected areas” is another issue where we need to look at reform measures. To some extent, it is just a matter of a quick fix to existing laws in order to extend U.S. rights to establish protected areas or marine sanctuaries out to 200 miles — for example, revising the 1972 Marine Protection, Research and Sanctuaries Act. If we look at these issues in the EEZ in an integrated way, we need to look at both multiple and single use types of protected areas. The Farallon Islands sanctuary, with the problems that have been

experienced in relation to oil and gas exploitation nearby or within the bounds of the sanctuary, raised this very issue.

## CONCLUSION

These are examples of issue-specific concerns that I have as I consider the environment/pollution aspects of the broader EEZ issues. A first stage effort for the United States may well be to undertake the more technical fixes to extend jurisdiction under existing laws, and it appears that is or will soon be under way. This can be accomplished, in part, as a result of NACOA calling upon the executive branch to update a 1978 compilation of marine-related U.S. laws in relation to the EEZ proclamation; it appears as though the interagency Committee on Atmosphere and Oceans (CAO) is going to try and complete that task by September. I think that is a very useful contribution toward the kind of updating and assessment of the interplay of all the pertinent issues that is necessary. But, I also think that we need to go beyond that and provide for medium and long-range examination of EEZ and other marine issues. This longer-range effort is embodied in legislation which the House has put forward that would establish a National Ocean Policy Commission. I am not wedded to the particular language that is in that House bill, but I think the concept is a good one. It would allow us to address many of the concerns and recommended approaches that are being addressed here and at other workshops.

The problem I often find, from an environmental perspective, is that too often inadequate attention is given to marine environmental concerns. The Oceans '84 Conference had the more traditional "users" listed as its agenda focus. If I had been involved in setting up that conference, I would have elevated marine environmental considerations to an equal plateau with other traditional uses. (I have similar reactions to the Woods Hole Round Table or the NACOA draft EEZ report.) Environmental considerations need to be effectively integrated and reviewed when looking ahead to future uses of our Exclusive Economic Zone.

## Discussion

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**Felando:** How can you effectively destroy a personal perception that I have, and maybe others have, that environmental groups really don't want any exploration or development of the EEZ and that they are there simply to create dilatory tactics to slow down any development of the offshore areas whether they be oil and gas, deepsea mining, or fisheries?

**Curtis:** Well, I'm not sure I can destroy such a personal perception.

**Felando:** Well, can you damage it?

**Curtis:** I think that is a misperception that the environmental groups are no-growth in their approach. If you look at oil and gas concerns, the major coalition statements that have been presented have not said "No oil and gas exploitation." They have supported a number of lease sales off the U.S. coastline. They have raised questions about certain areas, but in some instances industry has raised similar questions about those same areas.

I think on the fisheries issue the environmental community has not been that adamant, to my knowledge, compared to other issues, in saying that there has been abuse of fishery exploitation in the various regions of the U.S. I happen to feel that the environmental community should be more involved in that issue than it has been, but I think that issue area lends support, if you will, to the fact that over-exploitation in U.S. waters doesn't seem to be a major problem.

With respect to deep seabed minerals, I don't think the environmental community is saying, "should never exploit." I think we would all concede that deep seabed mining is a theoretical issue right now. However, it's one of the games in town that you've got to play, because it's a first impression policy issue on how you address ocean uses. The environmental community is not going to sit back and allow mining regimes to be put in place without forcing the issue of research and science and environmental protection. I think there is substantial support when you look at an issue-specific area, like the Gorda Ridge, where the major industry consortia share that view.

On issues like use of the ocean for toxic waste dumping, though it is slightly different to use the following example, Russ Peterson

of the Audubon Society recently testified on the need for better approaches under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). He represented not only the broader environmental community, but also Dupont and nine other major industries. So there is a cooperative effort there as well.

I think on oil spill liability and compensation, the environmental community has not been that far out on its own track. The cargo interests and ship owners share the concern for taking approaches that are effective and there has been a fairly cooperative approach there. I do not find that there is just this far fringe group saying "don't do anything." I think there are a lot of examples of cooperative efforts and a desire to be more cooperative.

**Felando:** Can you give me some examples particularly off the coast of California where there has been a very cooperative attitude by the environmental groups in developing oil and gas offshore?

**Curtis:** No. In terms of discussing site-specific lease sale areas, I have not been directly involved with oil and gas activities there. There is development off the coast of California. And there are basins that have been taken out of service — removed as potential lease sale areas — by Interior Secretary Clark. I don't know that I can respond to your question any better, given my lack of detailed familiarity with specific California leasing activities.

**Felando:** I am just thinking that you and I both know what has been happening off of Santa Barbara for the last 14-15 years. Let's not kid ourselves. How do you explain that?

**Alexander:** We're about to get into oil and gas, anyway.

## CHAPTER 4

# Oil and Gas Industry Perspective

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### INTRODUCTION

Rather than describe the environmental movement as characterized by no growth, there are two observations I would make. One is that the environmental movement is one which strives for no risk, which is something that cannot exist in this world today. The other observation I would make is that there is always the question of how much study is enough? We can study and we can study and we can study. I think you reach a point where reasonable people would accept that the risk is minimal based on the knowledge that they have in hand and, at that point in time, things should go on. That is basically my position and what I would answer to the question before.

### INDUSTRY POSITION

Turning, now, to the Exclusive Economic Zone (EEZ). Let me say a few things about the basic industry position in regard to the economic zone. First, we are fully in agreement with the decisions of the President on the Law of the Sea because the mining provisions were totally unacceptable to any industry that works within the system. Secondly, we also agree with the EEZ. We think this is reasonable, rational, and in today's world it is only to be expected by a country as large as the U.S.

Our second basic posture is that existing legislation and international law is generally adequate. At least at this point in time, from the standpoint of how are we going to manage the EEZ. We do believe, however, that the USA should assert it's jurisdiction over semi-enclosed margins and marginal basins.

## **LATERAL BOUNDARY**

Any lateral boundaries, for example those common to Canada and Mexico are extremely important to us. As you have heard before, there are very few of these boundaries that have been defined as yet.

The Maine-Nova Scotia boundary area is one where the Canadian Government issued leases in the sixties in what is now the disputed area. The companies that hold Canadian leases in this area are now under moratorium because of the conflict between Canada and the U.S. as regards to where the boundary actually is.

We have a different kind of problem in the Bering Sea. In the disputed area between the U.S. and the U.S.S.R. the Department of Interior is planning a lease sale that will include disputed tracts very shortly. Industry will bid on those tracts and deposit the normal percentage of the bonus and the first-year rental. However, the government will not issue leases on them until such time as the boundary dispute is settled. In the sale notice they talk about an escrow period of five years. I don't know whether the boundary dispute will be settled in five years or not, but that is the time limit being discussed.

It is not advisable, from an economic standpoint, to put your money in limbo for five years even if you are given a small amount of interest on the tied-up money. If we cannot do better with our money than that, then we are in the wrong business. But I suspect, certain members of the industry will bid there and the bids will be reduced. It is a very unfortunate circumstance we find ourselves in there. These lateral boundaries need to be defined. There are also problems in the Gulf of Mexico which we will address.

## **POTENTIAL**

As to the potential of the EEZ, just for background, we can see potential to the edge of the continental margin in any direction. As a matter of fact, from a puristic standpoint, we are already producing in the EEZ, because we have production in water depths in excess of 600 feet which is conceptually the edge of our continental shelf. We are down to 1200 feet off the Pacific, in Hondo, and in Cognac, in the Gulf of Mexico, at 1100+ feet. So, we are already producing and exploring in the upper part of the EEZ.

## **CONFLICTS**

We certainly hope we can keep these to a minimum. We really don't think it is necessary for great conflicts to arise between the oil industry or other interested groups or the government. They should all be able to be resolved without any difficulty. The most important EEZ problems we see coming up are boundary problems. Here, I would like to ask, when these boundaries are defined, please keep in mind the oil and gas and other natural resource potential of the area in question. This has not been the case in the past.

The Gulf of Mexico, and the Bering Sea, are both entirely within the margins of the continent. They contain sedimentary sections. I do not believe, and neither does industry, that government should do anything in the Bering Sea that would allow a small international section to be sandwiched in between the United States and Russian portions. All of this area should be divided equally between Russia and the U.S.

It is my understanding that the Gulf of Mexico and southern California boundaries with Mexico have been negotiated on the basis of fishing rights alone. There was no recognition given to other natural resource potential in this area. So, in any boundary dispute let's keep in mind the other natural resource potentials as well as fish.

Under the Law of the Sea there is one provision, Article 60, which deals with the removal of installations and structures. We are at present working on a revision of that article, through the International Maritime Organization (IMO), to reduce the hardship involved in complying. There is always the specter from the Law of the Sea of potential payment of royalty beyond 200 miles. Conceptually we should not have to worry about that since the USA has not signed the Law of the Sea Treaty, however, it is something that we want to be aware of.

I think that there should be some provisions or mechanism within international treaties between adjoining states to handle special circumstances of producing areas which are in close proximity to or cross a boundary. I'm referring now to the 8(g) problem that is facing certain states in the Gulf of Mexico, particularly the state of Louisiana and the U.S. Federal Government.

## JURISDICTION

We are talking, now, about federal jurisdiction over the oil and gas in the EEZ. I was told we were not going to get into jurisdictional disputes between federal agencies here, so let me just say that it is the oil industry's opinion that jurisdiction for oil and gas on the EEZ should lie with that federal agency that has the most expertise in people and organization. Keep it simple. We would object to any other proposal.

There is a possibility of the need for additional or revised regulation in regard to activity in the EEZ. As you get into deeper water, the cost factor rises dramatically with the depth of water. The margin of profit on the OCS itself is not something that you would want to write home about. When the industry progresses into deeper water and the cost increases dramatically while the value of a barrel of oil stays the same, we are reaching a point of diminishing returns. At some point in time the industry either needs relief or something comparable since we are not going to be able to exist out there like this indefinitely.

Royalty is something that might be considered, either reduction or delayed payment which would help the cause. I do not think there is any question that we need a longer lease term. We are negotiating with DOI now on the lease term in water depths below 400 meters. We think it should be ten years, and Interior says five years, but they are going to find some intermediate position between those two and settle on that.

Tract size has to be enlarged, certainly. You cannot operate on the small features that we are looking at now on the OCS when you are in 4000 feet of water — it just will not work.

There is another very real question that needs to be addressed: should all of the existing laws and regulations that we operate under on the OCS be carried unchanged out to the EEZ? This question is important because we are in a position where we could not live with delay and uncertainty out there. It is just too expensive a game. I don't think that a one hundred million dollar well is going to be unusual at all.

I do not think anyone wants to raise the point as to our capability of operating producing facilities. Normally, the design of producing facilities will run five years behind the design of the exploratory vessels — primarily because, when you start designing equipment to produce in deep water, you have to be very site-specific in your requirements. You cannot design something which could generally work in 2000-4000 feet of water. You must have



very site-specific requirements. Industry does have some ideas like the guyed tower, which you have probably all read about, which should allow us to produce in that depth of water.

Another point that I hope never becomes a problem for us is security of the platform. When you get that far away from land, there is always concern for security of the platform against Lord knows who. We can all think of many problems that could develop out there, and it is something that you should keep in the back of your mind.

## **DEFENSE AND NASA**

The oil industry has the problem of interfacing with the Department of Defense (which I know we will talk about later). This has developed in the last couple of years as our major problem on the OCS. In the southern California area, the Department of Defense has areas laid out crisscrossing that portion of the OCS such that it leaves virtually no place to explore if we are going to be precluded from operating in Defense areas. The same thing is true in the eastern Gulf of Mexico. We had a problem with NASA, as everybody remembers, in the South Atlantic. NASA locked up quite a large area because of the possibility of leasing in areas of emergency recovery were something to go wrong with a rocket out there. We certainly hope that never happens, but when you consider the fact that you are locking up an area for 365 days a year ad infinitum against the possibility of hopefully no more than one accident at some point in time, it seems as though the remedy is a bit of an overkill.

## Discussion

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**Alexander:** Well thank you. I would say one thing. The indo that you referred to in the Gulf of Mexico, would seem to me that under the so called "Irish Formula" (the depth of sediments), would be such that the formulations probably would be interesting, to claim that area out to 200 miles as belonging to the U.S. and Mexico, and the other would be to the U.S., Mexico and Cuba. I'm not so sure that the depths of sediment are that strong in the Arctic — comparably speaking.

**Hunt:** The Law of the Sea has some rather vague words to say about semi-enclosed seas. Nothing is specific. If language is very vague you work it out between the opposing nations. Industry's position is that the Gulf and Bering Sea are definitely within the continental margin in total, both of them. By that fact alone, there's no reason why any portion of it should become international water; rather it should be split between the opposing nations.

**Alexander:** One of the arguments of the oil industry against that boundary, anyway, was "who gave full effect to those uninhabited Mexican Islands, which are 90 miles north of the Yucatan?" And why didn't we take the Yucatan question to those whomever were complaining about that?

**J. Crutchfield:** Could I just raise one point? Is there, in fact, an identified, national interest in rushing the development of EEZ petroleum production? Or are there possibilities that the national interest, in some respects, might better be served by preserving a broader option for American produced petroleum over time? Against the background of that question, is there, then, the necessity of rushing development to the point where conflict with fisheries is inevitable? We are, in fact, moving ahead long before we have the basic scientific information about the resource that is there and the potential impact. It may well be that it's an almost un-researchable problem in its complexity. We don't have to go to the extreme in delaying everything, as Bob is suggesting. But we certainly are not delaying long enough to get a fishery scientist's adequate look at what the impact will be. Certainly not in the Bering Sea, certainly not in the Beaufort Sea and I think it's a problem that needs airing.

**Hunt:** Let me make a couple of observations there. From my side of the fence, what we have been doing is anything but rushing. I mean, it has just been a snail's pace. Another point, we are still as deficient in crude oil, in this country, as we were back in 1973. We haven't made any progress in the last 10 or 11 years. This is a tremendous burden on my back which I feel very strongly. It is also a burden on every other citizen's back. Financially this is a terrible burden to have to carry. And that isn't even talking about the security aspect of it. Russia doesn't have this problem. They are self sufficient in oil and gas and they are exporting it.

Another point I'd like to make is the fact that right now, the domestic reserve base of this country is depleting at such a rate that if we don't find any other reserves by the year 2000, we are going to be nearly out of oil and gas period.

**Crutchfield:** If that really were the case, wouldn't oil be in as short supply by 1990, 2000 and 2010 or more so.

**Hunt:** You never can tell. We make reserve estimates for offshore areas, but we don't know what's out there because we never drilled them. Also, if we were to drill a well today on the OCS and make a discovery, it would be at least ten years before we ever got any of that oil in production. That's just the nature of the beast. So, we don't have much time. We're basically out of time right now. I feel very insecure about it, particularly with all those problems in the Middle East right now. The only thing that lets me sleep at night, I guess, is the fact that there is more crude now in Mexico and Canada than we thought awhile back so, hopefully, there are some options. But, I don't think we're rushing. The time frame under which we are trying to work to keep this country with a secure energy resource base has almost run out on us right now.



## CHAPTER 5

# Fisheries Problems

**RICHARD B. ALLEN**

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*Atlantic Offshore Fishermen's Association*

*Newport, Rhode Island*

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### INTRODUCTION

My charge today is to provide you with an overall perspective on the problems and concerns of the fishing industry in relation to the other industries and government. I find this a pretty distressing task, particularly since I have been giving a lot of thought lately to the whole concept of the fishing industry. If you need a term to apply to the productive capacity of that portion of the nation which is engaged in the harvest of living marine resources, then I suppose "fishing industry" is a useful phrase. I am not sure how often this term is appropriate when we consider the disparity between a clam digger on the mudflats and a tuna seiner or a freezer trawler.

The fishing industry is actually individual owner operators whose businesses are only productive when they are at sea operating their vessels. This is a basic reason for our problems in dealing with other industries, the government, or the academic world. The individual nature of this business also creates the problem of balancing the national or industry significance of a particular action with the impact of that action on a particular individual. As a fisherman and as a representative of fishermen, I have to be concerned with the impact on the individual, which at times seems insignificant, if you consider it in relation to the nation or perhaps a large industry. I think, as I run through some of the conflicts, you will see where it is an obvious disparity between the national, say the petroleum industry concerns and a particular fisherman.

One thing that I would like you to keep in mind, though, is that fishermen are never gaining any freedom. They started pretty much with complete freedom. Fishing has just developed on its own and every step it has taken tends to restrict the activity of the

fishermen. So that whether in the long run it is good or it is bad or it is necessary, almost everything that comes along and confronts a fisherman is a restriction on the freedom that he previously enjoyed.

## **FISHING INDUSTRY CONFLICTS**

### ***Waterfront Property Owners***

Getting into the particular conflicts that we have to face, you can start right at the shorefront, with waterfront property owners, or fishing ports. Newport is a prime example — it is being taken over by condominiums and tourists. The recreational industry tends to compete for space on the shorefront. People in some areas do not seem to like the idea of commercial fishing right off of their waterfront property. There has been a problem, evidently, in Puget Sound lately. It is a problem in certain areas on Cape Cod. They do not like the noise that fishing boats make and it wakes them up too early in the morning. They do not like the idea of people digging up the bottom or whatever it happens to be, whether they understand the operation or not. Particularly the values that have become associated with waterfront property is creating a tremendous problem for fishermen to just maintain a place to work on the shorefront.

### ***Pollution***

Along with this competition for space, pollution starts pretty much at the shore and even inland, and the effects extend out into the water including the estuarine areas and the open ocean. We are all familiar with the ocean dumping problems of garbage, sewage, toxic waste, and dredge spoil. Dredge spoil is a major problem here where we are continually having battles of what we are going to do about dredge spoil when the harbors, like the Providence River, Mount Hope Bay and other areas up and down the coast need dredging. That is a continuing problem and has a real impact on fishermen, like the large areas that are closed to surf-clamming off the middle Atlantic.

An interesting twist to this problem of pollution is that, until recently, we New England fishermen felt that the lobster fishermen in New Jersey were just a bunch of bandits who really did not want to comply with any conservation measures. When we finally got

some of those fellows to come to a meeting to talk about lobster conservation and the size limit, we questioned them as to why they did not want to throw back the shorts. Their reasoning was that the water was so polluted that the short lobsters would not survive if they threw them back anyway. So, until they cleaned up the pollution, they were going to keep taking the short lobsters. Evidently, some of these fishermen now are getting together with the Clean Water Action Group and trying to attack that problem. This is a major area that the fishermen have neglected in working on — the habitat degradation and pollution issue.

### ***Aquaculturists and Ocean Ranchers***

Again, fairly close to shore, in general there is a fair amount of conflict between the natural harvestors and aquaculturists in competition for space and competition foreseen in the marketplace. That is a big issue in the shellfish industry. On this coast, we find that particular problem and evidently on the west coast with the salmon industry.

### ***Environmentalists***

In some cases we have problems with environmentalists; although, most fishermen would like to consider themselves basically environmentalists. The marine mammal issue is one that you have to consider. I thought the way Phillip Conkling put the issue in his book *Islands in Time* about the Maine coast, was not a condemnation of the fishermen. He pointed out that the fishermen generally use the seals for target practice, *but* that the fishermen viewed seals as natural competition for profits. The seals were eating up the fishermen's profits and it was something that they had historically done and it required changing the whole mindset. If you feel that the seals should not be subjected to that, you cannot just assume that everybody will automatically see the right in it. You have to come at it from a little different angle.

### ***The Sports versus Commercial Conflict***

The sports versus commercial conflict I think is one that is getting more and more heated as time goes on. The sports fishermen are becoming more active and causing more competition for the resources. A great deal of misunderstanding between the two groups is developing. So, we have a substantial amount of conflict there.

## **Research**

We have a fair amount of conflict with research efforts. People want to put more and more buoys in the ocean. They want to tow more gear around the ocean to find out what is out there. A lot of these things create conflict. It is unbelievable to me, with as large an area as the ocean is, (if you consider the fishing area of the ocean it gets quite a bit smaller) chances are high that I might steam for five hours to get somewhere, that I've already gotten into my head is exactly where I want to set my trawl, and when I arrive there is bound to be either a research buoy or another fishermen's gear there already such that I am not able to set my gear right where I want it. Now, there maybe all kinds of room around it, but that is where I wanted to set that trawl. Therefore, I've got a conflict and I am going to set my trawl as close as I possibly can to whatever is there and probably create a conflict situation just because I feel that that is where I have to set it. Of course I had no knowledge ahead of time that that particular obstruction happened to be there. I do not know why it happens. It's like collisions at sea — which I can never understand. The chances seem to be against things colliding at sea, if you consider the size of the objects and the amount of space, but they do fairly frequently.

## **Military Maneuvers**

We have problems with things like firing exercises. If people bother to listen to the notice to mariners, they would probably be afraid to go to sea because there are all kinds of firing exercises going on all around you. They give all the latitude and longitude coordinates that most of the fishermen pay no attention to — we all work in Loran. So we really do not have any idea until somebody is trying to get you on the radio and says "Hey, Cap, you know, you better move out of the way. We want to do some shooting here."

We have torpedo ranges off Newport where the Navy likes to shoot torpedoes and see what they do and then go pick them up. They come around with boats and chase you out of the way. They use planes and helicopters and ask you to stop hauling your gear and move aside. This creates, at times, a substantial amount of conflict. In the same area they seem to be able to work around the America's Cup races, but the fishermen have to move.

Submarines are a fairly big problem. They seem to have an affinity for fishing boats. There are a fair number of collisions between submarines and fishing boats. It is a very scary thing because



you do not see a submarine very well. A destroyer or something like that usually shows up on your radar quite well and visually you can see it, but a submarine really sneaks up on you. Even if it is at the surface, all of a sudden you might just see a lot of white water coming and it is a submarine. You would think that a submarine, of all things at sea, would know exactly where it is and exactly where everything around it is. History shows that they do not often have a good idea of what is around them.

### ***Petroleum Development***

Petroleum development, of course, has been a conflict issue that I think everybody is well aware of. I would have to agree that the pace of development has gone a little bit too fast for making sure that we can exist in harmony on the offshore areas. I do not assume, as Mr. Hunt did, that we can resolve all the problems easily. It is only natural that competing interests maintain a competition in kind of a conflict situation that has to work itself out as you go along. It is also natural for each industry to try to protect its own particular interest out there.

Seismic exploration is a big problem for us, even without any drilling activity. We have a lot of conflict with seismic boats towing their 3-or 4-mile long cables behind them — both for fixed and towed gear. If they get into a fixed-gear area, we lose all our buoys which creates a real problem for us. Our fixed-gear lobster pots, long lines, and draggers as well have a lot of problems with seismic boats.

We have actually worked that out, pretty well though, particularly with certain oil companies. If we figure out the timing and get together to talk, we can resolve that particular conflict. What we found is that there are only a limited number of oil companies or seismic companies that we are able to get in contact with and work with. We have had, for example, Mobil Oil send a couple of people up from Texas well ahead of time and discuss with us where they wanted to work. We told them where the gear was going to be at certain times of the year and plotted the gear right out front. They knew where the fishing gear was, they modified their towing patterns, and we didn't have any problems. We talked to the boats while they were on the grounds and everything worked pretty well. If somebody shows up or we get a call from an oil company saying, "Hey, my boats are out there trying to tow their gear and there are all kinds of fishermen in the way, and they can't get along" we have to say, "Well, there is nothing we can really do about it

right now. For next year, if you want to talk to us a year ahead, or six months ahead, we can probably work it out." That is an area, I think, that can be dealt with pretty readily.

Drill rig movement and placement is, of course, a real problem that everybody can see and here you get down to the individual level. Say you've got Shell oil with the national interest at stake. They have decided where they want to place the well. You also have a fisherman or two, who have traditionally set their gear in a particular area and now they are going to be excluded. Looking at it, it is not national news, you cannot say this fisherman had to move his gear. But if you are the fisherman, it hurts. And it is a real conflict situation.

Supply vessel traffic associated with the oil industry can be a problem for us. Submarine pipelines, if we ever get to that extent in this area, will be a problem as they are a problem in other areas.

### ***Shipping Industry***

The shipping industry is a problem we have to contend with. Mostly, it is a general traffic situation just making sure we do not run into other ships. What we see once in awhile, though, is that the shipping industry would like to have the fishermen out of the way. They establish more and more traffic separation zones and then they do not want fishermen to fish in the traffic lanes. Which, again, is a restriction on effort and on the traditional freedom of the fisherman. It is very important because, as I said before, the ocean looks big, but the particular fishing area that is good for a particular season for a particular species may be extremely limited. When you take a small area away from a fisherman, you may be taking a big chunk of someone's income away from them. You know, you cannot just move over and do the same thing somewhere else. So, any effort by the shipping industry to restrict the fisherman is another conflict.

### ***Coast Guard***

Now, moving from the conflicts with other industries, primarily, into conflicts with the government. I think lately what we have seen in the Coast Guard has been one of our big conflict areas. The Coast Guard has moved from an emphasis on being a service organization that the fisherman always depended on to being more and more of a drug enforcement agency. That is the big thing today. There

is a lot of glamour and a lot of money in it. Although, I am not sure whether much fisheries money is being spent on drug enforcement, that seems to be the whole emphasis for the Coast Guard. They can paint the marijuana leaves, or whatever they do, on the cutters. You don't see them painting fish on the side of the cutters — there is not much glamour in that. But to make a drug bust is a big thing.

The way they go about checking for drugs, the method of their boarding, and the guns that they use creates a tremendous amount of frustration and conflict among fishermen. I think it is going to be something that we have to deal with one way or the other to come to some resolution. Because, right now it is getting to be a dangerous situation. The cutters that tend to shadow boats have no lights on at night. The boats may be laying-to where everyone is asleep with only one man on watch and all of a sudden he will see a target coming for him on the radar. He may get the skipper up. If they cannot see anything, they try to call on the radio — no response. The skipper starts the boat up and heads away from the target; the target follows him getting closer and closer all the time. This is a pretty disturbing situation when you get up out of a sleep in the middle of the night and you know that one of your big dangers out there is being run down by a big ship. And here is one that is apparently intent on doing just that.

The next thing you know, you've got a night sun, a huge, brilliant spotlight lighting you up. Then coming over the radio, is "Heave to, we're going to board you." In this area there is not much talk about piracy. But you do see incidents like that on the west coast with murders on fishing boats and drug traffic. That makes people a little bit uneasy. You are out at sea, you don't have contact with anybody, your adrenalin is flowing a little bit just being out there — it is the nature of the business — and then things like this come up. It is not an easy thing to deal with. Then the Coast Guard comes aboard with their rifles, shotguns, shoulder weapons, holstered weapons, and they line the crew up on the back deck and tell them not to move while they search the boat — I don't really see any need for it.

I have never heard of the Coast Guard, at least in this region, being fired upon by either drug smugglers or fishermen or anybody else. And, to say that they need these weapons and that there is an extreme danger from fishermen or drug smugglers attacking the Coast Guard is a bit extreme. It would be foolhardy to do so. You've got a big cutter — maybe a 200+ foot cutter, loaded with big fire power — staring down at you. Whatever guns you have,

you know, you might shoot a Coast Guardsman on the boat but it is all over for you. Even on land, you don't hear about drug busts involving people firing back. They may carry their guns to protect themselves from each other. I don't know what the guns are for, but I never hear of even the police getting fired at when they make a big drug bust. So I think the Coast Guard's activities in relation to the problem are totally out of proportion, and something that must be dealt with.

We've had a fisherman lose a couple of fingers because of the way the boarding was conducted. Just outside of Narragansett Bay they would not let the fisherman come into the bay where it would be safer to do the boarding. Even though the fellow on the local Coast Guard boat suggested it, the higher up said — "No, board him right there," in rough conditions.

### ***Management Councils***

Another government/semi-government agency, the management councils and we do not generally have a conflict situation but because whatever the management councils do involves a restriction of freedom on the fishermen there is a potential for conflict. Not only the regional management councils but the state bodies as well, because they are in business to manage fisheries also and this is generally a new effort.

### ***Department of Commerce***

We tend to be in conflict with the Department of Commerce, on occasion, for generally the same reasons — that is, fisheries regulations — and more and more over the issue of fisheries development which we all should perceive as a positive effort. I think there is as much concern now about over development as there is about development. A number of these development programs go back to the national versus the individual sector interests. If a particular sector of the industry comes up with a program that they think will be good for them, it tends to be implemented on a national level and may actually be counterproductive to other segments of the industry. Some examples could include the Obligation Guarantee program and certain aspects of the Capital Construction Fund including the way it is set up. Most of the financial assistance programs tend to create as many problems as they solve over the long run. Even the Sea Grant program, which people think different things about it, but generally have a fairly positive opinion

of. Even some of the things that we tend to think of as positive may, in fact, do us a lot of harm.

There are a lot of traditional barriers to entry into the fisheries, for example the hangbooks. Every mobile-gear fisherman has a log book with the hangs, areas where he is going to tear up his net or lose it. Then Sea Grant comes along and publishes a hangbook. Now, this allows anybody that wants to go out and tow a net around to be able to do so without the threat of losing his gear. So, you have made it possible that more fishermen can come into the business. This also pertains to economic analyses of the industry. They make it easier for people to know how the business works and how to get along in the business.

People are doing certain things that may be difficult for other people to duplicate (technology transfer). It is an odd mix of things that makes a successful fisherman in a particular fishery — you cannot merely step from one to the other. You do not even realize what is involved in the other person's fishery until you try it. The more you do to make it so everybody can get in, the more you break down the traditional barriers and create an apparent need for some artificial barriers.

Again, within the Department of Commerce, marine sanctuaries tend to crop up once in awhile. It is an effort that always seems to be lurking in the background. It does not seem to have an on-going input — just all of a sudden pops up. Suddenly, there is a big program where we have hired all of these scientists and now they have told us the right thing to do. It takes a lot of political effort to slow down an established program. Not that they are necessarily all bad, but the kind of interplay that you need to be sure they are good has not been there.

### ***Department of State***

Our big effort with the Department of State (DOS) has been toward the removal of foreign fishing. We tend to run into various problems with the government not wanting to move as fast on the removal of foreign fishing as we would like.

The Canadian/U.S. boundary is now an issue. We are concerned that the DOS may actually bring us into conflict with the International Court of Justice. It was mentioned earlier that the decision by the world court could be critical for certain segments of the industry in this area. Where the boundary actually ends up is going to be important to decide whether people can make their livelihood in the same way they have for years or not.

### ***International Trade Commission***

The International Trade Commission, right now is dealing with the Canadian fisheries trade practices. We have not had a very good experience in the past and we are trying to correct what we see as a problem there.

### ***Congress***

Congress itself tends to be a problem at times. And, here again, I would say it is almost a problem of over enthusiasm more than it is of not doing enough. It is doing too much. Everybody wants to help us. They come up with all kinds of programs: the Fisheries Development Corporation, Marketing Boards and what have you. Nobody can understand why the industry just shouldn't be overjoyed at these types of things. It's the sort of thing where if you leave us alone a little bit, maybe we will find our own way. Chances are, you try to help us too much and there are going to be repercussions that none of us could foresee. We have gotten a little wary of that. I think every new personnel change results in people needing an issue. Fisheries becomes pretty popular and it is a hard thing to fight. If you get a powerful congressman or senator who gets a bug about doing something it is a pretty tough thing to try to work around in a nice way, and not end up with something that might be detrimental to the industry even though it sounded like a good idea at first. Here again, I think we end up with national solutions to particular regional problems or perceived problems at the regional and sectoral level.

### ***Academics***

Academics have a great deal of impact but often not the same quantity of knowledge to back them up. Trying to get the academics to work closely enough with the industry rather than doing a lot of theoretical work has been pretty tough. It is difficult for the industry to try to force this kind of an issue, because we do not tend to participate as much as we should. With academics it is their job to work on these things. They are part of big structures that go on regardless of what they happen to be doing that particular day. On the other hand, if the fisherman is not out there fishing, he is not making any money and his boat is being unproductive. He does not have a big structure to carry on for him while he participates in this type of activity.

## **Big Business**

Getting down to the last of it, we are left to the movement, in recent years, towards big business and tax shelter investments. I think they have hurt the fishing industry. The creation of fleet operations which are not in keeping with most of the industry, generally have not succeeded in our fisheries. They do, however, create some fairly big problems while they exist — until they go by the board. Then, when the fleets go out of business, you end up with a lot of cheap boats on the market, so you get an influx into the industry. You have a lot of increased effort since there are a number of extra boats around at distressed prices.

All of this involves the financial institutions. It is usually the people with the best prospectus and the best presentation who are the least likely to succeed in the fishing industry. A guy that has figured something out on a napkin in a coffeeshop, talking things over, is going to have a hard time getting the money but he has the best chance of succeeding. If you came in with a staff of lawyers and accountants and a package 3" thick of viewgraphs and showed them to the bankers you may get all the money you wanted, but in four or five years, chances are that that operation would not be around. I think there is still a fair amount of that. There are a lot of people with a lot of big ideas about what can be done in the fishing industry both at sea and onshore.

## **Fishing Industry**

One of the things I have not gotten into at all is the conflicts within the fishing industry. Evidently we are going to talk about that some tomorrow. However, our general view is that in many cases we are afraid that any government action to resolve the conflict is going to make matters worse. So, we may opt for living with conflicts. I do not think it is necessary that every conflict be resolved. They are going to work themselves out one way or the other — either economically, by people getting fed up, or socially. They will result in either a continuing level of conflict that everybody has just accepted or one side is going to overpower the other. They are going to be resolved one way or the other and the question is whether you can come up with a solution to a conflict that is any better than either the conflict or its natural resolution.





## CHAPTER 6

# Transportation: Coast Guard Perspectives

### *Navigation Safety and Future Prospects*

**JOHN SHKOR**

*Commandant  
USCG Headquarters  
Washington, DC*

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#### **PURPOSE**

My purpose is to give you a Coast Guard and Department of Transportation perspective on some of our concerns with respect to the Exclusive Economic Zone (EEZ) and its use. Within this workshop, I think there are three things that should be mentioned, (1) safety of navigation; (2) protecting the future of ocean navigation; and (3) protecting the quality of the environment. I'm going to speak to the first two and my colleague, Cmdr. Eric Williams, will speak to the third.

I would like to mention some of the navigational uses of our EEZ: domestic tanker transporting industry — I skipped over fishing; the importation of crude oil; and other transportation of goods. We should realize the importance of commercial navigation. In 1981, our foreign trade constituted a little over 750 million long tons and had a value of \$315 billion dollars. It's sizable. If you add to that the navigation necessary to conduct our fishing interests and the navigation necessary to give effect to our offshore oil and gas development, you'll see why we think navigation is so important.

## **SAFETY OF NAVIGATION**

I want to talk about safety of navigation — how we avoid casualties and how we sensibly and safely should use the resources of our EEZ. In my judgment there are four things that are necessary for nearly any offshore operation if it is to be done safely. They are: (1) sound equipment; (2) competent people; (3) adequate information; and, (4) an optimum environment. Because of the nature of this workshop I am going to focus on the last point primarily — optimum environment — with some mention of the third — adequate information.

### ***Port and Tanker Safety Act***

First, the Port and Tanker Safety Act of 1978. It is a statute that gives us authority to, if you will, determine some use conflicts in what I think is a prudent way. I'm going to read to you just a little bit of the law itself. Port access routes:

In order to provide safe access routes for the movement of vessel traffic proceeding to or from ports or places subject to the jurisdiction of the U.S., the Secretary shall designate necessary fairways and traffic separation schemes for vessels operating in the territorial sea of the United States and in high seas approaches outside the territorial sea to such ports or places. Such a designation shall recognize, within the designated area, the paramount right of navigation over all other uses.

Now, the law does not allow us to do this in a willy-nilly fashion. We are required, before we do this, to undertake a study of the potential traffic density and the need for safe access routes for vessels in any area for which fairways or traffic separation schemes are proposed or which may otherwise be considered. We have to publish the results in the *Federal Register*. We have to consult with the affected interests and to the extent practicable, we have to reconcile the need for safe access routes with the needs of all other reasonable uses in the areas involved.

### ***Collision Regulations***

The second important area that I want to mention are the collision regulations (COLREGS) implementing the 1972 Convention for Prevention of Collisions at Sea. First, they provide for the resolution of vessel conflicts among themselves. They provide steering

and sailing routes, light signals, the ability to predict and anticipate — what I think is so important to Dick Allen for instance — what the other fellow is going to do so you can base your actions accordingly.

In addition to the steering and sailing rules, the COLREGS establish an international obligation for the observance of traffic separation schemes which have been created by coastal States and blessed by the International Maritime Organization (IMO).

### ***National Policy***

The third thing I want to mention is our national policy, which I hope will remain for the future, against unnecessary obstructions off our coast. Our present policy is for the removal of obsolete structures. This is reflected in international law in Article 5 of the 1958 Convention on the Continental Shelf and in Article 60.3 of the Law of the Sea Convention. This is important because, as we all know, accidents will happen, despite the best intentions, and to the extent we can optimize the environment in which navigation is conducted we will minimize the likelihood of harmful casualties.

I had our computer people do a run of casualties involving platforms and other kinds of structures on our outer continental shelf for 1981, 1982 and about half of 1983. We found there had been 79 casualties. Property damage to vessels ran to \$28 million dollars. While most of the casualties involved supply vessels that service the offshore oil patch, as we would expect as the course of doing business, 12 of them involved fishing vessels and were significant.

What is a traffic separation scheme? It is, if you will, a highway in the ocean where traffic will, to the extent practicable, line itself on a directional basis and be separated by what is called a separation zone. It is different from a fairway, which in our usage, is the absence of structures, platforms, or other hazards to navigation. A fairway, if you will, is a no build area, although there are some exceptions. It is no build, no explore area. Traffic separation schemes have to be blessed by IMO and I just wanted to point out that that blessing is not necessarily automatic.

There were traffic separation schemes proposed for the New York approaches. As they were ultimately approved, however, there is not a traffic separation zone in effect for a portion of the approach. The reason was that IMO concluded that there were inadequate aids to navigation that would enable a mariner to meet his obligations to stay in a traffic separation zone. So, that is simply a hole in the zone.

On the high seas, the traffic separation zones are recommendatory. They are not mandatory for foreign vessels, at least from the standpoint of U.S. law, but one shouldn't surmise that they are ignored. This is a useful point, that there are other pressures in the world that give rise to compliance with good ideas besides the evil prospect of a civil penalty imposed by some agency of the U.S. government. For U.S. vessels, in addition to the penalty that is applicable, there are licensing actions. For the foreign vessels there is a scheme under the COLREGS whereby violations are reported back to the flag state for enforcement. Based on our experience, we believe that there is meaningful enforcement in most of the world's major merchant vessel fleets. There is the pressure to avoid liability for casualties which would result in the case of a vessel involved in a casualty and not following the recommended practice. It shows an imprudent operation within the context of admiralty law on negligence.

When one looks at the fairways in the Gulf of Mexico, one can see how the effect of development can restrict the operating areas for vessels due to the presence of obstructions. The consequence is a concentration increasing the flow of traffic in fairly confined areas.

Now, if we turn to California, the Gulf of Santa Clara and the Santa Barbara Channel, there are different rules there permitting other kinds of activities in and around the zone. The rules for that permitting are generally administered by the Army Corps of Engineers along with the Coast Guard. Well, that's how we deal with some of the safety/navigation aspects off our coast.

## **REDUCING NEGATIVE INFLUENCES ON NAVIGATION**

The other area that I wanted to touch on was one that I think we shouldn't lose sight of, and that is how we can best craft our EEZ implementation and resource exploitation so as to minimize the harmful consequences to our worldwide navigation interests. Perhaps the best answer is to look at the President's Ocean Policy statement of March 10, 1983 and the proclamation which created the EEZ. In the policy statement, the President, after identifying his concerns with the mining provisions of the LOS Treaty, said:

The convention also contains provisions with respect to traditional uses of the ocean which generally confirm existing maritime law and practice and fairly balance the interests of all States.

And the President further stated that:

The U.S. is prepared to accept and act in accordance with the balance of interest relating to traditional uses of the oceans, such as navigation and overflight. In this respect the U.S. will recognize the rights of other states in the water off their coasts as reflected in the convention, so long as the rights and freedoms of the U.S. and others under international law, are recognized by such coastal States.

Portions of the Law of the Sea Convention pertaining to traditional uses of the ocean can serve as a check on expanding coastal State claims. They limit territorial sea claims to 12 nautical miles and constrain jurisdiction within EEZs to resource and resource related matters. Passage is preserved for ships and aircraft in straits overlapped by 12 nautical mile territorial seas, and archipelagic waters.

Pollution jurisdiction by coastal States, within the EEZ, is constrained by safeguards which protect vessels from unreasonable interference, while providing mechanisms for protecting the environment. Notwithstanding U.S. rejection, it is to the advantage of the U.S. that other nations act in accordance with the provisions of the convention pertaining to limits on claims of jurisdiction and rights and duties with regard to navigation. This is important because overreaching claims can handicap commercial and military navigation, both afloat and in the air.

The example of the United States will be significant in the continued development of State practice. The U.S. action, with regard to resources or pollution in the EEZ, could trigger unintended adverse consequences for navigation, if not done properly. Simply put, if the U.S. does not want other nations to overreach or act inconsistently with the non-seabed portions of the LOS Convention, then the U.S. should neither overreach nor act inconsistently. Maintaining consistency with the balance of interests reflected in the LOS Convention, as we develop our EEZ, and protecting the future of ocean navigation may prove to be a difficult task.

Resource interests may be unmindful of or even willing to subordinate navigation and defense concerns in order to maximize the opportunity for resource exploitation. The resource issues translate directly and clearly into dollars and cents. Navigation concerns translate only indirectly, into future, speculative and often non-quantifiable concerns.

I don't mean to downplay the importance of resource development for our nation, but I am suggesting, however, that resource programs ought to be developed in such a manner so as not to

prejudice our navigation concerns. We believe that it is in the interest of the U.S. to continue to protect the future of ocean navigation by insuring that our policies and actions, including those relating to pollution within the EEZ, are compatible with our worldwide navigation interests.

With respect to the issue of pollution, for instance, this should not prove too difficult because of the geographic situation of the U.S. It is worth remembering that almost all the tanker traffic, transiting close to U.S. shores, is destined to call at U.S. ports. And, as a consequence, the U.S. is able to rely on the concept of port state jurisdiction as opposed to coastal state jurisdiction, as the appropriate basis to accomplish most of its pollution goals.

Conversely, tanker traffic carrying oil from foreign fields to the U.S. transit coastal waters of many other nations. They are potentially vulnerable to unreasonable or excessive interference by coastal states, which may choose to base their actions on inflated views of coastal state jurisdiction and do so under the rubric of pollution oriented requirements. It would appear to be, then, in the interest of the U.S. to avoid any unnecessary action which could serve as a precedent for an open ended expansion of coastal State jurisdiction. Reliance on port state jurisdiction and generally accepted international standards would appear to pose no such threat and to be the desirable alternative.

## *Environmental Quality*

**ERIC J. WILLIAMS III**

*Chief of Port and Environmental*

*Safety Enforcement Branch*

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*Washington, D.C.*

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I am speaking today for the Enforcement Branch of the Port and Environmental Safety Division. We deal in Coast Guard boats. We deal with water pollution and with inspecting vessels to make sure their equipment is proper for preventing pollution. We also

deal with dangerous cargo and other things not really related to our purpose here today.

## **MARPOL**

I would like to go over a little of MARPOL 73/78 (the International Convention for the Prevention of Pollution from Ships, 1973, as Modified by the Protocol of 1978), an international convention which addresses pollution on a global scale. This agreement was hammered out over 15 years through meetings between the U.S. and a number of other nations. They tried to develop a comprehensive international treaty to reduce pollution in the ocean. It addresses normal ship or operational procedures rather than accidental pollution. You may say it addresses pollution which is done on purpose in normal shipboard operations. And in that connection perhaps I should mention a tanker and its required ballast. A tanker carrying crude oil when in a loaded condition, runs deep and is able to maneuver properly. Once it discharges its product, its crude oil, it is then too light to maneuver properly without taking on ballast. In an empty tanker, the propeller and the rudder are partially out of the water. It must take on water to ballast down and become more maneuverable. The discharge of this ballast has historically been a primary source of pollution because the ballast water comes from the tanks which previously contained oil. Discharging oily water residue from tank washing is another operational source which has contributed to pollution.

Three new things are required in this convention: 1) an oil record book; 2) an international oil pollution certificate given by a signatory flag state; and 3) various items of pollution prevention equipment.

For MARPOL to be effective, firm consistent enforcement is necessary. Our boarding policy has several elements to promote compliance. One of these is civil penalties; however, they are merely a cost of doing business for a ship. So a more meaningful, higher level of enforcement is necessary such as retention of the vessel until it either complies or makes arrangements to comply if resolving the problem is extensive or costly. An even higher level of enforcement is to deny the vessel entry to the U.S. "Don't come and trade with us, if you do not comply." Something done rarely but done.

Under the international scheme, if the vessel: (1) has the International Oil Pollution Prevention (IOPP) certificate attesting to their

compliance with the provisions of MARPOL and the special equipment is on board; (2) has been inspected by their government and meets international requirements; (3) has the required oil record book stating when they have discharged oil into the water and how much; and, (4) generally looks okay; we do not examine further. However, if the ship is in poor condition we inspect more closely. We've had pretty good luck so far with the program. We have an air surveillance program offshore. Part of it is dedicated to MARPOL enforcement, part of it is used in conjunction with fisheries or applied to other enforcement. The oil record book, the IOPP certificate and pollution prevention equipment, are all required now on new ships. Existing ships, and there are a series of definitions within the convention that talk about keel laying, delivery and contract dates (gets a little confusing), are required to comply by October of 1984.

We have boarded vessels in port and conducted surveillance offshore. We have found some vessels, but not many, discharging oil, but there is not a total ban on operational discharges of oil, although tankers cannot discharge within 50 miles. A freighter might discharge some bilge through a separator, then a filtering system, so the oil/water mixture is no more than 15 parts per million in the discharge stream — unmeasurable once it gets into the vastness of the ocean but measurable in the discharge itself. That small amount may or may not cause a sheen. You are all probably familiar with the sheen test for inland waters and our territorial sea under MARPOL — oil may be discharged offshore at a level of 15 to 100 parts per million and, depending on the oil, that may not cause a sheen.

While it is possible to detain a ship, we want to work with the international shipping industry and bring everybody up to these higher standards. We find that some inspected ships do not have the IOPP certificate of compliance on board. The reason for that is that there are so many ships there is a paperwork jam. The vessels have had their inspection, they comply, they have all the equipment, they just do not have the typed form. Okay, they do not have the form typed, but they have something from the government which says the ship complies and the form is coming. We are not going to hold a ship up for paper if it complies with the intent of MARPOL which is to lessen the amount of pollution in the ocean.

The oil record book is a log that we print and give to U.S. flag ships. Many nations, particularly those which are not party to the convention, do not have their own record books. So many ship captains come to the Coast Guard and say, "can we have one of yours?"



"Well, you guys haven't complied, we want you to comply; take one of these and copy it. Just take the U.S. off the front." It is not the form, it is substance we are dealing with. We will worry about the form later.

During our patrols of the east, west and gulf coasts we sighted 1,800 ships and only 40 had been discharging any oil. You can see a very light sheen from the air very quickly. The question then becomes are we flying in the right place or is there really a problem? Every three months we do some analyses and change our pattern. Maybe we do not have that big a problem right off our coast. Of course, when crude carrying ships come in to the U.S., they are not in ballast. They are fully loaded, and they take on ballast here. They discharge their ballast wherever they pick up their crude, whether it is Venezuela or the Gulf or wherever, and so what we have so far makes sense for tanker operations.

MARPOL has been in effect for just six months and the jury is still out. One problem is the oil record book which is held and completed by the ship's company. When we get a report of a violation from offshore, we do not know if the ship is coming into the U.S. All of our coastal Captains of the Port are connected by a computer. We at headquarters put the name of the ship into the computer along with the suspected violation. The air station sends to us their evidence. Then wherever that ship comes in the local Coast Guard knows to board it and find out if they have logged any discharges of oil. Did they discharge oil? Yes they did. How much? If they do not have any entry at all, that is a violation. If they have an entry which says "yes, we did discharge oil, but not in excess of the limits" we may not be able to prove that the parts per million were a little too high. You cannot look at a sheen and say "yes, that's 15 parts per million versus 18." We cannot do that yet; however, we have some systems in our R&D which may be able to tell us how much oil is in the water. We will see. That is one of the major gliches. Also, if the ship does not come into the U.S., we forward the case to other governments. But they may require more proof than we can give them.

Looking ahead, beyond MARPOL Annex I (oil), Annex II (chemicals) goes into effect in 1986. Also there are three other so-called optional annexes which have not yet been ratified. They regulate sewage, garbage and packaged dangerous cargo.

This October there will be a requirement for waste reception facilities onshore. Every port must provide facilities to take cargo or bilge slops from ships. The only enforcement the statute permits is denial of entry of all ships into those ports which do not

comply. Can you see the ports of San Francisco or New York being closed? It probably won't happen.

## **OCEAN DUMPING**

Another offshore environmental enforcement area we are involved in is the ocean dumping program. Ocean dumping is an EPA permitted process and the Coast Guard conducts the enforcement. We do not deal with dredge spoils (the Army Corps of Engineers handles that), but we do monitor toxic waste and sewage sludge disposal. Most of the ocean dumping on the east coast comes out of New York. Sewage sludge from New York City is dumped within 12 miles of shore in what they call the bight. There is talk of changing that to a 106-mile site. If they are ordered out to 106 miles, the first thing that may happen is that New York will go to court. To change from 12 miles to 106 miles is a tremendous economic difference in cost to the city. We conduct surveillance on those barges going offshore to 12 miles by radar. The same method is used in other areas around the country. We ride many of the barges and vessels out to the 106-mile site to insure they dump where the permits require.

To provide less costly and more efficient surveillance, we are developing a black box to tell us when someone dumps, where they dump, the name of the dumping vessel, and the permit requirement. All this information will be available in the computer for each one of these barges. On the barge there will be a sensing package which will probably work on the change of draft as the barge pumps out. A Loran C unit on the barge will compute real time position so that we can figure out where the barge is when it starts to discharge. With this black box on board combined with the real time transmission of data we will know if a barge or ship is discharging in accordance with its permit. This black box will give us increased coverage and increased enforcement at less cost.

## **DEEP WATER PORTS — LOOP**

Our other EEZ concern is the deepwater port. We only have one in the U.S., that is the Louisiana Offshore Oil Port (LOOP). At the LOOP platform, ships are off loaded and the oil pumped ashore. There were 172 ships offloaded in 1983. They offloaded 137 million barrels of oil and had 16 oil spills for a total number of

19,500 gallons. One spill accounts for almost all of that. The mooring lines broke between the ship and the buoy and they broke a hose. That is a fairly good record.

One problem we have at the LOOP platform is the definition of harmful quantity. As the platform is in international waters there is no definition of a harmful quantity which will activate the pollution fund. The pollution fund is a special fund to clean up oil when the spiller is unknown or will not take responsibility. We are asking that the EPA define harmful quantity in the same way as MARPOL. Since the LOOP is located on the high seas and the discharge standards should be consistent.

## Discussion

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**Williams:** Any questions?

**Stewart:** I would like to suggest to you that there is a very strong possibility, which was suggested to me last year by a representative from the city of New York, that if the New York authorities go to the 106-mile dumpsite there are two very large crude carriers (VLCC's) that are laid up that they would be prepared to use rather than barges. Therefore, the problems you cite will be somewhat different.

**Williams:** They certainly will. One of the issues with the dumpsite is the rate of discharge. If you start dumping from a VLCC, there is going to be a problem. But since it is such a big ship with its own power and controlled pumps, certain other problems will be solved.

**Curtis:** Do these activities you have been describing have to be integrated with the fishery patrol and enforcement activities? Do you use the same personnel and equipment?

**Williams:** Yes we do. As these patrols fly along for the fisheries enforcement and they see a vessel discharging oil they come down and get the name of the ship and also contact the ship which has been stopping and discharging. But that does take some of the time away from the other duties.

**Curtis:** Commander, let me follow up on a point made earlier this morning about the concern with no unreasonable burdens on navigation. My view is that both our domestic law and MARPOL have been successful in effectively dealing with a form of potential pollution, accidental discharges, etc. Put together they represent a very good scheme overall both for use by this nation and by others. I think it would be fair to say that in theory no nation has adopted special measures in the EEZ that have actually inhibited commercial navigation. I think it would also be fair to say that this government's view is that the provisions dealing with vessel source pollution in the conventions are ones which we can support and concur with. The LOS Convention makes express reference to issue-specific treaties as sort of being the pace setters in pollution control. The International Convention for the Safety of Life at Sea (SOLAS) and

MARPOL are two such examples and the U.S. has been very actively involved as one of the leaders in ongoing work through the Marine Environmental Protection Committee (MEPC) and the Marine Safety Committee.

On that second point my feeling is that there are a number of opportunities for the U.S. to effectively insure under the international system that there will not be unreasonable constraints on navigation. There is a role for the U.S., and there is a role for IMO as the key competent international organization. The IMO's delay periods allow a response to proposed schemes dealing with boarding and enforcement of pollution regulations, and I know of no real-life example of unreasonable constraints. I come back to the point I made earlier that while I do not think that this nation needs to do a great deal more in our EEZ, I think we should be careful about blowing out of proportion the potential for harm elsewhere given the system that is in place.

**Williams:** What I found, on my first trip over to London, is that we have to fight to keep what we have gained. Already, there are people trying to dismantle parts of MARPOL. For instance, where we have equipment requirements to limit the amount of oil that can be discharged through the separator or filter process, they are saying that since vessels are not supposed to discharge within 50 miles, why not agree that only vessels which travel inside of the 50 miles of the coast need any of this equipment. But what if the captain changes his mind and goes somewhere else? So, there are things still to be accomplished and indeed this is only the first annex.

The chemical annex is going to be even more exciting, for we are trying to get equipment requirements for this annex as well. Right now the scheme is basically a promise not to discharge. We find that operational constraints do not work as well as equipment restraints. When it comes to vessels moving internationally we treat the requirements the same way we do domestically. We cannot give any economic advantage to vessels of countries which have not signed the IMO Convention. So all non-party vessels, when they come into our waters, have to have all the MARPOL required equipment. They have to have an equivalent IOPP certificate, they have to have an oil record book and they have to act as if their country had signed the convention whether the government has or not. The shipping companies must come up to our standards. For all non-party countries, if they wish to trade with a party state they must meet the standards.

**Cruikshank:** I have a technical question. How do you measure a surface film in parts per million?

**Williams:** Well, this is not measured in the water, but through oil/water separating and filtering equipment on the ship. It has to be at the filter which prevents the passage of oily water mixtures greater than 15 parts per million or one hundred parts per million. But it is tough to do and, if there is a discharge, it is hard to take an offshore sample after the fact.

## CHAPTER 7

# Commercial Navigation Concerns

EDWARD CROSS

*Safety/Environmental Coordinator  
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### CONFLICT SITUATIONS

I disagree with most of what Dick Allen and the Coast Guard representatives have said. I have been the captain of a supertanker for many years, yet I do not know if we have the same animosity for each other — fishermen and deep sea sailors. We curse fishermen sometimes because the rule-of-the-road actually protects them. Even if they are not fishing, they still expect protection. The Gulf of Mexico safety fairways, are put there for us since we are drawing 75 feet of water. When we see fishermen fishing in the fairways we cannot get out of the safety fairway because most of our captains are navigating by rigs. The aids to navigation are virtually negligible in the Gulf.

I agree with the Coast Guard drug enforcement situation, however. I have been anchored in the Gulf of Mexico, waiting for a small ship to come and take some cargo off larger vessels when fishermen have come to us looking for beer and spirits. They called up on the radio and said they wanted to exchange drugs for something or do we have any drugs we want to sell them. We have been approached that way. So, the Coast Guard is right in doing their enforcement.

In 1978 and 1979 we had a lot of accidents around the coast of the United States — something on the order of about 5 collisions and groundings. The Coast Guard suddenly got panicky. They instituted a system of inspection on our ships which was startling. Our masters were afraid to come into the States because of the inspections that they were going to go through by the Coast Guard. One of the things they looked at was the pipelines to see if they have been patched. Some of the patches put on were stronger than the pipeline itself. But, if you had a patch, a citation was given.

This still goes on. This is the only country where I have been that there is a physical inspection of the pump room and the pipelines by a government body. If you go through the U.K., Germany or France you do not get this. Even with MARPOL, revised since 1983, you are still not getting government uniformed bodies coming onboard to physically inspect the ships. You only have to go through customs and immigration. The customs people want to see your certificates. If you produce them, you are okay.

It is really quite a fearful experience for a captain of a foreign flag vessel to come into the United States. You must agree that most of the oil that comes into the U.S. is carried on foreign flag vessels. We have very few ships flying an American flag that go abroad now to pick up any oil. It is mostly coastal traffic that we see with an American flag. The Liberian and Panamanian flag vessels that you heard were so good are mainly owned by American or European money anyway. The crews are often West German or British or some western European nation which man these vessels. I do not think it is fair to cite just the flag and say they are good.

## **POLLUTION: IT CAN BE AVOIDED**

Going back to the equipment on the ships. We in Mobil spend a lot of money on equipment for our ships. Whatever a captain or chief engineer wants in the way of equipment, if it is malfunctioning, we replace it. It does not matter what it costs. We do not want to pollute the seas. It is not our intention to go around dumping oil in the ocean. There is no need for it. Pollution can be absolutely avoided. There does not have to be any pollution from ships — only in a collision or a grounding. We have means of keeping the oil on board — we load on top and in the new ships we have segregated ballast tanks. If you are willing to spend the money, you do not have to have pollution.

There is talk about receiving the ballast from chemical tankers ashore in 1986. There are very few places that have enough ballast space to accept this additional ballast and this is going to be one of the major problems of 1986 for commercial navigation interests. Where are we going to put that ballast if we cannot dump it into the sea? We do not have good enough oily water separator equipment to tell us that there are 15 parts per million or 10 parts per million of oil in the discharge, which is expected in 1986, let alone 100 parts per million. This is going to be a big problem.



If we want to spend the money, we can stop pollution. There is no doubt about it. Most of the accidents that occur are human error, anyway. I would say 95 percent of the accidents that we have are not caused by equipment but by the man that is using the equipment. How are you going to stop that? That is going to be an ongoing problem from now until the end of the century. You are going to have human error. So, we spend, as I say, millions on equipment for a ship but if someone is lackadaisical or makes an error, you've got a massive pollution problem and who gets the blame? The major oil companies get the blame and we are blamed all over the news media. It gives us a bad image and we do not like it.

We are also members of various organizations like the Marine Industry Group (MIRG) for example. We spend a lot of money there where we look at environmentally sensitive areas. We have contingency plans that come into force to protect these areas. We are not adverse to spending hundreds of thousands of dollars when it comes to stopping pollution. So, from my point of view, I think it is a real shame that most people, the public, think that major oil companies are the ones that are always doing the polluting and that's not so.

I do not know if you are familiar with the crude oil washing and inert gas that we have on our ships now which is a terrible expense. The segregated ballast cuts out cargo space. We sail around the ocean so-called loaded, but we have certain tanks that are completely empty — they are dedicated ballast tanks. That is a loss of revenue but our companies have absorbed it.

Coast Guard, MARPOL, all organizations that make regulations, sit back and leave it to the people on the ships to put the regulations into force. Now, you are coming out with a very good scheme. I believe you are going to put some Coast Guard representatives on our ships and work for three months on the ship and then some time in the office to see what actually goes on day-to-day aboard commercial vessels. I believe that is a very good idea. You will actually see the problems that people aboard ships have when they are sailing and trying to put these regulations into effect. It is not easy. We also have reduced the number of crew — where we had 40 men on the ship before, we now have 27. It is a big burden on everybody, and I believe that could be a factor in some of the accidents that occur.

## Discussion

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**Shkor:** Captain, you've made some excellent points, a few of which I would like to respond to. I was a rookie Coast Guard marine inspector in New Orleans in 1979, and set up what we call a foreign tank ship boarding program for the port of New Orleans. The program has been responsible for some of the boarding which you mentioned. But I think it is fair to say that we did have a real problem at that time. You mentioned five ship casualties, two of which are significant in my mind. The New Englanders will remember the *Argo Merchant* which ran aground simply because of sloppy navigation. The other which is significant in my mind is the *San Sanina* which exploded on the west coast and did so because they had a small deck fire. This kind of incident, if a tank vessel is properly maintained, can be handled easily by the crew. Unfortunately, this small deck fire burned through the canvas and paint patch I think on the defense system found on the cargo piping system and, of course, set off an explosive mixture in the tanks. That caused us to be concerned with both navigational equipment and material conditions of piping. I must say we see a lot of patchwork on deck which has survived a dry dock or a shipyard operation where it should have been repaired. This led us to conclude that our efforts were well taken. I think that, while we may have had a short period of time of burdensome inspections, the net effect was to push the marginal operator off our shores.

As to physical inspection of vessels, unless I'm confusing apples and oranges, I believe that within the European Community the countries have an understanding that they will try to inspect 25 percent of the ships calling at their ports. In the case of the U.K. the percentage is even higher particularly with regard to non-European vessels coming into their ports. So, I don't think we are out of line in exercising port/state jurisdiction in this regard. I specifically concur with your point about the quality of owners who sail flags under what is either called flags of convenience or open registry. I think the U.S. operates some 300 ships under flag of convenience and, based on my understanding of the operation, they set the world standards.

The issue of standards is of particular concern to us now because some developing countries are seeking to phase out open registry shipping, and economic benefit by forcing registry to their clients. They are doing so without wanting to insure that they are

with the flag states that in the international community is called Competent Maritime Administrations. We, in the Coast Guard, perform that for the U.S. which insures compliance with generally accepted international standards. This I regard as an adverse trend with the thought that we would be creating flag states that, for economic reasons at this time, do not feel motivated to pursue generally accepted international standards.

On crude oil washing, I find some significance in the fact that in that kind of work you have got to have inert gas systems in operation as well as a reduced oxygen level — I think it is around four percent. I have seen some figures that show that the tank waste is so reduced by inert gas systems and the lack of oxygen in the tanks as to pay for the inert gas installation itself, and so that is an economic gain.

I agree with you on manpower and I think great improvements have been made particularly with Standards for Training and Certification Watchkeeping (STCW) for seafarers that will go a long way to improve the world's shipping fleets. I think we have a responsibility to protect the environment and I think the key is insuring even-handed administration around the world so that no particular flag enjoys an economic benefit and no particular shipping company enjoys economic benefit from lax enforcement.

**Cross:** Well, the biggest saving is the load-on-top. Forget about inert gas systems and crude oil washing in the case of load-on-top. The vessels come to the States loaded and they discharge their cargo. Now, as soon as they sail from the coast, the chief officer wants to get on with his tank washing because he has to arrive at the other side with clean water in his tanks. So he has to wash — clean tanks — slop back that washing, gravitate the water out and retain the oil that is on top of the ballast. And then he puts clean ballast into those tanks he has washed. Now, with load-on-top he retains the slop, where we used to pump it out to sea. And it is very easy, since we have all these sophisticated books, records and equipment to check pollution. It is also very very easy in the middle of the night to pump the slop, because by the next morning, day break comes and you're miles and miles away from anybody. So, it's a very simple thing to do, but the average person doesn't want to pollute. If he does pump out, to my way of thinking, it was an accident. You might find one out of a hundred that would say, "Well he doesn't want to carry it," however, the record books make that difficult.

You see, for the man on board the ship, it costs nothing out of his pocket to illegally discharge. He is paid a monthly salary,

and he doesn't care whether he carries extra ballast or extra oil in the tanks. It is the company that is going to lose if the vessel is overloaded. The ship captain is not going to lose anything except maybe his reputation. It is to no advantage for him. A proud officer would say, "To make it look good for me, I'm going to load the maximum amount of cargo so I'm going to get everything I can on board the vessel." But, we want to see the records when they come in. We can tell from his report what he should have had and the question becomes, "Why isn't it there?" We can identify that he should have had 100 thousand barrels or 10 thousand, or whatever it is, from his voyage report. It is very simple and they know that. It is to no advantage.

This pollution business is, to me, really an accidental thing if it happens. I really believe that. Unless a guy is crazy. In this day and age we have no reason to pollute the ocean at all. None at all.

**Comment:** According to statistics, the number of oil spills by accidents, groundings, and collisions is going down. There was a National Academy of Science report six or seven years ago to that effect.

**Cross:** Don't forget, the volume of shipping is down. There is a glut, the amount of ships that are floating around in the ocean is down, there are so many ships laid up.

**Comment:** But you can still figure spills in the water are down in volume for the U.S. or something of that nature.

**Cross:** No, it is more complicated than that. Because, if he is loading oil at the loading port and loads let's say 2 million barrels and he has a bill of lading that states 2 million barrels, when he comes into the Gulf or the Philadelphia area or wherever and we measure what he's got on board, there is always a discrepancy from the loading figures. There is always a ship-to-shore difference. So, when he comes to the port and we take a measurement of that vessel again, we also get a different figure — there's three different figures. And, he may have taken a figure when he arrived. So that's four different figures. They never match. And nobody knows where it has gone. He has not done anything with it. It's either gone up the vent pipes in light air — we try to stop that by putting a blanket of inert gas on top — or who knows. So, it is very difficult to get an exact measurement.

**Comment:** There must be even some crude compromisable measures to where we were a half a decade ago.

**Cross:** No. We have all this equipment, but it doesn't give us the exact figure of some of the water in the tank. You can go measure a tank and I can and someone else can and we all get different figures. It's amazing. We are in 1984 and we still cannot come up with a good figure.

**Shkor:** I like the Captain's point, because there is a fair amount of litigation in the admiralty courts now over what is a reasonable loss of oil on a voyage — I think a half of one percent?

**Cross:** Yes, half of one percent.

**Shkor:** And then as the tankers got larger some folks began to suspect that part of their crude oil cargo was being classed as bunker oil. If you consider even one half of one percent on a VLCC, you are talking about a sizable quantity of oil that had been considered within the industry's tolerance. That is being looked at more closely.

**Cross:** Yes. But, you see in our engines, we can't burn crude oil — our engines are not equiped for doing it. Especially our diesel vessels, they have got to have certain specifics in the fuel. So, it is an impossibility to burn the crude. Though, we still lose; sometimes we gain.

**Felando:** The question I have is: I would like to have some statistics about how many spills and the quantity in the United States along with the source of those violations, because what most of the emphasis is on is tanker activity, barge vessel activity. The legislation goes on tonnage size. And, if you are over 300 gross tons, we are compelled to follow this law. Fishing vessels, when you look at any where you purchase the fuel whether it is 85¢ per gallon or \$1.21 or \$1.71, it comes off trip expense. It is a very expensive thing — we do not want to waste fuel. No one is intending to dump fuel in the water, and yet we are covered under this legislation. Maybe there is no explanation to why we are covered.

**Comment:** Because Congress saw fit.

**Felando:** Saw fit on the basis of no information or of some information?

**Cross:** You have to have a figure to start with, you've got to start somewhere.

**Felando:** Yes, I guess you could pick a thousand tons. I think it's pretty right, I know everyone is classed by service or by license. So, why are fishing vessels included simply because they are over 300 gross ton?

**Cross:** You've got some pretty big fishing vessels!

**Felando:** Yes.

**Cross:** These commercial fishermen are wiping out sportsmen like him. I'll say something else. I'll tell you where some of the best fishing is and that's if you tie up against the rig. You get some of the best fish at a rig, and to me that proves that there's no pollution around a rig.

**Felando:** Well, you don't have to fight with me because I'm a Pacific Coaster. A lot of vessels do catch a lot of fish around the rigs. I so testify.

I still do not have the answers to why did we represent a problem because we are over 300 gross tons and we are fishing vessels.

**Cross:** You know, this fishing business is overrated in my opinion. You took out the coral reefs in the Gulf of Mexico, then the fishermen were crying because vessels were anchored on the coral reefs. You got some restriction on the coral reefs in the Gulf of Mexico which is an environmentally protected area, isn't it?

**Sloan:** Not yet.

**Comment:** There is legislation pending.

**Cross:** Because of the fishermen?

**Sloan:** No. Don't play that rig thing too much — you'll get bitten by it.

**Alexander:** I was sitting here thinking of the poor Coast Guard officer that's going to be assigned to accompany the VLCC as they pull those New York sludge carriers out to the 106-mile site.

**Williams:** We are going to use black boxes.

## CHAPTER 8

# A View from the Department of the Interior

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### OVERVIEW OF PRESENT OIL AND GAS PROGRAM

I work for the Leasing Management Division which is, in terms of commodities like oil and gas, basically responsible for putting together and implementing the oil and gas leasing program. The first thing I want to mention to you is that I think it is important to raise the question of where we are in the oil and gas leasing program both from a standpoint of what it does for the country in general and the Exclusive Economic Zone (EEZ) as well. In my opinion, offshore oil and gas leasing has entered or is about to enter a new era or a breakpoint — I do not know exactly the significance of it at the moment but to me we are shifting gears. Let me offer a couple of observations why I believe that.

First of all, for many years now we have had a debate over leasing in new frontier areas. I would submit to you that many of those frontier areas are in the process of being offered for lease or have been offered for lease recently, therefore, the structure of the argument is going to shift. For example, there are ten planning areas in Alaska at the moment — six of those have been leased. Three of those six areas have been leased in the last two years so you see that a shift is occurring in terms of the higher potential areas that we have opened up for access to oil and gas leasing.

The other thing that is significant, I think, is how people perceive the five-year oil and gas leasing program. We have had a lot of discussion in the last two years, since Secretary Watt issued his July 1982 program, about area-wide leasing. In some of the sale

areas we are now poised to enter into a second round of area-wide leasing. In two weeks we will have the second area-wide sale in the central Gulf of Mexico. Again, the nature of the oil and gas leasing program is subtly shifting because we are getting farther and farther into implementing the leasing schedule.

Another thing that has occurred is that some of the areas that we have traditionally viewed as, if you will, frontier areas have had a number of sales in them, whether they be area-wide, entire basin area, or otherwise. An example is in the mid-Atlantic area where we are now in the process of applying for the sixth sale. It is very hard to call that a frontier area in the sense of offering for lease. It is still a frontier area, of course, in terms that there is no production there and no commercial discoveries. Again I am trying to indicate that I think the discussion and the nature of what the oil and gas program is has undergone some kind of shift. Another example is that even in the Beaufort Sea, the Diaper Field area, we are now in the process of planning for a July sale that would be the third sale in that area.

The other thing about the leasing program I would like to note is that we are only beginning to see, and the commercial press is starting to pick it up, that it is going to be a long hard road to find additional significant commercial discoveries in the OCS. Sort of echoing Mr. Hunt's comment a bit earlier today there was a great fanfare over the dry wells in the Beaufort Sea area, in the Mukluk well. We had approximately 40 dry holes on the Atlantic coast. The bottom line is, as he mentioned, the fact that we have had only one significant discovery in the last ten or eleven years and that is in the Santa Maria area off central California. It is going to be hard, it is not going to be easy, to find those significant new discoveries that we need for energy for this country.

The third opening point I want to make as a general introduction to where we are in the leasing program is that area-wide leasing, that is offering a very large area, an entire planning area, or some significant portion of an entire planning area that is 10, 20, 40 million acres all at once, has been both very successful in a sense and very disappointing in another sense. Let me offer a couple of indications of that. In the first 29 years or so of offshore leasing, we leased approximately 23 million acres. In 1983, we leased 7+ million acres. So there was a tremendous gain in the amount of acreage that was put under lease in the last year through the leasing program.

The contrary side to that though is that there are some very disappointing results. In the mid-Atlantic sale which was held last



year, only 37 blocks were leased, and in the south Atlantic sale that same year only 11 blocks were leased. So in terms of size, we have a lot of acreage under lease, however, most of that came out of the Gulf of Mexico with significant portions in Alaska. At the same time in some of the other frontier areas, a very, very small amount of acreage was put under lease.

## LEASING PROGRAM CONFLICTS

With that as a sort of overview, I would like to talk about three general conflicts or problems that the leasing program has undergone in the last few years and even the last few months. At the same time, I will offer some information on how we are trying to respond to those problems.

### *Lack of Communication*

One of the things that has been a problem is the sentiment that there has been a lack of communication including where the program is, what the program is about, how does the public input, how do the states input in the process and also what the nature of the program is — the sort of observations that I offered to you a few minutes ago. It is not very well known that the Department of Interior has spent about \$340 million on environmental studies for the offshore oil and gas program. That is a lot of money — a third of a billion dollars. We have held about 80 sales since the OCS Lands Act was passed in 1954 and there have been more than 20,000 wells drilled. There is a lot of experience about where we have leased, what we have studied, and what we have encountered in terms of operations. That kind of story does not get told or conveyed to the public as well as it needs to.

In terms of what the states and the public feel about the steps in the leasing process, one of the things that Secretary Clark did when he came on board was to provide for issuing on a regular basis the milestone dates of the leasing plan. One was published in January and another released in April. They attempt to provide a lot of public information about where we are in various sales. More importantly, it provides an updated guide on what people can expect, what the next steps for a sale are, and when they are likely to occur. From my own personal standpoint, having worked on a day-to-day basis in this kind of program, this schedule has now caught up with many of the changes which have occurred because

of the Secretary's initiatives for various consultation processes with the states and various extended public comment periods.

### **State Consultation**

The next area I want to talk about is state consultation. One of the problems that we have had with the leasing program, until very recently, was that we had waited until very late in the process to actually resolve, as opposed to simply talk about, the states' concerns. That was done somewhat deliberately because of the fear that once having given the states a compromise provision (for example, deleting some tracts or adopting a particular stipulation or other mitigating measure), as we moved farther into the sales process, we worried that the states would come back with greater and greater demands.

We have now tried to move away from that type of approach. One of the things that has meant is that we now try to resolve some of the concerns of the states at a very early part of the process. It is the area identification step and is typically the fourth month — so we call it the month four process. It is at that point that a decision, based on, 1) the call for information and the results from industry's request for which tracts they would like to see offered in the sale, and 2) our assessment of information from the state and other public entities about what concerns they have, is made about what the proposal will be that is studied in the Environmental Impact Statement (EIS).

That decision used to be somewhat proforma. We studied everything in the EIS and deleted, deferred, and dealt with things later on. Now the process is switched drastically and we are taking some measures to deal with those state concerns early on in the process. In some cases that may mean substantial deletion and I will give you an example of that at the end of my talk. In other cases it might be a couple specific tracts or specific stipulations that are needed to protect various resources.

Another thing that is involved in terms of state consultation is that we are trying to expand beyond what the statute requires in the way of consultation. One of the reasons that we previously had the consultation process at the very end of the system was that we had a requirement under Section 19 of the OCS Lands Act to take the recommendations of the governor, commenting on the proposed notice of sale, which is a step very much toward the end of our process and then make a reasonable balance between those comments and what was the national interest. We are trying now to

get involved with the states not only in the area identification stage but also in advance of that proposed notice and resolve any last remaining conflicts with the states before we even issue the proposed notice of sale so that we do not again have things festering until the very end.

Again, we are trying to give the state consultation process a lot more meaning, while at the same time telegraphing to industry, as early as possible, what the concerns are and where we are going to make cuts. It is helpful to industry to know, as an example at the area identification stage, that we are not going to consider certain areas for lease. They are not going to go out and spend a lot of money on geological and geophysical work on areas that are not going to make it into the process. Now there are some down sides to that as well, and we want to be careful of what areas we will be drilling on, but I think this has some viability as an approach.

### ***Public Involvement***

The last thing that I want to talk about is just generally public/state involvement as opposed to public consultations; that is, involvement in a very broad sense. One of the things we have tried to do is to increase the opportunities and allow the process to be flexible enough to encourage the public and the states to be involved at all stages of the process. As an example, what was a 45-day period for commenting on a draft EIS was increased to 60 days; what was a 30-day comment period on the call for information — the very first step in the process — has been increased to 45 days and we have reinstated scoping meetings to allow for public and state comments in the development of the EIS. Both of those are addressing concerns that we have had for quite some time. I think that we can safely say that, if we see that those measures are not enough, we will probably institute others to deal with improving state consultation and public and state involvement in the process.

### ***A Particular Example***

The last thing that I want to do is talk about one particular sale to give you an example of how the new process under Secretary Clark is working and what area-wide leasing now means. In the mid-Atlantic, sale 111, we have just completed the area identification process. That is a very early step, again it is to define what the proposal is to be studied in the EIS. The area that I am talking

about is roughly from New York and Rhode Island south to North Carolina. We had an area that was nominated by industry that basically went all the way inshore. I believe it was something on the order of 50-60 million acres. What we did in our area identification was basically to cut back that area to about 35 million acres. The coastal states had almost uniformly requested an area of 50 miles from their shores be excluded to keep development away from the beaches. At the same time the nomination patterns, that is the expressions of interest from the companies and the assessment for the resource potential, showed that this band of land, within 50 miles of shore, was generally of less interest. Under the Secretary's initiative of trying not to carry unnecessary conflicts too far into the leasing process, we decided at the area identification step to take out these areas and concentrate instead on the higher potential area where industry had more interest and the states had less concern. The other thing that we did was take out about 62 blocks in the middle of the area that the Congress had deleted from the previous sales about a year and a half ago through the appropriations committee process. Not wanting to carry through what apparently was going to be a conflict again because all the states had asked for those blocks to be deleted, we took those canyon head tracts out this time. There was no point in fooling around with an area that was going to invite controversy. We felt it was just not worth fighting over at this point.

At the same time, in terms of our Defense Department Memorandum of Understanding, we have an obligation to deal with the concerns of the Defense Department in the leasing area. The particular provisions of the Memorandum of Understanding do not call for a resolution of Defense Department issues until much later in the process. However, we are trying to get this process aligned with what we are doing with the states; that is, resolve the problems and minimize the conflicts, as early as possible.

There are a couple of other outstanding issues that are still under study, but what we did is essentially try to minimize how much of the conflict was being carried through the rest of the sale process.

## Discussion

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**J. Crutchfield:** I wanted to comment. I agree with you and I commend MMS for the efforts that they have made to do their own work and find competent contractors to do the environmental impact work. I am still concerned and other questions here indicated that the pace of the schedule is being imposed on everyone concerned in this process. For example, you are releasing Navarin and the North Aleutian Basin in this schedule for leasing in 1985. About two months ago I was working on the project which involves correcting some rather serious errors in fisheries statistics in the areas involved which were to be used presumably in the EIS. We were also concerned about the hypothetical examples to be used in assessing the possibility of environmental damage, particularly to fish and the area, when the model used was such that oil never came ashore. As a result of which the contractor concluded properly that the salmon fishery would not be affected by any oil spill that might occur. These are things that are bound to come up in the course of a very complicated environmental evaluation of that sort. But my problem is that these are unresolved as of this time and yet the lease sale is going forward within a few months.

**Oynes:** Let me back up as to what this means and assure you that there are examples in the past of sales having been cancelled at the very end of the process. The Secretary, or in this case the Assistant Secretary, is given a full array of decision options based on not only what is the EIS but everything else that needs to be considered — economics, technology, geology, whatever. To make a decision about whether or not to go ahead with that sale, the EIS has a delay the sale option and cancel the sale option. These are all fully considered not only at that point but even past that point. When you get to the final notice of the sale another option is still to delay or whatever. If there is a problem as you suggest of sufficient magnitude, that would be considered.

**J. Crutchfield:** It appears to be an excellent program — well laid out and certainly allowing for full consultation with the industries involved, the state involved, and the local areas involved but with not enough time to do things effectively. If this is intended as a

five- or six-year leasing schedule, those things simply are not going to get factored into that decision-making process very clearly.

**Oynes:** I am not familiar with the specifics you are talking about but I want to get back to the issue of whether the data are critical toward the question of whether the sale should be held in this type of contract. We have the option of either waiting until the crucial step has been accomplished or if the data are critical enough for the question of going with the sale, the sale can be cancelled. I am not trying to suggest that would occur because I do not know the specifics about the data you are talking about but the option can be fully considered.

## CHAPTER 9

# The National Oceanic and Atmospheric Administration Outlook

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Let me begin with a disclaimer. I note that the title of this workshop is, "Resource Use and Use Conflicts in the EEZ," and I have been informed that the project is "...aimed at identifying and addressing multiple resource use issues of the new Exclusive Economic Zone." I am prepared to discuss resource use conflicts that are played out in the Exclusive Economic Zone (EEZ), but I wish to stress that none of the conflicts in which my agency has been involved — or is even aware of — stems from President Reagan's Proclamation of March 10, 1983.

On the contrary, virtually every one of those disputes arose as a result of political or legal factors which existed prior to the Proclamation of an EEZ by the United States. This is so because long before the Proclamation, the United States: 1) asserted exclusive fisheries jurisdiction within 200 miles of its coastline (except for tuna); 2) asserted exclusive jurisdiction over mineral and other sedentary resources of the Outer Continental Shelf, which may in some places even extend seaward of the 200-mile EEZ; and 3) by virtue of the Coastal Zone Management Act (CZMA), required activities licensed, conducted or funded by the Federal Government to be consistent with state coastal zone management plans.

In sum, the geographical scope of the President's Proclamation has neither produced conflict nor irritated conflict. By the same token, the Proclamation does nothing to resolve existing conflicts. As a final introductory comment, I note that the substantive discussion of this workshop would be just as germane and productive if there had been no Proclamation or no recognition of the EEZ as a principle of customary international law in the first place.

Nevertheless, on the assumption that we are interested here today in conflicts surrounding the use of marine resources within 200 miles of the U.S. coastline, I have identified three areas in which NOAA has a front row seat.

## LIVING MARINE RESOURCES

### *State-Federal Conflicts*

The Magnuson Fishery Conservation and Management Act of 1976 (MFCMA) enshrines a peculiar — some might say bizarre — apportionment of regulatory and enforcement authority between the states and the federal government. As I am sure most of you know, the states retain virtually plenary authority within their boundaries — in most cases, out to the three-mile limit. Furthermore, under Section 306(a) of the MFCMA, the states may continue to exercise jurisdiction over state-registered vessels, even those engaged in fishing beyond state boundaries. Meanwhile, the regional fisheries management councils established by the MFCMA have virtually plenary jurisdiction with respect to fisheries conducted beyond state waters and within 200 miles of the coast. The peculiar jurisdictional seam thus created by the MFCMA has been a source of abiding conflict.

As is well known, one facet of this conflict has arisen in the legal context of the CZMA. In the early days of the coastal zone management programs, some states had the foresight to incorporate certain state fishery laws in their federally-approved coastal zone management plans (CZMPs). Florida is the primary case in point, and at this time the National Oceanic and Atmospheric Administration (NOAA) and Florida are engaged in a number of lawsuits pending before Federal courts, all of which deal with subtleties concerning the nature and extent of state jurisdiction beyond state waters in the absence of regulation by the cognizant regional fishery management council. In at least two instances, Florida has argued that a federal fishery management plan is not “consistent to the maximum extent practicable” with Florida’s CZMP because the former embodies different management strategies than the latter. In at least one other instance, NOAA has intervened on Florida’s side with respect to the enforceability of Florida regulations against state-registered vessels beyond the state waters where the federal government has not acted under the MFCMA.



With respect to those cases where Florida has complained that the fishery plan is not "consistent to the maximum extent practicable" with Florida's CZMP, I will not dwell at length on the details of the state's argument. I will, rather, go directly to my personal bottom line. Although we have spent a great deal of time contemplating the meaning of the legislative phrase "directly affecting," and have spent almost as much time contemplating current NOAA regulations that define the phrase "to the maximum extent practicable," there seems to have been a surprising degree of inattention to the central question: What does "consistent" mean? I suggest that if state and federal managers had clear guidance from the courts or from NOAA regulations as to what that word means for purposes of the CZMA, then many of the problems with which consistency review under Section 307(c)(1) has been infected would disappear. So, too, would most of our disputes with Florida on this score, as well as the disputes with a couple of other states which we have thus far managed to paper over.

As I have pointed out on previous occasions, "consistent" does not present much of a definitional problem when the federal activity in question takes place in the coastal zone for which the CZMP was written. If, for example, the State of Washington's CZMP prevents the construction of certain types of piers in Lake Washington, then a federal agency like NOAA is on notice that erecting a pier of the proscribed sort at its Sand Point facility would not be "consistent" with the CZMP. The only question is whether or not it is "practicable" for the agency to refrain from constructing the pier.

When, however, the federal activity is something like developing a fishery management plan for waters which, by definition, lie beyond the geographical scope of the CZMP, then it makes a great deal of difference whether "consistency" means that federal officials must make, within their broad geographical area of jurisdiction precisely the same management decisions that the state has made with respect to its far narrower band of jurisdiction; or, on the other hand, means only that the federal officials may not make a management decision which undercuts the operation of state law within state waters.

As noted previously, Florida is not alone in having incorporated certain fisheries rules in its CZMP, nor do all state-federal fisheries management conflicts in the Fisheries Conservation Zone involve Section 307 of the CZMA. Even without the overburden provided by the CZMP process, we have found ourselves in conflict with the states — or, more accurately, refereeing conflicts between the

state fisheries managers and out-of-state vessels. For example, in a recent case arising offshore of Alaska, the State has announced in firm tones that it intends to enforce, against out-of-state vessels which are necessarily "registered" under Alaskan law, provisions of Alaskan law which are arguably inconsistent with the federal tanner crab plan. In this particular instance, the federal government had not yet intervened by the time that private litigants had obtained a temporary restraining order to enjoin the enforcement of the state regulations in question; it is fervently to be hoped that the problem can be resolved through negotiations between the cognizant fisheries council and state authorities before the Federal Government must take sides in a controversial and politically-charged issue between the State of Alaska and fishermen from the lower 48.

### ***U.S./Foreign Conflicts***

A second abiding category of fisheries management conflicts involves access to the fishery resources of the EEZ under the MFCMA. Given the philosophy underlying the MFCMA and its structure, I have little doubt that federal fisheries managers can, by creative definition of the term "optimum yield," contrive a situation in which there is virtually no total allowable level of foreign fishing (TALFF) available for distribution to foreign fleets under Section 201 of the MFCMA. The extent of our flexibility as domestic managers, however, by no means defuses the legal or political disputes that the use of such flexibility may engender. The paradigm case is doubtless the squid, mackerel, and butterfish fishery off the east coast of the United States, although similar irritants infect the management of other species, such as billfish, off all coasts of the United States.

It should also be noted that conflicts involving access to the fishery resources of the EEZ do not invariably pit domestic against foreign interests. On the contrary, some of the most intractable management problems faced by NOAA and by the Regional Fishery Management Councils have involved transactions between U.S. harvesters and foreign processing vessels, inaccurately referred to as "joint ventures." In such cases, a conglomeration of domestic and foreign interests may find itself at odds with other domestic interests. While it may be politically easy to promote the development of the U.S. fishing industry by flexible definitions of "optimum yield," it is quite another thing to make management decisions

which pit one segment of the domestic industry against another, or which pit U.S. harvesters against U.S. processors.

## **Whales**

Before leaving the subject of living marine resources, I should refer to conflicts surrounding the use and abuse of whales. (I am not sure, however, how to characterize the parties to the conflict, since it seems unrelated to the prerogatives of any given level of government.) On the domestic scene, NOAA has been involved for some years with the proposal to designate a portion of the EEZ offshore of the Hawaiian Island of Maui as a sanctuary for the humpback whale. The designation of a marine sanctuary under Title III of the Marine Protection Research and Sanctuaries Act requires Presidential action; but once a sanctuary is designated, NOAA has the authority to promulgate regulations for its protection and management. Much sentimentality attaches to the protection of whales, and a burgeoning mini-industry seems to have developed in some coastal communities around the proximity of whales. One would have thought that a great deal of support, and virtually no opposition, would attend a proposal to designate a marine sanctuary to include breeding grounds of the humpback whale. Not so. One House of the Hawaii Legislature has recently passed a resolution opposing the designation of a humpback whale sanctuary. Fishermen, and perhaps others, seem concerned that once a sanctuary was designated, NOAA regulations to protect the whales would prohibit other activities which might be considered disturbing to the whales. We may, therefore, add to the list of conflicts before us a conflict between fishermen and whale enthusiasts.

On the international stage also, the relationship of whales to the EEZ is a troubling question with potential impacts of far greater seriousness than the current relatively gentle disagreement about the Maui sanctuary. Here, we have a conflict between international law and sentiment on the one hand and coastal state notions of sovereignty on the other. In recent meetings of the International Whaling Commission — most notably the 1982 meeting which adopted the so-called "moratorium" on the commercial take of whales beginning with the 1985/1986 pelagic whaling season — a number of coastal states, predominantly Latin American, saw fit to maintain that the International Convention for the Regulation of Whaling, 1946, should not (and even, perhaps, does not) restrict the activities of coastal states with respect to whales within "their" 200-mile zones.

Leaving aside the legal issue of whether or not the Convention as now in effect protects whales wherever they may be found (including internal waters of contracting parties), the danger to the international legal regime for the protection of whales is grave. I note that President Reagan's Proclamation and its accompanying policy statement took pains to point out that the declaration of an EEZ by the United States would not change our policies with respect to marine mammals among other things; such language was deliberately inserted in order to mitigate any damage that the movement towards EEZs might inflict on U.S. whale protection policies. Should the U.S. lead not be followed, however, it is at least conceivable that the convention might be clarified or interpreted in a manner more congenial to the obsessive concerns with "sovereignty" manifested by some coastal states, and particularly developing coastal states. With the exception of pelagic whaling for Antarctic minke whales (the only type of whales permitted under the current IWC schedule to be harvested and processed by factory ships) virtually all whaling takes place within 200-mile zones. One can imagine, therefore, an unholy alliance between the whaling nations (most of which have generally sided with the maritime bloc in arguing for navigational freedoms) and nationalistic coastal states, with the result that whales would be protected by international law only where the most vulnerable stocks are not harvested.

## COASTAL ZONE MANAGEMENT

### *Federal-State Conflicts*

The most dramatic development under this heading is the recent decision of the Supreme Court of the United States in *Secretary of the Interior v. California*. As is also probably well known by this group, the Supreme Court held that Outer Continental Shelf (OCS) lease sales did not "directly affect" California's coastal zone within the meaning of Section 307(c)(1) of the CZMA. The Supreme Court might have resolved the case before it by accepting the position advanced by either one of the litigants. But, it seems to have gone further in its reasoning: it found that the phrase "directly affecting" in Section 307(c)(1) of the CZMA was inserted by a conference committee in 1972 solely to implement a legislative compromise concerning the status of federal enclaves (e.g., military bases, Indian reservations) that were within the geographical coastal zone, but which had been excluded from the legal definition of "coastal

zone" in the bill passed by the Senate. If, as the Supreme Court seems to have found, the sole reason underlying the mysterious phrase "directly affecting" was to insure that activities conducted in such enclaves would have to be conducted in a manner "consistent to the maximum extent practicable" with the state CZMP, then it seems to follow that many other federal activities — like those beyond state waters or up-river from the coastal zone — can never "directly affect" the coastal zone.

Congress and the executive branch have both responded to the Supreme Court's opinion. In the Congress, two pieces of pending legislation — H.R. 4589 and S. 2324 — would both have the clear and immediate effect of reversing the Supreme Court's holding in *Secretary of the Interior v. California*. Both, however, would go much further in clarifying that the "directly affecting" test may be satisfied by social or economic impacts, thus reversing at least one federal district court decision and introducing virtually limitless opportunities for future litigation under Section 307(c)(1). In addition, both would codify elements of NOAA's existing regulatory definition of "consistent to the maximum extent practicable," now found at 15 CFR §930.32. That regulatory definition contains a number of philosophical and interpretive muddles which I personally would not like to see enshrined in legislation. For example, S. 2324 would require Federal activities to be "fully consistent" with CZMPs with several limited exceptions, one of them for activities which are "...required by any provision of a federal law which prevents consistency with any provision of an approved state coastal zone management program." What does that mean? Does it refer to federal activities which are *required* to be conducted? Or, does it merely refer to federal activities within the *discretion* of a federal agency, but which, if conducted at all, must be conducted in a manner which is inconsistent with an approved CZMP? Since I understand there are about 40 legislative days left to the Congress in this election year, I doubt that such details will be thrashed out. For this and other reasons, the Administration has opposed both of the bills.

Meanwhile, NOAA has drafted an Advance Notice of Proposed Rulemaking (ANPR) and has circulated it for review and comment by a constellation of other agencies. In addition to recognizing that certain minor changes would have to be made in the NOAA consistency regulations to comport with the holding of the Supreme Court, the ANPR will also ask for public comment on whether a regulatory definition of the phrase "directly affecting" should now

be developed and whether there are any other issues lurking in the CZM regulations which would benefit from rulemaking.

Since I have been enjoined from discussing "turf battles," I wish to underscore that the conflicts reflected in the just-mentioned activities of all three branches of the Federal Government go far beyond questions of which group of willful bureaucrats will require expanded staffs. The relationship of the CZMP process to activities that are conducted, permitted or funded by the Federal Government has profound substantive implications, since coastal states regard the consistency review process as an insurance policy against the conduct of activities affecting the coastal zone which are not politically popular in those states. Some of those activities will be undertaken by or with the support of the federal government because they are perceived as satisfying some national need. Thus, it may well be that Californians as a group are disadvantaged by the development of OCS hydrocarbon resources in areas abutting the State's coastal zone, but it may also be that the development of those resources is entirely reasonable and appropriate to lessen the dependency of the U.S. economy on imported oil.

### ***State-Industry Conflicts (Consistency Appeals)***

Nobody has yet argued seriously that federally-permitted activities are not subject to state consistency review under Section 307(c)(3) of the CZMA. Unlike Section 307(c)(1), Section 307(c)(3) contains the so-called "federal override" provisions, pursuant to which the Secretary of Commerce may decide to permit a federally-permitted activity to proceed over the objection by a state coastal zone management agency, and in spite of the presumed fact that the federal activity in question is not consistent with the state's CZMP. Here again, NOAA finds itself in the role of referee when it recommends decisions on such appeals to the Secretary of Commerce. Only recently, however, have we begun to develop a jurisprudence under the federal override provisions of Section 307(c)(3), the first concrete development being the Secretary's recent decision in the appeal of Exxon from the objection of the California Coastal Commission to the exploration and development plan for the Santa Ynez Unit.

Exxon proposed to further develop the oil and gas reserves in the Santa Ynez Unit by constructing up to four oil and gas production platforms and expanding the use of an Offshore Storage and Treatment Vessel (OS&T) permanently moored less than half

a mile outside California waters. The California Coastal Commission objected to this proposal as posing an unacceptable risk to the natural resources of the coastal zone from an oil spill resulting either from vessel collision with the OS&T or from tankers used in transshipping oil to refineries in Texas. The Secretary found that development of the Santa Ynez Unit would be in the national interest but deferred deciding whether Exxon's proposed development option would have the least adverse effect on the coastal zone until the completion, later this spring, of an Environmental Impact Statement on the total project.

With the antic thought that emerging jurisprudence in this area may be of interest to the participants here, I would direct your attention to the Secretary's opinion. It is lengthy, since it was our conscious decision to shed as much light as we could on the way in which the Secretary of Commerce wishes to deal with future appeals. Having participated personally and substantially in the decision, I have a random personal thought: If I were Secretary of Commerce, I would want much more flexibility than the current NOAA regulations give me. Although I could scarcely object to the "arbitrary and capricious" standard that the Administrative Procedure Act would superimpose on the terse language of the Secretarial override provision itself, I do not like the way the terse statutory language has been embroidered upon by the Agency's regulations — embroidery which, in my view, does not simplify the resolution of complex and controversial conflicts, but which vastly complicates the decision-making process.

For the sake of completeness, I will outline briefly the conflicts engendered by the other pending consistency appeals.

Exxon has filed a second appeal on its proposed exploration of the Santa Rosa Unit, off Santa Barbara. The California Coastal Commission objected to Exxon's Exploration Plan because the drilling operations allegedly would interfere with the thresher shark commercial fishery normally conducted between April and December near the three wells proposed for drilling. During negotiations after the appeal was initially filed, Exxon and the Coastal Commission were able to resolve the conflict between the shark fishery and the exploratory drilling regarding two of the wells but were not able to come on terms to a third well. We have to resolve this dispute.

Also pending is an appeal by Union Oil Company from the California Coastal Commission's objection to its Exploration Plan for a lease tract located partially within the Channel Islands National Marine Sanctuary and near the Santa Barbara shipping lanes.

This appeal has a procedural history similar to Exxon's Santa Rosa appeal. After an initial objection and appeal, Union agreed to additional mitigation measures relating to the time of drilling, drilling muds and cuttings discharges, navigational safety, oil spill prevention, and cleanup. However, the Commission continued to object to the amended plan based on its view of an unacceptable risk of danger to the natural resources of the coastal zone, particularly the endangered California brown pelican, from an oil spill resulting from either a well blowout or vessel collision with the exploratory drilling rig. Union re-appealed this second objection to the Secretary of Commerce on December 12, 1983.

Lest you think the appeal process is reserved for the big oil companies, we also are processing an appeal from a local developer who wants to construct a 145-slip commercial marina on Bath Creek, near Washington, North Carolina. The project requires a permit from the Army Corps of Engineers under Section 10 of the River and Harbors Act of 1899. The North Carolina Coastal Resource Commission objected to the proposed project on the ground that the marina will have an unacceptable impact on the water quality of Bath Creek.

The San Francisco Bay Conservation and Development Commission (BCDC) has recently objected to the filling by Acme Fill Corporation of 97 acres of land near the City of Martinez, Contra Costa County, California. The objection was based on BCDC's determination that the filling of the land with waste and debris would preclude its use as a water-related industrial site. Acme appealed the objection by BCDC to the Secretary on March 3, 1984 arguing that the land could be used for water-related industry after the filling occurs.

Finally, on February 2, 1984 Northwestern Pacific Railroad Company (NWP) appealed the objection of the California Coastal Commission to NWP's proposal before the Interstate Commerce Commission (ICC) to abandon 165 miles of rail line, the Eel River Line, in Northern California. The Commission objected to the abandonment based on the lack of information on the environmental effects the abandonment would have on the Eel River, particularly fish spawning and water quality. After the appeal was filed, the ICC decided to prepare an Environmental Impact Statement (EIS) on the rail line abandonment. The Secretary is staying the consideration of the appeal pending completion of the EIS, scheduled for September 1984.



## NON-LIVING RESOURCES

### *Hard Mineral Resources*

Although constantly alert to the previously-mentioned injunction against dealing with "turf battles," I would be less than informative if I did not mention the Department of Interior's proposed lease sale offering of polymetallic sulfides on the Gorda Ridge shoreward of the coasts of Washington and Oregon. At issue here is the status of hard minerals which are thought to be off the geological continental margin and, therefore, arguably beyond the scope of the Outer Continental Shelf Lands Act (OCSLA) — at least as that statute was interpreted prior to the President's EEZ Proclamation. I note in passing that the existence of such minerals and their possible commercial exploitability was, in my own mind, a crucial underpinning of the EEZ Proclamation, because it was with respect to such minerals that the U.S. seemed to lack jurisdiction without implementation of the international legal concept of the Exclusive Economic Zone. By proclaiming an EEZ in conformity with state practice and customary international law — as reflected, by and large, in the Law of the Sea Convention — the President removed any argument in international fora about the right and title of U.S. licensees to such minerals. One may argue — and some have — about whether the President's Proclamation alters the pre-existing interpretation of the OCSLA so as to give the Department of the Interior jurisdiction to engage in lease sales of hard minerals off the geological margin.

I do not propose to invite legal debate on that question here, since there is nothing whatever to be gained by my doing so: not even the most ardent defenders of the Commerce Department's "turf" believe that that Department has jurisdiction over such resources under the Deep Seabed Hard Mineral Resources Act (DSHMRA), and, if the Interior Department's claim to jurisdiction under the OCSLA is legally infirm, that is a problem for lessees, licensees and their financial backers to ponder at their leisure. What *is* important is whether or not the management strategies embodied in the OCSLA — developed almost entirely in response to the economics of the petroleum industry — make sense when applied to resources which, given current technological constraints, are of highly speculative value. Does a bonus bid/royalty system make sense in this new context? For that matter, would the royalty-free

licensing system under the DSHMRA make sense? Or, should Congress take upon itself the task of developing a new regulatory structure to encourage the development of such resources?

These are not questions of turf, but questions of potentially great national importance. Regrettably, absent Congressional attention, the possible development of non-hydrocarbon resources of the EEZ will give rise to conflict that will necessarily be debated in irrelevant terms of "turf." While the real issues are whether and how such resources should be developed in view of the impacts of such development on other resources and other uses in the EEZ or the coastal zone, I am afraid that any foreseeable legal dispute would focus on the technical issue of jurisdiction I have sketched out. For example, a public interest group or a state agency like the California Coastal Commission might perceive *bona fide* use conflicts inherent in the development of resources like polymetallic sulfides. But, as the debate seems to be shaping up, any objection by such entities will almost surely be couched in terms of the Interior Department's jurisdiction under the OCSLA, in light of the President's Proclamation and the policy statement which accompanied it. A use conflict which is not confronted as such is not likely to be resolved in a manner which accommodates the competing demands of different user groups very well.

### ***Ocean Thermal Energy Conversion***

Finally, a NOAA official would be remiss if he did not draw attention to the fact that we have recently received our first pre-application for operation of an Ocean Thermal Energy Conversion (OTEC) facility off the coast of Hawaii. The underlying statute was enacted at a time when the country was occupied — perhaps obsessed — with the question of energy independence, when virtually any technological innovation to lessen our dependence on foreign energy sources was seized upon by the Congress, the Executive Branch, and a multitude of potential grantees of the Synthetic Fuels Corporation. Ocean Thermal Energy Conversion is such a technology. Leaving aside the question of how much of a dent full-scale commercial utilization of OTEC technology might make in the national energy budget, there is the possibility that in some tropical or subtropical areas such a technology could be helpful. Although I am hardly well equipped to speak to the technical aspects of OTEC installations, it has been explained to me that the technology involves moving enormous volumes of cold water to the ocean surface, and vice versa. From our experience with nuclear

powerplants, we have learned that the alteration of the thermal regime of coastal waters can have profound environmental effects — and, therefore, profound effects on the legitimate needs of other user groups, such as fishermen. At least when conducted in near-shore waters, OTEC activities could, therefore, produce a broad range of user conflicts in the EEZ. Not only might such conflicts pit the proponents of OTEC projects against the users of other resources like fish or recreational areas, but they could produce conflicts which pit OTEC operators against one another. If the efficiency of an OTEC facility depends in large measure on the temperature differential between surface waters and those below the boundary layer, then I suppose it follows that any diminution of that difference by an OTEC facility could disadvantage a potential OTEC facility in an adjoining coastal community.

## CONCLUSION

I have sought to touch briefly on most user conflicts in which NOAA has been involved in the EEZ. But to return to the negative tone of my opening remarks, I must say that the foregoing discussion is thin gruel for those entranced with conflict resolution. There may indeed be conflicts between the proponents of a coral reef sanctuary and oil tankers which need to anchor in a roadstead. There may indeed be conflicts between thresher shark fishermen in California and offshore oil producers. There may indeed be conflicts between Florida's recreational fishing constituency and commercial mackerel purse seiners in the EEZ. There may indeed be conflicts between coastal property owners and the proponents of large-scale production of exotic mineral resources like polymetallic sulfides. Not one of these conflicts, however, has been engendered by President Reagan's EEZ Proclamation or by developments in international law governing the Exclusive Economic Zone. Any one of these conflicts might have arisen under other laws, quite independently of the recognition of the EEZ.

Moreover, user conflicts in the EEZ seldom present facile solutions — or else they would not be conflicts in the first place. Whatever you may think of the National Environmental Policy Act, the Administrative Procedure Act, the regional fishery management planning process under the MFCMA, or the Secretarial override provisions in Section 307(c)(3) of the CZMA, there are legal and political mechanisms for resolving, albeit imperfectly, virtually all of the conflicts I have identified. I expect that we will continue to

rely on those mechanisms, fine tuning them as we go. But, I do not believe that the recognition of the EEZ or the Proclamation of an EEZ by President Reagan will give rise to any dramatic developments in the resolution of conflicts between competing users of natural resources. To delude ourselves into believing otherwise would constitute an extremely ill-advised diversion of our energies.

## CHAPTER 10

# The Department of Defense Viewpoint

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### **AREA-WIDE LEASING PROGRAM**

I was asked to comment on possible conflicts from a Department of Defense perspective and, more specifically, to discuss special military zones — testing ranges and submarine exercises.

I will give a brief overview of Navy operating areas — literally around the coast of the U.S. and current problems occasioned by one resource activity — hydrocarbon exploration under the Outer Continental Shelf Lands Act. Although the material is keyed to offshore oil leasing, it is my opinion that the point vis a vis potential use conflicts can be extrapolated from our oil leasing experience. Let me hasten to emphasize that oil leasing is being utilized as a vehicle for pointing out other potential problems that might arise. Any editorial comments represent my personal views and not necessarily those of the Department of Defense.

### **NORTH ATLANTIC OPERATING ZONES**

Impacts to naval operations can be minimized by keeping submarine transit lanes free of structures and stipulating conditions to be observed by oil companies leasing rights to drill outside transit lanes in water depths greater than 100 fathoms. Timing and placement of structures must be coordinated with the submarine operating authorities.

The Narragansett Bay Operating Area (NBOA) is one of the major training and operating areas used by the 54 Attack Submarines (SSNs) assigned to the Atlantic Fleet. Approximately 30

percent of Atlantic Fleet SSNs are home ported in Groton/New London, Connecticut and regularly use this operating area in addition to new-construction submarines undergoing sea trials and certification. Oil and gas structures positioned within submarine transit lanes or high-usage operating areas present safety-to-navigation hazards and acoustical interference with operations and training evolutions. Structures provide no shoaling waters or other geographical warnings as submarines approach. Noise augmentation devices, which might be placed on structures for warning purposes, cannot be made completely reliable because of environmental conditions and the possibility of failure. Accordingly, submarine force practice has been to avoid these structures and prohibit submerged submarine operations within five miles of structures. One structure, therefore, reduces the area available for submarine operations by 78.5 square miles. Noise augmentors affixed to structures and the sound introduced into the water by platform industrial activity produce abnormally high underwater noise levels which inhibit effective submarine operations and training.

## **MID-ATLANTIC OPERATING ZONE**

The area surrounding the port of Norfolk, Virginia contains homeporting for the majority of U.S. Atlantic Fleet air and surface units. A complex network of facilities is concentrated in this region to support Atlantic Fleet operations, training, and readiness requirements associated with the deployment of units to the North Atlantic, Mediterranean, and Indian Ocean theaters and preparing them for contingency operations in other areas. Warning areas, which are determined by function and safety requirements dictated by the types of weapons being tested range from a few square miles to over 100 square miles, are used to train and exercise a wide variety of general and specialized warfare capabilities.

The Fleet Combat Training Center at Dam Neck, Virginia, uses a portion of the Mid-Atlantic area approximately 168 days per year to train gunnery students in surface-to-surface and surface-to-air firing from fixed shore installations. It is the only east coast gunnery school and also supports limited training for Army and Marine students.

The W-386 area off the coast of Maryland and Virginia is subject to use 360 days per year and provides multiple training areas for numerous independent and integrated operations. Surface and airborne drone targets are used for surface and air weapons delivery

including strafing, rockets, and bombs. Anti-submarine warfare operations including Anti-submarine rocket and torpedo firings are routinely conducted. Naval Air Test Center (NATC), Patuxent River and NASA Flight Test Center, Wallops Island launch a variety of missiles into the area with wide hazard footprints. The Naval Air Test Center (NATC) has responsibility for the conduct of TOMAHAWK Cruise Missile firings for east coast surface and sub-surface combatants. The Naval Air Test Center operations off Delaware, Maryland and Virginia involve full mission flight profiles of extended low level Cruise Missile flights requiring tracts free of surface traffic and structures.

The W-72A is primarily used for aircraft live missile firing approximately 90 times per year. Radar coverages and missile impact and safety zone considerations preclude increasing the distance from shore or changing the size of the area required for these operations.

The Naval Air Test Center, Patuxent River, is the prime user of W-108 located off the coast of Delaware and Maryland. It is the Navy's principal development and test site for naval aircraft and their associated weapons systems. The Naval Air Test Center conducts 500-700 test flights per year using both W-108 and W-386. Tests involve supersonic flying at high and low altitudes, air-to-air and air-to-surface missile firings, anti-submarine warfare systems evaluation, and electronic warfare system evaluations. Supersonic flights present a sonic boom hazard which could cause limited damage to surface vehicles or structures. Electronic emissions have the potential to disrupt commercial communications systems.

The western sector of the Narragansett Bay Operating Area (W-105) and the following submarine transit lanes lie within the mid-Atlantic region: Alpha, Charlie, Delta, Echo, Gulf, Hotel, India, November, Sierra and Whiskey.

## **SOUTH ATLANTIC OPERATING ZONES**

The Cape Canaveral (PCAN) Operating area and submarine transit lanes off the coasts of North Carolina, South Carolina, and Florida comprise the operating zones of concern in the South Atlantic area. The Cape Canaveral Operating areas exist primarily to support Ballistic Missile Submarine (SSBN) operations including the launch of test missiles and special sonar tests. The area encompasses a unique combination of launch areas and support facilities associated with submarine launched ballistic missiles of the United

States and United Kingdom. Launch area positionings are predicated on unique flight path clearances and range safety restrictions for Polaris, Poseidon, and Trident test missiles. As mentioned earlier, submerged operations cannot be safely conducted in the vicinity of oil and gas exploration and production equipment.

Submarine transit lanes provide safe and secure submerged transit corridors from submarine ports of Jacksonville, Charleston, and Norfolk to and from submarine training and operating areas.

Additionally, there are sensitive classified (compartmented) operations conducted in the South Atlantic region that are essential to national security.

## **GULF OF MEXICO OPERATING ZONES**

The two types of operations conducted by the Navy in the Gulf of Mexico which currently conflict with oil and gas activities are carrier operations and Naval Coastal Systems Center research and development activities. A training carrier, presently the USS Lexington, is permanently home ported in Pensacola, Florida to qualify student naval aviators in carrier operations before they are designated as naval aviators and receive assignments to more advanced training. These operations are conducted in Warning Area W-228 offshore Corpus Christi, Texas; in Warning Area W-155 offshore Pensacola, Florida; and in Warning Area W-174 offshore Key West, Florida. The carrier requires an area free of obstructions approximately 60 miles in diameter within 75 miles of a suitable divert field in which to operate. Transit direction is dependent upon the prevailing wind. Maneuvering around fixed obstructions such as oil platforms is not an acceptable condition for student aviator training.

The Naval Coastal Systems Center (NCSC) at Panama City, Florida, is the principal research, development, test and evaluation center for the application of science and technology to military operations in coastal regions. The operations include RDT&E support to mine countermeasures, diving and salvage, acoustic countermeasures, environmental technology, inshore warfare, anti-submarine warfare, and amphibious operations. These operations are conducted within a 44NM arc of a fixed point offshore Panama City (30°-01N latitude, and 85°-54 W longitude).

The Navy also uses the over-water range at Eglin Air Force Base, Florida. Although Navy use represents a small proportion of the total, continued encroachment is nonetheless a concern. The



situation is similar to that found at the Pacific Missile Test Range with regard to air-air/air-surface Missiles needing safety zones. Without judicious declarations of exclusion areas and careful management of joint use areas, there is the potential for conflict with vital weapon systems test and evaluation.

## **CENTRAL AND NORTHERN CALIFORNIA OPERATING ZONES**

The offshore area between Point Conception, at the southern extremity of central California and the northern California/Oregon border contains a complex system of training and operating areas designed to accommodate a wide spectrum of individual and integrated evolutions associated with combat readiness of Pacific Fleet units operating primarily from central and northern California ports. This area also includes Warning Area W-532 which is the northern sector of the Pacific Fleet Missile Test Center range.

The U.S. Navy Pacific Missile Test Center, located at Point Mugu, California, conducts several hundred weapons system launches in the course of a year which includes some of the most vital ordnance projects in the Navy inventory. The extensive instrumentation and shore facilities supporting these research and development projects are geographically impossible to obtain elsewhere. All launch operations are rigidly contained within defined limits, dependent upon the hazard properties of the specific ordinance item or target involved. The surface area within the limits and the airspace above must be confirmed free of non-participants throughout the launch and impact windows.

Point Reyes Electronic Range is an acoustically augmented electronic range used for post-overhaul initial submarine sea trials in which submarines conduct shallow water submerged trials without escort. Point Reyes Warning Area W-513 is used for all-weather flight training, air intercepts, and surface operations. Inert ordnance is expended in this area.

San Francisco submarine areas, Uniform 1, 2, 3, 4, and 5, are precisely surveyed locations used for progressive stages of sea trial hull integrity tests by submarines completing overhaul. The locations are based on proximity to San Francisco, water depth, bottom type, salvage potential and avoidance of other operations.

Cast Central is a coordinated ASW training and exercise area in which sonobuoys and depth charges are employed.

Warning areas W-260, W-283, W-285, all within the central and northern California area, are areas used for all-weather flight training, anti-submarine warfare training, and surface operations. Hazards of aerial gunnery and air-to-surface weapons are incompatible with structures in this area.

Additionally, there are sensitive compartmentalized operations conducted in the Central/Northern California region that are essential to national security.

## **ALASKA OPERATING ZONES**

Navy operations in the waters offshore Alaska include sensitive compartmentalized operations of a nature essential to national security. Appropriately cleared officials of the Department of the Interior and Minerals Management Service have been briefed on the locations and purpose of these missions and have agreed to exclude these zones from affected Alaska planning areas related to oil and gas leasing. Consequently, there should be no impacts on naval operations associated with proposed oil and gas leases in Alaska planning areas.

Finally speaking of the west coast — one other item concerns the Gorda Ridge — transit lanes and polymetallic sulfides. The Navy has objective operations to drag in the square area of the Xit lanes. It is possible to move the Xit lane but it would take at least 9 months and would involve a great deal of coordination and cooperation.

Other than hydrocarbon resource activities and possible dragging operations in the Gorda Ridge for polymetallic sulfides, fishing activities and other traditional resource activities taking place in the EEZ present no real use conflicts from a Department of Defense perspective. At most, delays are experienced in missile exercises or the like while the range is being cleared of vessels which have not observed the normal notice to mariners which precede such exercises.

What the future will bring depends obviously on the activity. If the activity requires the use of a permanent or semi-permanent structure or platform, its location could cause a conflict. For example, if we are talking about Ocean Thermal Energy Conversion (OTEC), grazing ships could cause conflicts depending on the timing and location of the activity. And, although it is difficult to predict state-of-the-art military R&D requirements in the out years, the next 5-10 years should not witness any modifications to either R&D or

**Military Proficiency Training.** One further note about possible conflicts — how the U.S. EEZ is implemented could determine what conflicts our naval and air forces encounter internationally. If the U.S. does not follow the President's March 10, 1983 oceans policy statement and we do not act in a manner which is consistent with the balance of interests reflected in the non-seabeds provisions of the 1982 LOS convention, we will be inviting others to overreach concerning their 200-mile EEZs. The United States does not want other nations to overreach or act inconsistently with the EEZ provisions of the LOS convention; therefore, we must neither overreach nor act inconsistently.

## Discussion

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**Gordon:** I want to mention a couple of areas you did not comment on, may be you don't know anything about them, but, one is fisheries development where we have assisted U.S. Nationals in firming up contracts to sell U.S. fish to foreign processing vessels. We have run afowl of the U.S. Navy with some certain countries anchoring in certain areas to receive fish from American fishermen. The other area is, rather than just a Naval interest, involved with communications and submerged cables.

**Schachte:** I guess I am familiar with both of those matters and the only materials available to me in the Pentagon on that sort of thing are classified. The issue of a mother vessel type arrangement off the west coast somewhere, may at times, present security considerations, but we try to push the focus not from a security perspective but how could we approach the matter from extent legislation. Because, if we try to hang our hat on the security consideration we can anticipate that foreign countries will do the same thing without a requirement to come forward with some kind of an articulation of their reasons from a resource perspective.

**Black:** When you have conflicting interests with the petroleum industry you simply say that you got together with Interior and worked out the conflict. Did you mean to give the impression that it was that informal or indeed is there a much more formal process and structure that you go through that might serve as a model for developing some kind of inter-agency coordinating group on these conflicts?

**Schachte:** I was anticipating a question like that. There is a fairly complex process that was set up by a Department of Defense person and Interior members for the resolution of problems. We have a host of clients in the Pentagon, whether they be from the JCFs, the Navy staff, or the Air staff and depending on what side of the building they go up through the JCFs or up through the office of the Secretary of Defense to join different issues, but there is a laid-out procedure whereby that is eventually resolved at the Secretarial level with Clark and Wienburger. Whether or not this would be a model, I don't know. Now, that is concerning some of

these problems that we have with the expanded lease business concerning classified and compartmented operations. That is in a totally separate category requiring appropriate clearances by Interior people who meet with Defense people and so on and so forth.

**Allen:** I wonder if you have created the impression that all the firing exercises take place in designated areas. It is my experience that they do not necessarily. Firing exercises could take place just about anywhere that they decide to.

**Schachte:** In regard to those areas off the coast, did you know that it is a high seas activity, with due regard for the rights of others, to conduct military operations and so on and so forth? But, these specific areas are known areas of use by DOD. But, you are right. On the high seas area you can conduct military exercises.

**Allen:** I don't mean to create the impression that the firing exercises are a big problem. It is surprising to me that they are not more of a problem. I listen to the warnings and they usually don't happen to be right where I am, but I never hear of fishermen — other than that torpedo range problem up in Newport — really being chased out of areas even though there are these firing exercises under way all the time now. Why that is I do not know. It almost sounds like the problem would be much more severe outside the New England area with these large footprint weapons that you use.

**Schachte:** They have very sophisticated ways of assuring that the ranges are clear and so on before they start.

**Allen:** Do you take steps to clear the area or do you just wait until the area is clear?

**Burroughs:** Do you foresee a problem as the oil developers move offshore having in place a noise pollution issue that follows on the submarine operations requirements discussion?

**Schachte:** Well I can discuss that question generically. The submarine operators that I have talked with about that indicate that it is a very serious problem, not only from detection, but also from submarine tactics — being able to determine where other units are either by hydrophone array or by other sophisticated attack submarine methodology. The background noise is a considerable problem.

**Hull:** You described the Memorandum of Understanding (MOU) with Interior with respect to oil and gas leasing activities. Do you know if that statement of understanding would provide for a consultation or negotiation on the polymetallic sulfides taken off the

coast of Oregon and Washington? Or would you need another document to facilitate those discussions?

**Schachte:** I'm really not sure how that is being handled although the individual who provided me with that particular figure is the guy who is the Pentagon operator working the oil issues, unless you know anything different on that, Chris.

**Oynes:** I think the technical wording of the MOU does not include it, but by mutual agreement it is included.

**Hunt:** You did not show southern California in your figure, is that for a reason?

**Schachte:** I just showed you what I was provided.

**Gordon:** We have attempted to work with Interior and some of the oil interests to find better use of old oil and gas platforms such as the creation of artificial reefs. If you would comment with regards to your perspective on the using of these — that is to tip them over in various and sundry places. The idea is 1) it saves the oil companies a lot of money rather than bringing the thing back to shore; and 2) it serves as a biological hotel — if you will — for additional fishes. We are finding some recalcitrance within the Department of Defense to allowing this to go ahead.

**Schachte:** If you are talking about dismantling and removing the rigs somewhere so that it is collapsed in our territorial sea somewhere...

**Gordon:** The EEZ.

**Schachte:** But it is being dismantled, collapsed, dragged someplace?

**Gordon:** Yes, it would be tipped over, moved somewhere else.

**Schachte:** I understand that the fishing industry is split on the desirability of such a program. We had looked at it from the perspective of what would be acceptable to the submarine community predicated on the amount of water involved. They were looking at, I believe, and this is still tentative and under study, the possibility of this occurring in 20 meters or less of water. In the territorial sea we do not care what a coastal state would do with it. Once you get beyond that we would look at maybe 15 meters above the surface of the ocean to maybe 30 meters below — very restricted limits.

This is a two pronged issue because it is a domestic issue for us and it is also a potential international issue under the provisions of Article 64.3 which would require standards to be promulgated by IMO for the removal of structures. We don't even go in certain

areas of the North Sea because of the proliferation of rigs. Fortunately, most of the Soviets stay out of there too. But, to look at the possibility of that type of a situation plus understand that there is no safe way — from a submarine guys perspective — of leaving these things up and putting some kind of a noise augmentor on them. They are not sure that that is going to be safe enough.

I think it is general knowledge that we hit one dead center in the Mediterranean — that was charted — with one of our nukes. It is a geometric sphere of unknowns, I understand, the longer you stay down without going to periscope depth. Therefore, this necessitates that wide berth that I was mentioning (that 74.5 miles) to stay around these things so it really cuts down the operating area. They have got a host of considerations like that that drive that concern and I thought John Shkor had an interesting number of accidents that have occurred on those rigs that are out there and plotted. So these are the types of things we would be considering.

**Finch:** Do you have any idea when that study will be completed?

**Schachte:** No. I do not, but I would say in the very near term, a couple of months may be.





## CHAPTER 11

# The Texas Initiative

**SHARRON STEWART**

*Representative*

*State of Texas*

*Lake Jackson, Texas*

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### THE TGLO AND THE RESOURCE MANAGEMENT CODE SYSTEM

The Texas General Land Office (TGLO) was created by the state constitution and empowered with the responsibility for management of state-owned lands. Current land holdings exceed 22 million acres of which approximately 4 million are within tidewater limits. Specifically the Texas General Land Office is charged with: management of state-owned land, producing revenue for the Public School Fund, protection of the public interest and maintaining the environmental quality of state-owned lands, including the protection of endangered species habitat, the most familiar of which is the whooping crane.

Public lands management also includes preservation of environmentally sensitive habitat for coastal fisheries and waterfowl and the maintenance of existing ecosystems on state-owned land, while at the same time, providing for the orderly development of oil and gas reserves as well as land-based industrial facilities in the coastal area. Currently, this area includes 60 percent of the nation's petrochemical capacity, and 40 percent of the oil and gas refineries.

The TGLO is also responsible for facilitating water oriented commercial uses. In 1971, the agency first developed a Resource Management Code System to improve its management capabilities over the four million acres of coastal lands within its jurisdiction.

This system was designed to alert potential users of state-owned land to the sensitive nature of particular areas of the coast. The Texas General Land Office, in coordination with other state and federal agencies, has reviewed each state-owned submerged tract for areas of environmental concern. One or more two-character

codes were then assigned to these tracts and tabulated by county, bay system, and Gulf area.

These codes, their definitions, and any supporting information was then made available to the general public in the form of a publication. The codes are also a very important part of the *Texas General Land Office Notice for Bids* booklet which is published prior to each state oil and gas lease sale. Potential lessees utilize the codes to evaluate the development costs and permitting feasibility of state tracts and, if necessary, adjust their bids accordingly.

The purpose of the Resource Management Code System is to provide: predictability for users of state lands; protection of sensitive natural resource areas; coordination of state and federal agencies for resource management and protection; and avoidance of unnecessary permitting delays.

## **WHAT ARE THE CODES?**

There are 72, two-digit character abbreviations delineating recommendations and restrictions for state-owned submerged lands. The "D" prefix code series is for dredging; "S" series for spoiling; "C" series for channeling; "O" series for oil and gas; and "M" series for miscellaneous recommendations. For example, "DA" - no dredging or propwashing; "DF" - no dredging or propwashing in NE quarter; "SE" - use existing spoil banks; "SF" - no spoiling in NE quarter of tract; "CA" - backfill access channel when abandoned; "OL" - confine drilling to SW quarter of tract; and, "OO" - no drilling, dredging or spoiling within 500 feet of a shell reef.

In some instances codes may also be used to delineate seasonal restrictions on drilling activities in the vicinity of Rookery Islands, such as determining the time of year that drilling can occur. The codes even go so far as to specify the use of contained versus non-contained spoil areas; thus, enabling necessary dredging for access channels into industrial sites or drill site locations. The problems of propwashing or dredging in shallow areas are also addressed.

## **PARTICIPANTS AND USERS**

The various participants in the process are: Texas General Land Office; Texas Parks and Wildlife Department; Texas Antiquities Committee; Texas Railroad Commission; National Marine Fisheries

Service; U.S. Fish and Wildlife Service; and the U.S. Army Corp of Engineers.

All of these agencies review the submerged tracts at a common point in time which provides coordination and consistency of their concerns before bids are submitted on each submerged tract. The TGLO submerged tracts are submitted back to state and federal agencies where field inspections and data reviews occur prior to code placement. This information is then submitted to the TGLO for inclusion in their *Notice for Bids* booklet and code master file.

The codes are utilized by the oil and gas industry, industrial concerns, commercial interests, cities and counties, planners and consultants, and the general public. Through the use of this system, resource protection is provided by: early identification of sensitive areas, obtaining knowledge from numerous agencies, and incorporating agency requirements into the project design.

Early identification of sensitive habitats can prevent unnecessary damage through proper planning and allow improved planning for use of sensitive areas which cannot be avoided, such as laying a pipeline across marsh areas, submerged grasses or other estuarine areas. It can also insure that state land remains open to oil and gas development while maintaining habitat quality. For example, when industry proposes the placement of rigs in sensitive areas, being forewarned by the code can result in either avoidance or minimization of damage by such methods as slant hole drilling. Finally, expedited permit processing is achieved by: identification of sensitive areas; coordination of agency concerns; predictability for permit requests; sensitive areas are avoided; permits issued; and thus orderly cost-effective development is achieved.

## REVISIONS

Over the years, several problems of the system have been identified. Specifically, there has not been a comprehensive review of all submerged tracts since 1971. Further, there has been no tracking of agency code endorsements, some codes are no longer warranted, and agency justification is lacking. Finally, the data are not fully computerized.

However, current revision of the code system is underway. The TGLO is reviewing all 5800 submerged tracts (4 million acres), recording each agency endorsement per tract, requiring agency justifications (in a written narrative), and computerizing all data to facilitate revisions, maintenance and dissemination. At this time,

over 50 percent of the revision process has been completed. Cut-backs in federal and state agency funding have caused delays, but, completion should occur by January, 1985.

## **SUMMARY**

In summary, the Resource Management Recommendations Code System provides consistency, predictability, accountability, resource protection, expedited permit issuance and orderly development for all users of state-owned submerged lands.

Additional information can be obtained from either Mike Hightower, Director of the Coastal Division, or C. Bruce Smith, Texas General Land Office, 1700 North Congress Ave., Austin, Texas 78701.

## Discussion

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**Grigalunas:** It seems like a very comprehensive conflict resolution system. I have some questions about how it works out in practice, though. If I understood the highly detailed nature of the various classifications given, it seems to be extremely costly to really do the analyses required to make sound detailed recommendations. For example, some of the codes would restrict drilling to the north east corner of a particular tract or the south west corner of some other tract, do you actually go out and do that assessment before hand? Can you know that much? Do you really impose that scheme?

**Stewart:** Just remember, since 1952, Texas has owned out to ten leagues of submerged lands and the Land Office has been leasing for a long time. There is a lot of background information already available on all of these tracts. Also, some of the codes are no longer applicable because things have changed in certain areas. But, yes there is a tremendous amount of information and by all of the agencies reviewing things at the same time it cuts time. One of the most critical things is in the final revision which is the agency justification for the code system that they put down in a written narrative. If an oil company doesn't like what is being said they can track it to the Fish and Wildlife Service; Parks and Wildlife; the Land Office, whomever put that code down there and the agency must justify why it is there and include background information. It does work because it gives prior notice to the companies before they go out after bids, or if you wanted to develop a marina in a critical area, you are able to mitigate and negotiate and work a lot of things out that would not otherwise occur. From my viewpoint as a public interest conservationist, it's fantastic because it keeps you out of the court system. It is done on an agency level between the users and the state and the Federal government. My only real regret is that this does not apply to all submerged wetlands in the state. We tried to do that by law and the folks that control our legislature balked at the last minute and decided they did not want that kind of control. So, it probably would never happen in Texas, but this is something that could happen in other states.

**Burroughs:** We talked earlier today about revenue-sharing, and one of the initiatives in that regard is Port Arthur's attempt to tax offshore oil properties, could you comment on that?

**Stewart:** Well, as far as Port Arthur there are several other Texas cities now attempting to extend their jurisdiction, but not as far as Port Arthur has tried.

**Burroughs:** What is the state of that in the court system now?

**Stewart:** I'm not really sure because they keep arguing. Even in the little township of Quintana, where I had my first office, it is now proposed in the newspaper that they extend their jurisdiction. But they are only extending it a few hundred yards, not as far as Port Arthur did.

**Cross:** I think Port Arthur has won the case.

**Stewart:** Did they?

**Ashe:** Yes, Port Arthur just won another leg in the case, I think.

**Stewart:** I don't think that thing is over yet, is it?

**Ashe:** I don't think it has been reappealed. The last I heard is they won. I guess the district court has been overturned and is in favor of Port Arthur.

**Stewart:** Port Arthur sort of did a corridor extension. I think the other cities that are attempting that like: Crystal Beach, Surf Side and Quintana, are not going as far. They are simply extending their own city boundaries out into the Gulf.

**Hull:** What type of taxes is Port Arthur levying on the oil?

**Stewart:** Oh, they are just claiming jurisdiction, not the taxes for revenue. If they own the land, then they get the total revenues rather than them going to the state.

**Cross:** On the drive from Houston towards Beaumont there is a massive sign on the highway that says, "The Public Against Hazardous Waste." There is a proposal to dump hazardous waste in a field where there is quite a lot of residential housing. I am wondering what voice this small community is going to have against the people in the Texas state department responsible for this type of facility siting.

**Stewart:** Well, I have not seen the sign but I can tell you what the Governor has done recently. He has instituted a committee, I believe there are now 34 members primarily industrial people, some city representatives and a minority of environmentalists who have been involved in hazardous waste and siting issues over the years.

There charge has been to set up a system for siting hazardous waste facilities.

The idea for this grew out of what was called the Keystone Conference Group, a group of about 18 people that met last year in Keystone, Colorado, to address the Ellington Airforce case. One of the groups involved was the Gulf Coast Waste Disposal Authority (GCWDA) — for those of you who do not know it is a quasi-state agency that disposes of waste from major industries along the Houston ship channel. They lost out on this site because of public opposition. However, they took the people involved in that case study and a few others and went to Keystone for a week. During that week the GCWDA, state representatives, some high powered attorneys who represented the folks on the other side, and members of people in the waste business came to a few conclusions about how you go about the public process of determining where you put hazardous waste facilities and how you involve the public in an educational program at the first site and at the earliest time. As a result of this, the Governor formed this committee in March. They have already met one time and are apparently doing a reasonably good job.

This may be another area in which Texas comes to some resolutions since we probably have more hazardous waste sites than any other state — not something to brag about — but it just happens to be a fact. Louisiana might push us out, but I doubt it. It is a problem that we have to resolve. We generate a lot of wastes and we need to take care of them. We are not doing it in a very proper manner right now, but the siting of legal facilities is something that has got to be done. It is on the order of local governments now being forced into siting low-level nuclear waste facilities and if they cannot do it in the states, they are now having to do it through regional compacts. I think the same thing is probably going to happen with hazardous wastes.





## CHAPTER 12

# The State of Oregon: Cooperation or Conflict in Offshore Mining?

**DONALD HULL**

*State Geologist  
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### INTRODUCTION

Two principal factors — the declaration of a 200 nautical mile limit as an Exclusive Economic Zone (EEZ) in 1983 and the growing awareness of ocean floor spreading centers as the loci of newly formed massive sulfide deposits — led to the Federal proposal to lease a broad area, including the Gorda Ridge, adjacent to the coasts of Oregon and northern California for exploration of metallic mineral resources.

The leasing proposal, in turn, triggered an extended dialogue involving levels of government and established resource users such as the fishing industry, entrepreneurs interested in mining, and public interest groups. A multitude of concerns have surfaced in various discussions to date. Some of the major concerns appear to reflect a “fear of the unknown,” which is a natural result of the scarcity of information about both the potential mineral resources that may exist in the proposed lease area and the positive and negative impacts of developing these resources.

The purpose of this paper is to describe some of the conflicts that have emerged regarding the Gorda Ridge lease sale and to present a process that is being designed to resolve some of these problems.

## **FEDERAL GOVERNMENT VS STATE GOVERNMENT CONFLICTS**

The Gorda Ridge initiative has been mainly a Federal activity until recently. It is noteworthy that state and local officials did not actively participate in early key decisions to design a leasing process. The Federal Government unilaterally decided to proceed to a lease sale.

The principle state concerns expressed to date regarding the Gorda Ridge sale have been: (1) the likelihood of impacts on the coastal zone and (2) the state role under the Coastal Zone Management Act in addressing such impacts.

## **FEDERAL INTERAGENCY CONFLICTS**

The question of which of the various Federal agencies has responsibility for ocean research and for leasing of metallic minerals on and under the ocean floor has been a recurrent part of the discussions of the Gorda Ridge issue. The major reorganization of the Department of the Interior has further confused the issue of agency responsibility.

## **GOVERNMENT-INDUSTRY RELATIONSHIP**

In retrospect, it appears that the Gorda Ridge leasing would have proceeded more harmoniously if government and industry worked more closely towards mutually agreeable objectives. For many years, the Federal oil and gas leasing process for Outer Continental Shelf (OCS) lands has involved strong input from industry. In contrast, the proposed hard minerals process as evidenced by the Gorda Ridge draft environmental impact statement (EIS) does not reflect adequate communication between government and industry.

For example, the major economic differences between oil and gas leasing on one hand and metallic minerals leasing on the other hand are not adequately reflected in the discussions to date. Crude oil production from OCS lands in the United States has been refined domestically. Oil and natural gas pipelines from offshore wells feed domestic markets. Because of the nature of the hard mineral resources, it may not be appropriate to use the oil and gas economic

analogy to appraise the impact of developing offshore metallic mineral resources in the EEZ of the United States.

The most likely metals to be found on the Gorda Ridge are concentrations of zinc, copper and lead. During the past 20 years the smelting and refining of metallic minerals ores and concentrates has been moving from the United States to foreign locations. For example, the number of domestic smelting and refining plants for zinc has dwindled at an alarming rate. In turn, the development of new zinc smelters and re-fineries at tidewater locations has occurred in foreign countries rather than the United States. Similarly, in the case of copper, the world is witnessing a major expansion of smelting and refining capacity at foreign locations such as Japan, Korea, and the Philippines while domestic facilities are closing.

It is also noteworthy that most remaining U.S. lead, copper, and zinc smelters are at inland locations. There is no domestic lead or zinc smelting capacity on the west coast of the U.S. and the single remaining west coast copper smelter is threatened with closure. Thus, it seems unlikely that production from Gorda Ridge deposits, if they exist, will be smelted or refined in the United States yet the draft EIS stresses both the economic and environmental impacts of such processing.

Clearly, the oil and gas economic analogy is inappropriate and fails to reflect current and recent trends in the smelting and refining of the valuable metals that are most commonly found in polymetallic sulfide deposits. Closer cooperation between the metals industry and all levels of government is needed and will result in more realistic scenarios for analysis of impacts.

## **SUMMARY OF CONFLICTS**

The growing scientific recognition of potential offshore minerals and national policy considerations have combined to trigger the initial design of a leasing process for offshore metallic mineral resources on OCS lands. Since its inception, we have witnessed a discussion about the need for and nature of the leasing process. This debate has resulted in a polarization of public attitudes at a time when there is little available information about either the existence of potentially valuable metals or the impacts of extraction.

Much of the conflict about the proposed OCS leasing process for ocean ridge metallic mineral deposits has arisen because key

segments of our society were not involved in the formulation of the process. Initially, state and local governments were not adequately consulted and industry perspectives largely have been absent. The failure to recognize the very real economic differences between oil and gas resources compared to metals has resulted in excess optimism by some entrepreneurs and proper concern by the public.

## **JOINT WORKING GROUP**

Some of the conflicts that have arisen over the Gorda Ridge leasing process can be avoided by systematic involvement of state and local governments, university researchers, and interested members of the public in the formulation of lease plans, environmental reviews and schedules. After recent discussions involving State of Oregon and Federal officials, a prototype joint working group has been created to guide the leasing process. Already there has been state/federal agreement on the following points: (1) the Gorda Ridge sale acreage will be reduced from the 40 million acres proposed initially to no more than 4 million acres; (2) the sale will be delayed to allow joint review of the previous draft EIS and public comments thereto; (3) the near-shore portion of the original area covering the continental shelf and slope has been eliminated from the lease area to avoid conflict with important fisheries; (4) the environmental review process will be "tiered", with joint state/federal site-specific environmental impact statements required prior to development of any mine sites; and (5) key geologic data will be made available to the public so that the potential impact of geologic hazards on site development can be evaluated.

We view the joint Gorda Ridge working group as an "experiment" which provides an opportunity to involve technical experts from state agencies, universities, and a cross-section of Federal agencies in systematic preparation of environmental reviews and policy discussions. This experiment is being designed to reduce the possibility of conflicts between Federal agencies, minimize disagreements among various levels of government and facilitate communication between government, industry and the public.

If the experiment is successful, the process could be applied to other mineral leasing and the nation will have been well served. If unsuccessful, the result will likely be litigation.

## Discussion

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**Curtis:** I have two short comments and a question. You said, at one point early in your statement, that the concern of some of the different groups was based on fear of the unknown. I'm sure that is true to some extent, but I know, working with the environmental community, it wasn't fear of the unknown, it was lack of sound decision-making based on good data that was the concern. The view that we don't know anything about the form, mineralogy or content of the resources there, we don't know if hydrothermal vents exist, we don't know what technology is needed. Therefore, we don't know what the potential impacts might be. That kind of concern led us to say that there is some threshold level, above what is existent here, that we feel is the minimum that is needed before you start the process of going through an EIS.

The second concern relates to the working group process. It's a comment that relates to the National Environmental Policy Act (NEPA). I realize that that law is imperfect. We can all cite examples of where it has not worked well, but, imperfect though it is, it still has helped over the past 10-15 years and has required the inclusion of environmental analyses into the decision-making process.

I felt as though the establishment of the working group and some of the environmental groups I worked with, felt that the announcement of this working group concept seriously undercut, in a sense, the NEPA process by coming out as an announcement at the 11th hour during the comment period. Essentially making a final EIS set of decisions. Saying we are going to go to a 1/10 lease area, we are going to have this tiered approach, we are going to have a significant delay, essentially saying we are choosing alternative 7 — which is the delayed lease sale. And, as I'm sure you know, the environmental community pretty unanimously said choose alternative 8 — no lease sale — until we get better data.

That was of concern to us, that this process was undercut. Not that there shouldn't be collaborative efforts. Nobody was saying that there should not be such efforts between federal, state and local agencies.

The question I then have for you that builds on that is whether, while you mentioned the part of the working groups criteria was, there would be a tiered EIS process in the future? Is it your view

or that of Oregon officials that there should be a revised draft EIS even on the programmatic level before you start moving onto exploration specific kinds of analyses?

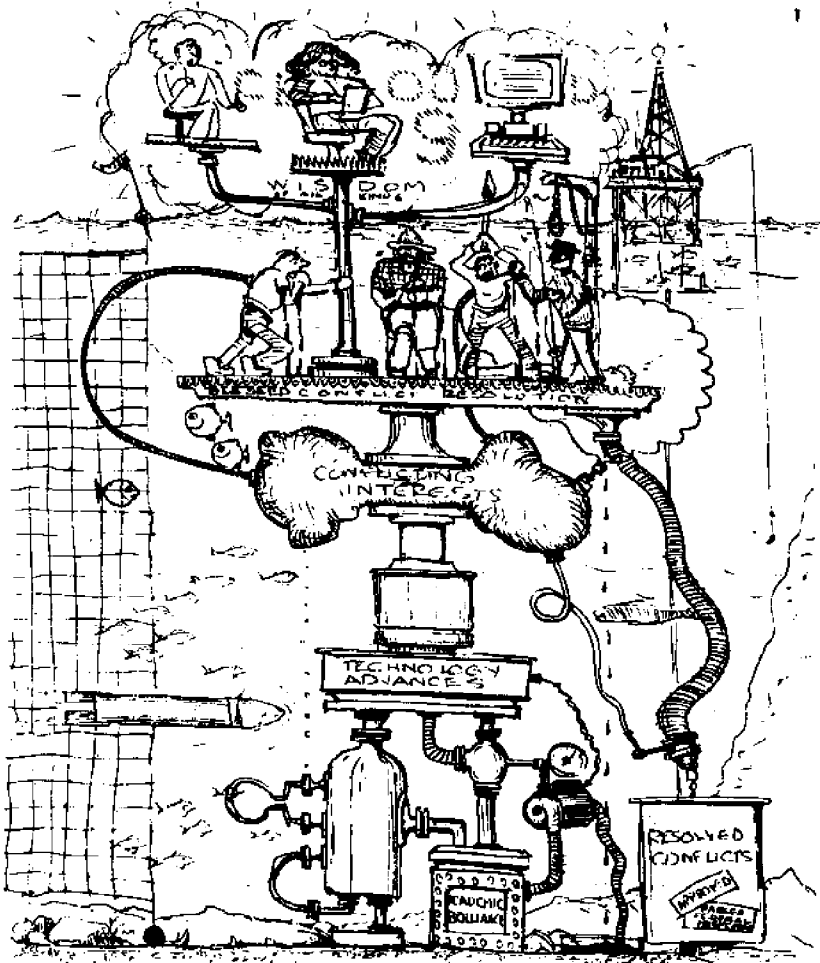
**Hull:** Let me answer your last question first. One of the very initial decisions that the working group will have to make, when it comes together, is simply to look at the initial draft EIS, which has been out for comments as you indicate, and decide whether that is at all adequate. It is entirely possible that the group may decide to turn the clock back and simply go back to square one and start over. So, the initial draft environmental statement aside, address the question of what should a draft environmental statement contain and how do you get from here to there? I think it would be very wrong for anyone to conclude that because the state/federal working group is put together at this late hour in the comment period for the initial draft EIS, that in fact, is a presumption that we are all going to rush headlong into a final statement and in turn a lease sale. If I had to bet a six pack of beer on the likely outcome of this initial question, I would bet that the group will want to go back and redo the draft EIS.

**Allen:** It has occurred to me that you might have a similiar situation as we have in the fisheries, that is, we tend to get people investing in the business with big ideas. It is what I call the schemers. They are not really legitimate people, although they may raise substantial amounts of capital which enable them to participate at a level which can actually drive the system for a certain amount of time. They come in, they invest, there's capital behind them, there are people running around who can do the research and they drive the system to the point where everybody has to react and do something. Then they go bust and the thing goes by. I wonder, in this case, are these entrepreneurs really legitimate developers or are they profit seekers?

**Hull:** I simply do not know the answer to that question. I suspect there is a mix of a kind of the entrepreneur. Some in danger of going bust along the way. These people are not very visible, to me, so I can't answer your question with any accuracy.

# PART THREE

## Conflict Resolution Mechanisms and Experiences



APRIL 16 - CONFLICT RESOLUTION MECHANISMS AND EXPERIENCES

Courtesy of: Roland Finch

The manifold uses of the sea are shaped by values, economic necessity, and a variety of other factors. Uses may appear to be or may in fact be incompatible. The nature and extent of those conflicts in the Exclusive Economic Zone and their implications for society are still evolving. So too are the means beyond the courtroom to resolve these conflicts.

We are fortunate to have participating in this session individuals with extensive experience in conflict resolution. Their presentations about historical conflicts will be the basis for our conclusions about the elements of success for conflict resolution in coastal waters. We will be hearing first an overview of the techniques available for dispute resolution and then from our panelists. Each member of the panel has been a participant in the process, but each has done so from a different perspective. The affiliations will give you an indication of the differing perspectives. They include an oil company, a consulting firm, a federal agency, and staff of a congressional committee. The combination of perspectives and experiences introduced by a variety of conflict resolution mechanisms will, I hope, provide a sound basis for judging our successes and failures in this important and emerging new area.

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## CHAPTER 13

# Methods of Conflict Resolution

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We are all aware of many types of disputes involving ocean issues, from our own experiences and from the presentations made so far in this conference. Whether there are viable alternatives for handling those disputes is the question to be addressed now. Recent years have seen the development of other ways for resolving conflicts than simply going to court for the purpose of a standard lawsuit and it may be time that some of those techniques are employed more often in ocean matters.

First, it is worth recalling very briefly how such conflicts are generated since the nature of their origins influences the form that the methods of solving them have to assume.

When advances in technology give economic value to formerly unavailable resources, it is likely that disputes over those resources will follow. The last 30 years have been a period of rapid development in ocean technology, and our capacity for getting at marine resources has increased proportionately in consequence. But it has not done so in harmony; exploitation of mineral resources and biological resources, for example, have been increased in potential for each but also in potential for conflict. The definitive characteristic of this technological development has been that it carries with it higher levels of uncertainty about its effects on the environment and resources when it is used.

It is that feature which makes ocean disputes complex and as we examine modes of dispute resolution we have to keep in mind the need for getting as much clarification as possible into the system about the technical "facts" in issue. It is that complexity which makes regular litigation as cumbersome in ocean cases.

## THE PROBLEMS OF COURT

To begin, then, let us look at the problems of going to court and see whether alternative means are needed at all.

We usually think about lawsuits as having a winner and loser. That does not have to be the case and often is not. Both sides can lose. Delays and costs can exceed the benefits and gains realized by either side. Litigation really is not a zero sum game but a negative sum game because both parties may wind up worse off than when they began in terms of money lost and time expended. Litigation is a blunt instrument and the more complex the issues the less likely it is to lead to a satisfying conclusion.

Yet litigation is rampant in our society today and the courts are so flooded with it that the problem of delay is growing still worse. There are twice as many lawyers today as there were ten years ago and lawsuits are increasing in number at a rate five to seven times faster than population growth!

There are 650,000 licensed attorneys in the United States today and there will be one million lawyers by 1995, or one for every 300 Americans.

Ten years ago there were 300,000 attorneys and only about one-third as many law students as there are now.

A friend of mine once asked a small-town lawyer how he could make a living in such a little place. He was told that while the town was in fact too small to support one lawyer it did support two very well. It may be no surprise, then, that the number of lawsuits is rising by about six percent per year nationally.

The major problems in litigation are excessive cost and excessive time to reach resolution. It is a curious fact that these affect most seriously two groups at opposite ends of the economic spectrum — the poor and the large corporations. It is from those two sectors that the Alternate Dispute Resolution movement has come. It is obvious why more economical and faster methods benefit people living in poverty. More directly relevant to ocean disputes is the situation of corporate litigation and the reasons even major industrial powers are looking for better means of resolving disputes.

The most costly and slowest cases of all are those which involve complex questions. There are several reasons for this:

- 1) the judge, jury, and counsel must learn about the issues;
  - 2) litigation rules encourage lengthy procedures to discover all relevant facts and documents;
  - 3) expert opinion testimony takes a long time to present in evidence;
- and

- 4) technical "facts" are interpreted differently by opposing experts in conflicting scientific testimony.

Jury trials take 40 percent longer than non-jury trials in cases involving technical issues primarily because laymen have to become acquainted with the technical issues and gain some understanding of them. Ocean cases may turn on engineering, biological or chemical science which is obscure to even the educated non-expert. When you consider that the economic facts of an antitrust case can be so confusing and vast as to lead to litigation which lasts for a decade or more, sometimes outliving the judge, it is not too difficult to imagine future ocean cases which might drag on until the real opportunities for all parties concerned are long past.

The Federal Rules of Civil Procedure allow for "broad and liberal discovery." So in the process of "getting all the facts" lawyers demand "each and every" related document from the other side and the defending counsel must read them all before turning them over — charging by the hour as they go. Some cases have produced as many as 400 rooms filled with filing cabinets of documents acquired through discovery. One recent case produced 77 tons of documents in a three-month period! And literally hundreds of millions of documents were involved in the IBM-Control Data case.

## **PROS AND CONS OF ALTERNATE DISPUTE RESOLUTION**

So it is not surprising that even wealthy corporations find litigation burdensome today. Alternate Dispute Resolution techniques are seen as being faster and cheaper, and because of their often non-adversarial form they may arrive at more satisfying results when both sides can optimize the conclusion.

It is not just the parties at interest who can gain from more efficient handling of major cases especially because there are huge societal costs involved as well with so much drain on judicial resources.

For all these reasons, Alternate Dispute Resolution (ADR) has been urged by quite a variety of sources — Chief Justice Burger, Ralph Nader, the Ford Foundation, the U.S. Department of Justice, countless corporate counsel, many legal scholars and the American Bar Association, for example. Directly relevant to ocean concerns, the Department of the Interior has indicated quite recently its willingness to avoid litigation over offshore lease sales by engaging in formalized negotiations and mediation.

All of this is still developing and the results are somewhat uncertain but there are reasons to think that ADR can improve things. One recent reported commercial arbitration case, for instance, involved an estimate by the lawyers that hearings would require about two years to complete whereas arbitrators actually managed to wrap them up in just nine days by using streamlined hearing procedures.

The drive for improvement is real. The ABA estimated that in 1982 corporations spent about \$88 billion in intercorporate disputes alone. When you recall that the first ten Trident submarines built cost around \$20 billion and that a major congressional debate accompanied that budgetary decision, it seems strange that such sums can be spent without public scrutiny of the means and ends; such costs do affect us all economically.

There is a downside to ADR, though. We have a resistance to changing the adversarial paradigm; no one cheers a compromise! It seems better to be carried back on a stretcher than to tell the boss you have "worked it out" with less than total victory, even though that victory may be altogether illusory. Sometimes, too, the parties to a dispute — whether oil companies or environmentalists or someone else — have a genuine dedication to "reality" as they see it and find it difficult to compromise at all. But we are not saying that ADR is a perfected scheme which answers all problems quickly and easily, only that litigation is seriously limited in some types of cases and that alternatives must be tried. This is a good time to look briefly at some of the ADR techniques in use, just as a general overview.

It should be mentioned at this point, while we have this taxonomy before us, that the United Nations Convention on the Law of the Sea (UNCLOS) demonstrates a committed interest by a number of countries to resolve disputes in a binding way by providing several methods in addition to regular litigation under the terms of its treaty. The United States, of course, has not agreed to participate in the treaty but its existence does reflect the interest in maritime dispute resolution now seen on an international level. That treaty provides for conciliation, mediation, arbitration, and for almost any method which parties want to design in advance for potential disputes. There is also resort to the International Court of Justice for litigation. With so many questions still up in the air about the law of the sea, it is interesting to note that the UNCLOS provisions at least are a timely reminder that a wide range of ADR methods are applicable to ocean issues. Some of the UNCLOS dispute resolution possibilities correspond to those we see here

which are available for ocean conflicts which arise outside the jurisdiction of UNCLOS but in our own OCS or EEZ area.

Figure 1 is a summary — a kind of taxonomy — of ADR methods. There are numerous ways of looking at these and this one is a blend of the perspectives offered by several leaders in the field. You will find some sources cited at the end of this paper.

- ADJUDICATION
  - Court
  - Arbitration
  - Administrative Process
  - Use of Master
- PRIVATE JUDGING
- NEUTRAL FACT FINDING
- MINI TRIAL
- SETTLEMENT CONFERENCE
- OMBUDSMAN
- SUMMARY JURY TRIAL
- MEDIATION/CONCILIATION
- NEGOTIATION
  - Computer Assisted Negotiation (CAN)
  - Negotiated Rule Making
- JOINT PROBLEM SOLVING & MEETING FACILITATION
- JOINT FACT FINDING
- POLICY DIALOGUES
- CONFLICT ANTICIPATION
- TWO PARTY ADJUSTMENT
- AVOIDANCE

**Figure 1. Taxonomy of Dispute Resolution Process. J. D. Nyhart and Nicholas A. Smith — April, 1984.**

As you look at this list from top to bottom you will note a generally decreasing level of formality and a corresponding decrease in the involvement of third parties in a coercive or obligatory role. There is also a decline in the maturity of the conflict itself as you go down this taxonomy in the sense that adversarial combat in court is our most confrontational form of lawful dispute and by the time one has reached that level the conflict is well-established. There is generally a better opportunity for ADR technique employment when one is lower on this list and at a stage when less rigid positions have been taken, while things are still somewhat fluid and before a serious impact point.

## ADJUDICATION

Begin at the top with Adjudication and we will consider very briefly some definitive traits of each mode. Figure 2 shows Adjudication characteristics.

- Assures particular form of participation process - proofs and arguments in his/her favor, (adversarial)
- 3rd party decision-maker with coercive power, i.e. binding (subject to appeal)
- Win/lose (lose/lose?)
- Focus on immediate legal or factual issue(s) v. underlying relationship between parties
- Limited remedies
- Can involve conciliation and hybrid processes

Figure 2. Adjudication characteristics.

If you go into a court with a lawsuit what are you going to get as a result? What does that guarantee to you?

Well, you get your "day in court", as you see in Figure 2 at the top. That is not to be disparaged because history has shown it to be a considerable advantage and there have been many times and places in which people with a cause to advocate failed to have that. Litigation procedures have evolved in order to protect that right and under the assumption that the adversary system will protect the opportunity to be heard. The ancient idea is that truth is best served with everyone throwing the worst at each other; so going to court will definitely get you the right to argue your case.

That adversary system was a product of its time and the rules which support it have developed over centuries. The problem is that rapidly changing complex technology has introduced many profound changes into our society and demanded many adjustments; the law, on the other hand, moves cautiously and slowly by precedent and deliberation. Our legal system has responded to past challenges by retaining the basic protection of fundamental rights and still permitting innovative mechanisms to be tried along the way. No one who wants to see a broader range of ADR methods applied says that the ultimate resort to the courts should be taken away, only that it should be ultimate and not so quickly brought into every conflict. The Founding Fathers were not as litigious as we have become today, after all! All the ADR movement says is that other things may work better sooner, particularly in complex

cases as they have come to exist today with scientific and technological advances giving birth to new types of conflict.

Also in litigation you have the presence of a third party decision-maker — the judge. His decision is binding although you can test it by appeal to a court of review. He also has the power of the State behind him to enforce his rulings.

Looking at the other things you get in litigation, note that the court really has a system of results which are predicated on the historical notion that someone will win and someone lose and that the essential questions relating to that choice are considered as they apply to the instant fact situation. The judge can order payment of damages or performance of a contract as previously agreed, for example, but he can not do much to facilitate the on-going relationship of the parties in future business dealings or interactions.

At least the court is limited in choices once the case is in full-scale argument in the courtroom, because prior to that the judge can in fact influence all kinds of settlement. After a case is filed but before it comes to actual presentation the judge can affect the parties quite a lot in the direction of encouraging negotiation. The extent to which he does that is a function of the particular judge's preferences and personality.

Recently a District Court judge in Boston indicated in chambers, in discussing this issue, that he had a case then pending in which a professional man had sued his former employers for two or three years salary as a result of unfairly discharging him. The defendant company took a hard position that the problem the fellow had was of his own creation because he had been doing business with its competitors unlawfully and stated that not one cent would be paid. The judge had called the lawyers on both sides and told them to "think about one year's salary." Just that. But he had planted a thought, and maybe scared each of them a bit in the process, so that one side had already accepted that compromise and the judge expected the other side to do so.

So the judge can move things into solutions at a lesser level than full battle in court if he is so inclined.

## **ARBITRATION**

Look now at Figure 3, arbitration. That method falls just below litigation because it is still fairly formal and may be as obligatory as a court's result and, in fact, may be rigid in form. On the other

hand, the parties usually enter into an arbitration process voluntarily, either by deciding to do so at the time of the dispute or because they have previously committed to it when beginning their relation in the event disputes should arise. They can choose the arbitrator rather freely whereas one has to take whatever judge may be sitting in a particular district in litigation, at least within much more narrow ranges of manipulation — some lawyers are good at “forum shopping” for the right court but there is no way the range of choice and mutuality for the parties that there is in selection of an arbitrator. An individual can be chosen or an organization can be brought in to provide arbitrators — the AAA as you see it on the chart is, for example, the American Arbitration Association and it will provide a list of competent arbitrators, sometimes even specialized for particular types of cases or industries and therefore not requiring the process of education in the basics of the case.

- Voluntary, frequently contractual, but may be compulsory
- Parties choose decision-maker
- May often choose rules and substantive law
- Usually binding
- Procedurally less formal than court  
AAA, ICC, UNICITRAL
- Two step

**Figure 3. Arbitration.**

Parties to arbitration can even choose the body of law to be applied. The arbitrators will operate under those and also with considerably more latitude in procedure so that they can move things along more quickly — rather than having to sit through lengthy questioning of an expert witness designed to show the laymen on a jury that he is competent, for instance, an arbitrator can glance at a witness’s credentials on paper in advance of the hearing and decide that.

Arbitration can be binding or not depending on the advance agreement of the parties — if you voluntarily enter into an agreement for binding arbitration and then try to avoid the result after the arbitrator makes a decision you may find that a regular court will uphold the contract under which you agreed and order you to comply.

So arbitration is a method which is fairly rigid in some ways. Its critics say that it is too fixed in concrete, too like litigation even



though a lot faster and cheaper. Sometimes it is resorted to as an escalation when some other ADR technique among the newer ones fails to produce results but still as a method preferable to going to court.

## PRIVATE JUDGING

Look now at Figure 4 which is descriptive of private judging. This is the famous "rent a judge" system which saw its inception as so many things do in California. There has been some only partly frivolous concern there that the State Bench may decline in competence as too many judges resign in order to go into business for themselves!

- Parties select decision-maker
- Voluntary
- Usually binding, may be reviewable
- Process may be statutory (California) but flexible
- Win/Lose
- Scope may be tailored
- Example
  - En Dispute Hurricane Panel

Figure 4. Private Judging.

As you can see, this method has much in common with arbitration — it is voluntary, somewhat flexible in scope and form, and so on. It may function under an enabling statute as in California or be altogether informal by contract between the contesting parties. It is still within the traditional context of there being a winner and a loser but the costs and damages to the relation of the parties may be far less than in litigation because it can be a private affair with less recrimination and battle fervor.

One advantage in this method, as well as in arbitration, is that the opposing sides do not have to be locked in the "hired gun" theory of opposing expert witnesses, with each bringing in its own scientists to say something is or is not harmful or likely or whatever the issue may involve. Instead, a mutually acceptable panel of experts can be retained jointly to determine the technical "facts" on which argument can proceed.

Private judging retains the tone of impartiality found in formal litigation, sometimes by using actual retired judges or former

occupants of the bench. It can resemble actual courtroom proceedings to the extent desired and the "judge" can be counted on to know about those. Yet there does not usually have to be a public record and an airing of corporate friction in the press.

Like arbitration, this system can work well where there are high levels of uncertainty about scientific "facts" in a complex case and so it lends itself well to ocean matters. There is also a presumed wish on the part of the judge to reach a mutually satisfactory result within the confines of the win-lose trial format since he is in business and wants future good will.

## NEUTRAL FACT FINDING

Figure 5 shows the characteristics of neutral fact finding but we really don't have enough time to discuss all of these fully. It is probably better to talk about the major ones and let some of these stand on their own as they are seen in the figures. Basically, this system provides for an agreed-on expert or panel of experts to determine the technical facts, just as we saw in reference to avoiding "hired gun" expert witnesses above. This can take many forms and sometimes be even adjunct to actual litigation, as when the court appoints a master to gather facts for it.

- |   |
|---|
| <ul style="list-style-type: none"><li>— Voluntary (or court appointed)</li><li>— Non-binding normally</li><li>— Expertise - respect - influence</li><li>— (Science court concept)</li><li>— (Science panel/advisor concept)</li></ul> |
|---|

**Figure 5. Neutral Fact Finding.**

## MINI-TRIAL

Please consider now the next major ADR form, one which has been developed very recently and seen a tremendous rate of application, the Mini-trial as shown in Figure 6.

- Structured settlement negotiation — bargaining
- Managers make decision
- Often 3rd party
- Tailored process
- Non-binding or binding
- Main experience among corporations
- Flexible remedies, including problem solving

**Figure 6. Mini-Trial.**

This may be the best known of the new ADR systems, at least in the corporate world. It has been employed in large corporate cases such as a dispute over millions of dollars in a ship building contract matter. Its major innovation is that it takes the decision-making process out of the hands of judges or arbitrators and places it in the lap of those most motivated to reach a good resolution — that is, the managers of the contesting companies themselves.

The lawyers for the opposing sides are given a short time in which to present their cases before the CEOs, or other officers of the parties who are authorized to exercise decision. In a compact time period the respective sides get a feeling for what the opposition will be able to do if the case is heard in court. There may be a “jury” present if both parties want to see how a typical group of laymen will react. Even the lawyers themselves are often surprised at how the other side can present its view; there are substantial differences in how a case is argued in court and how it may have shaped up during discussions prior to filing a legal action. The responsible managers gain a much better perspective on how things may go if the arena becomes an actual courtroom.

Within the necessary restraints designed to insure that arguments presented are actually going to be supportable in court, so that a great deal of bluffing doesn't go on to make a case look far stronger than it is, there is a lot of latitude in the design of the mini-trial for a particular dispute. The parties-at-stake can get a much better notion of what is involved in the respective positions when they are presented with the advantages of adversarial format but without the most burdensome aspects of that formula.

There can be a third party present if both sides wish that but the primary purpose of that participation would be to further approximate the courtroom result, as by having a competent person rule on admissibility of evidence, and not to actually arrive at the final decision. That decision function is reserved for the parties' representatives present and after getting the full story they retire

to talk things over. When they do so they usually reach agreement much more easily than in any discussions before such an "educational" experience as seeing their cases attacked and contradicted by opposing counsel as they would be in trial.

## **SETTLEMENT CONFERENCE**

Figure 7, the settlement conference, can be self explanatory. Let me just note that it can be part of a mandatory process or entirely voluntary. It can be one of those things urged by the judge in pre-trial litigation stages or it can be required under contractual provisions, or it may be a voluntary process when a dispute is shaping up for collision in a serious way.

- Voluntary or mandatory
- Binding or non-binding
- Judge, other judge, or third-party neutral selected by parties
- Informal, off-the-record
- Presentation of proofs may or may not be allowed
- Mutually acceptable agreement sought; binding conference is similar to arbitration
- Agreement usually embodies in contract or release
- Private process out may be discovered

**Figure 7. Settlement Conference.**

Figure 8 refers to the well-known ombudsman.

- Prevents disputes as well as resolves them
- Encourages use of established dispute systems
- Discovers faults in such systems and improves them
- Attempts to adjust disparity in bargaining positions where one party has more power than another
- Useful particularly in employee-employer or citizen-government situations
- Operates as a skilled fact-finder third party

**Figure 8. Ombudsman.**

## MEDIATION AND NEGOTIATION

Perhaps we would be best advised to spend the remaining time on mediation and negotiation, two major forms of ADR. The two are closely related, with the main distinction being that in mediation there is a third party facilitator always present — mediation is really negotiation with the third party there as a neutral to help things along. Mediation is, by the way, the ADR technique most used so far in environmental and ocean matters. Please refer to Figures 9 through 12 and we will consider some aspects of mediation and negotiation as shown on those.

- Facilitated Negotiation
- Third party selected by disputants
- Non-decision-maker, non-binding, but control and release
- Voluntary
- Dispute mature, issues and positions clear
- Flexible role for facilitator

Figure 9. Mediation/Conciliation.

- Traditionally, no third party
- Non-binding but usually contract and/or release
- Settlement negotiations after suit filed
  - Representation by other than litigators
- Inter-agency — MOUs

Figure 10. Negotiation.

- Quantitative modeling
- Provides common data base
- Useful in technically complex problems
- Parties help build model?

Figure 11. Computer Assisted Negotiation.

Both these ADR forms are usually non-binding. If some agreement is arrived at, the parties may choose to enter into a contract as a result which may be binding but that decision follows the mediation or negotiation process and is not intrinsic to it.

Negotiation is understood by everyone in various contexts and with some variation. There has been mention of the Memorandum of Understanding earlier in this conference and the MOU surely

involves negotiation, as does the process of budget making throughout government. Every lawsuit has probably passed through some form of a negotiation stage at some point prior to being litigated. When we speak of negotiation as an ADR technique, however, there may be more deliberate employment of methods of reaching agreement than one usually implies by the term.

Computer Assisted Negotiation, for example, may involve trying to get at a base of agreed-on facts and their projected consequences in determining the possible options for agreement. At MIT we built an economic model for Deep Ocean Mining which turned out to have useful application at the Law of the Sea Conference. The purpose of CAN is to provide a quantitative data base in which people involved in negotiation can have confidence so that they can proceed with considering possible mutual understanding of the possibilities. As the process of computer use in negotiation progresses we are finding it important to have the negotiating parties participate in building the model in the first place rather than being presented with a *fait accompli* which they are expected to simply plug into. The method is one with great potential we hope. Getting a common data base is an essential in complex disputes as has been emphasized in this paper as one of the serious problems with litigation — too often there the data are determined by judicial ruling after the fact of dispute aggravation to the point of litigation rather than as a means of avoiding conflict at the highest level.

Negotiated rule making, in Figure 12, has been talked about as one of the possible major reforms in regulatory policy making. In that system the potential parties are brought in to create a viable set of rules in a more direct way than usual under administrative law procedure. There has been a failure in Environmental Protection Agency (EPA) efforts under the Federal Water Pollution Control Act to resolve disputes to the satisfaction of both environmentalists and industry in regard to wastes being discharged into deep waters off the California coast, the question in contention being exactly how many waivers would be allowed. Perhaps in such ocean situations as that one future rule making can be better effected, though the difficulties of the issues make that less than certain even with state of the art ADR actively employed. Earlier input under negotiation conditions rather than when facing implied duress certainly should help.

- Involves representation from all affected parties
- Negotiate draft regs
- Encourages joint problem solving
- Reduces costs and likelihood of litigation
- Third party
- Useful when
  - Issues relatively well-defined
  - Number of parties limited
  - Each has power to tie up
  - Regulation inevitable

Figure 12. Negotiated Rule-Making.

In joint problem solving and in policy dialogue the emphasis is on early-on processes of consulting and exchanging of views. The EPA's Chesapeake Bay on-going project qualifies as a type of application of both of these, with potential conflicts between parties at stake being discussed and headed off and with scientific facts being established mutually as to the requirements of various users of the Bay and as to acceptable levels of use.

Note that in those two forms of interaction as seen in Figures 13 and 14, as well as in conflict avoidance as in Figure 15, there may be a third party present. As we have come down from the top of this taxonomy, however, the third party role has changed to one of facilitation from one of authority. Some research indicates that the choice of that third party is more important than the choice of the particular form of ADR to be used! Just as one can get a really good lawyer or something less than that, one can get a lot of help or very little from a particular facilitator. We cannot say that ADR is a science able to function with mathematical precision because there is still a lot of art in it as well; it still takes a reasonable amount of good faith from the combatants and a lot of skill from the facilitator to make it work out well. It seems that with less formal ADR methods those human qualities have a better chance to influence the result; a judge is forbidden by the rules to consult with parties separately for example, and cannot see counsel or party for one side unless the other side is present. A mediator, though, can schedule a breakfast with one party and then a lunch with the other and help to exert calming and reasoning effect on both before talking with them together. He can properly do that without violating any ethical rule and so there is more room for human qualities to work in reaching consensus. ADR, then, is not one of those developments which can be said to dehumanize or hyper-quantify. Even with a CAN system, the science simply

provides the data base; the consensus building is still ultimately and essentially a human interpersonal process. ADR can mitigate the distancing and impersonalization of human factors seen in complex case litigation, with its formal language and rules.

- Win/win paradigm
- Useful after conflict has emerged, but before positions have polarized
- Useful when groups have similar objectives and/or are interdependent
- Define issues and problems, generate alternative solutions and evaluate
- Third party useful

**Figure 13. Joint Problem Solving.**

- Deals with interest group differences in public policy making
  - legislations/regulation
- Selected representation from wide range of organizations and constituencies
- Third party
- Examples — coal, toxic substance, forest resource use
- Advisory, not decision making

**Figure 14. Policy Dialogues.**

- Identify potential disputes before opposing sides are fully defined,  
(this conference)
- Third party useful
- Identify widest range of options
- Frequently site or plan specific
- Sharing of information and viewpoints

**Figure 15. Conflict Anticipation.**

## CONCLUSION

It is a pleasing thought that disputes which result from developing technology can best be handled by reintroducing human skills and good faith between people. Society should really give those things a chance to flower and it is hopeful irony that technology may actually be inspiring a return to person-to-person understanding in this way.



If you have an interest in these matters, and in a more specific application of ADR to various types of ocean cases, there is a conference at MIT in November this year which the Donner Foundation is supporting which you may find interesting. That conference will be focused on ADR and the OCS and EEZ and would be logical follow-up for the excellent range of topics presented at URI in this meeting. Perhaps this paper has given you a basis for further interest despite its general and rather hurried nature!

Thank you for your attention and interest. Let's hope that the precious resources of the sea will be given our best efforts in the future in protecting them wisely and in optimizing our use of them to the benefit of ourselves and our children. Surely the evolving ADR program has something to contribute in that pursuit.

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## CHAPTER 14

# A Variety of Conflict Resolution Experiences

### *The Oil Industry and Georges Bank*

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## PREFACE

A major controversy was raised prior to the initial leasing of tracts in the North Atlantic Outer Continental Shelf (OCS) for oil and gas exploration and development. The central focus of the controversy was the allegation that the resultant oil and gas operations would cause harm to the fishing on Georges Bank.

Many complex issues were raised by opponents of the OCS leasing, and the sale of leases (OCS Sale No. 42) was delayed by litigation from mid-1977 until December, 1979. Exploratory wells have since been completed, all of which were dry. However, the controversy continues as additional lease sales are planned.

This paper does not attempt to address the larger controversy but focuses exclusively on the interaction between the oil and fishing industries relative to the offshore leasing and drilling activities.

## INTRODUCTION

Following the 1973-74 Arab oil embargo and the abrupt and jolting demonstration of the nation's vulnerability to interruption of our foreign sources of supply, the Nixon administration launched Project Independence — a program to achieve energy independence

for the nation. Among the initiatives of this program was an acceleration of leasing in the OCS, including the opening of frontier areas not previously explored. The areas to be leased included attractive prospects in the North Atlantic, mid-Atlantic, and South Atlantic, the west coast and Alaska, in addition to new areas in the Gulf of Mexico.

The viability of Project Independence was viewed with some skepticism by the nation and the expanded OCS program raised many concerns among coastal states and communities with no prior experience in dealing with offshore oil and gas development. Among the regions expressing concern, the most vocal and persistent was the northeast, principally New England states and communities adjoining the North Atlantic areas proposed for leasing.

The principal subject of controversy was perceived conflicts between OCS oil and gas development and the traditional fishing industry in the North Atlantic with a primary focus on Georges Bank.

The oil industry enthusiastically supported the new initiatives in the OCS as an opportunity for finding significant new domestic resources of oil and gas but recognized that the program would raise many controversies in coastal areas unfamiliar with offshore oil and gas operations. It was concluded that most controversies would arise from misperceptions rather than true conflicts of interest. This conclusion led to an intensive effort to educate coastal populations and governmental entities on the mechanics, logistics, and general nature of offshore oil and gas operations. This educational effort conducted under the auspices of the Atlantic Offshore Committee of the American Petroleum Institute included thousands of speeches, panel discussions, newspaper briefings, a mobile display illustrating offshore technology, and a program of offshore tours in the Gulf of Mexico for selected thought leaders and influentials.

### **NEW ENGLAND MARINE INDUSTRIES COUNCIL (NEMIC)**

An evolution of the API effort was the selection of certain key groups in different regions for more intensive education and continued dialogue in order to better understand the concerns of these groups and to discuss methods to deal with legitimate operational conflicts. The New England fishing industry was identified early as such a group deserving special effort and continuous dialogue.

The forum for these discussions was the New England Marine Industries Council (NEMIC).

The NEMIC was formed in 1974 by representatives of the New England commercial fishing community. The Council's goals included:

- The achievement of a better understanding and respect between the multiple users of the sea;
- The identification and examination of potential problem areas between the two industries and the implementation of actions to alleviate the problems;
- The coordination of commercial fishing and petroleum operations to insure the protection and unhampered harvesting of marine resources;
- Consultation with agencies and groups as necessary in the formulation of recommendations to user groups to enhance operational capabilities; and
- The issuance of recommendations on regulations governing the multiple use of coastal and marine resources.

From its formation until late 1976, NEMIC met at about three-month intervals. It served as a vehicle for the establishment of a working relationship between members of the two industries which was important to maintaining a useful dialogue.

Some of NEMIC's achievements included an in-depth study with the Woods Hole Oceanographic Institution to examine fisheries and oil problems. The study funded by API resulted in the publication, *Effects On Commercial Fishing Of Petroleum Development Off The Northeastern United States*. The NEMIC also initiated a meeting of captains of fish and oil ships which began an exchange of information and fostered increased efforts to improve communications and to continue an exchange of information of an operational nature. This meeting was instrumental in placing fishermen onboard seismic vessels during operations which did much to remove many of the fears the fishermen had about potential problems caused by seismic operations.

## **VOLUNTARY FISHERMEN'S COMPENSATION FUND**

Perhaps the most important achievement of NEMIC was the winnowing of a myriad of perceived issues and conflicts into a single

issue of substance to the fishing industry which was also recognized by the oil industry as a legitimate fishing concern. That issue was the potential loss of gear (and catch) from snagging or hanging up on debris lost overboard during offshore drilling operations. The recognition of this issue ultimately resulted in the establishment of a plan by the oil industry to compensate fishermen for their gear losses resulting from oil operations. The essence of this plan are contained in the following press release issued on December 1, 1976.

#### **OIL COMPANIES PLAN FUND TO COMPENSATE FISHERMEN**

Lt. Gov. Thomas P. O'Neill, III, of Massachusetts announced today that four oil companies plan to set up a fund to compensate fishermen for damage to their gear from oil industry operations in the Georges Bank. The fund is part of a pilot program to set procedures for cooperation between the fisheries and oil industries.

"This is a big new step toward building full cooperation between the two vital industries," O'Neill said at a news conference. Also present was Howard W. Nickerson, Executive Director of the New England Fisheries Steering Committee, and E. V. Callaway of Shell Oil Company, representing the four oil companies involved.

The fund, set for \$50,000, will be used when loss is caused by oil industry operations and the responsible company cannot be identified. When companies causing damage are identified, they will be individually responsible to settle claims.

As Vice Chairman of the Federal Government's Advisory Committee on the Outer Continental Shelf, O'Neill called last month for establishment of a fishermen's compensation fund. During the last three years, fishermen and oilmen have discussed such a fund as part of a conciliation board that would settle inter-industry disputes.

Nickerson, a co-chairman of the New England Marine Industries Council which sponsored the oil-fish talks, told the news conference the plan for a fund is a breakthrough in developing a good working relationship between the fisheries and oil industries. "We have a considerable way to go in setting up procedures for cooperation but we now are headed in the right direction," he added.

Callaway said Shell, Mobil, Gulf, and Continental had agreed the fund will be established on a one year trial basis. Other companies are considering joining the fund. It will go into effect when leases are awarded for the Georges Bank area. This is expected next spring.

Fishermen and oilmen plan a meeting early in January to work toward setting up procedures for administration of the fund.

Perhaps fortunately in retrospect the plan was never utilized. Shortly after the announcement of the plan, the Commonwealth of Massachusetts and other parties filed a legal action to enjoin OCS Sale No. 42 which was scheduled for mid-1977. As a result of this

litigation, OCS Sale No. 42 was delayed and was finally rescheduled for December, 1979 after the enactment of the OCS Land Act Amendments (OCSLA) of 1978. A provision of the voluntary fund was that it would be nullified by the establishment of a Federal fisherman's compensation fund such as was contained in the 1978 legislation. Thus, the voluntary fund expired under its own terms with the passage of that legislation.

### **NEW ENGLAND FISHERMEN'S LOAN ASSISTANCE GROUP (NEFLAG)**

With the establishment of a Federal compensation fund it was generally believed by the oil industry that the primary concern of the North Atlantic fishermen relative to OCS oil and gas operations had been satisfied. This proved to be untrue. As the date for Sale No. 42 approached, it was learned that there was great dissatisfaction among the entire domestic fishing industry as to the provisions and administration of the Federal fund. The principal complaints were the complexity of the claim filings and the length of time required for processing and payment (i.e., six months or more).

This dissatisfaction led to a renewed effort by the two industries to achieve an acceptable gear loss compensation plan prior to the initiation of drilling operations in the North Atlantic. After months of effort and discussion, the oil industry formally proposed the establishment of the New England Fishermen's Loan Assistance Group (NEFLAG). The basic thrust of NEFLAG was to provide immediate payment to fishermen in the form of an interest free loan upon receipt of evidence that a claim had been filed against the Federal fund. All major operators obtaining leases in Sale No. 42 (12 in total) executed this agreement to become effective July 1, 1981.

The NEFLAG proposal was never formally accepted by the fishing industry and was ultimately rendered unnecessary in mid-1982 by HR 3816, which amended the OCSLA, incorporating into law the options provided by NEFLAG.

### **OBSERVATIONS**

There are several observations relative to these interactions between the fishing and oil industries which may be of interest

to the participants in this workshop. It is likely that at least some of these have broad application in the resolution of other conflicts which may arise within the EEZ. These observations are listed below not necessarily in order of importance but roughly in order of the sequence of activities:

- 1) Start early;
- 2) Establish a working relationship;
- 3) Communicate thoroughly to establish facts;
- 4) Verify facts with third parties;
- 5) Define the issues based on factual evidence;
- 6) Prioritize the issues;
- 7) Deal with affected parties only;
- 8) Deal with one team only;
- 9) Establish formal authorities to negotiate; and
- 10) Put it in writing.

In reading the above criteria retrospectively with regard to the interaction with the New England fishing industry, it is obvious that most criteria were met yet the lengthy process ultimately failed to produce a formal agreement. The fatal flaw is easily identified as being the lack of formal authority to negotiate on the part of the fishing industry. This is not to say that a formal agreement would have resulted had such authority been vested in the fishing representatives but only that the process could not hope to succeed absent that authority. Fishing representatives active in the negotiations were drawn from a variety of fishing associations, were knowledgeable of their industry, and competent to represent the industry but had no legal authority to commit a single fisherman other than themselves to a formal agreement. More important is the fact that the mechanism for establishing that authority does not exist in a practical sense because of the large number of individual fishermen involved. Conversely, representatives of the oil industry were backed by an agreement among the management of the affected companies to proceed with the negotiation and all formal proposals to the fishing industry were previously approved by each oil company member.

In recognition of this lack of authority by fishing representatives, the NEFLAG members concluded that the objectives of the negotiations would be achieved by an informal, but hopefully public, endorsement of the proposal by leaders of the fishing industry. In fact, the proposal presented no obligation to the fishing industry, therefore, no formal approval was required. Thus, the NEFLAG proposal died for lack of public endorsement by the fishing leadership.



The ultimate question is whether the negotiations failed. In historical perspective, the fishing industry succeeded in obtaining needed legislative changes to compensate them for gear and catch loss resulting from OCS operations. The oil industry has since drilled on its prospective leases on the Georges Bank — all dry holes unfortunately. Finally, some substantial understandings and personal relationships have been established between representatives of the two industries should we have occasion for additional dialogue.

## *From A Dispute Resolution Practitioner*

**MARION COX**

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### **INTRODUCTION**

My remarks today will be focused on the use of conflict management techniques in coastal and ocean resources management decisions. First, I would like to talk about current Federal government experience with conflict management techniques or strategies. Secondly, I would like to give you my perspective, as a conflict management practitioner, on the future use or application of conflict management techniques in resource management decisions.

I will begin by giving you a brief look at my own background. I have approximately six years of experience in coastal zone management, working for both the State of Wisconsin and later for the Federal Office of Coastal Zone Management in Washington, D.C. For the past three years, I have been a conflict management practitioner. At the current time, I work with ICF, Inc., an environmental consulting firm in Washington, D.C., and am currently providing consulting services in conflict management for two federal programs. I am providing negotiation training and conflict management consulting to the U.S. Department of Energy in their High Level Radioactive Waste Siting Program. I am also providing conflict management training to Environmental Protection Agency (EPA) Superfund personnel in all ten (10) EPA regional offices. I also act as a facilitator for national program management meetings

for the U.S. Department of Energy's Nuclear Waste Terminal Storage Program.

I will begin my remarks by making a few statements about my experience and bias. I am not going to try and persuade or convince any of the participants at this workshop that conflict management techniques are "good" or "bad." I assume that conflict management techniques can be useful tools for decision-makers in certain situations. My experience tells me that anyone who categorically believes that the use of conflict management techniques can solve all their decision-making problems has probably not come face-to-face with the very real constraints built into the bureaucratic decision-making process.

I believe that conflict management tools have an important place in government decision-making. But, I also believe decision-makers must pick the place and the situation very carefully and strategically in order to have the best chance of success.

To begin I will give you a couple of examples of what the federal government is currently doing in a wide range of areas with respect to conflict management. I hope this will create some additional thoughts in your own mind about how some or any of these tools might be used within the context of Exclusive Economic Zone (EEZ) controversies.

## **REGULATORY NEGOTIATION**

Regulatory negotiation is a process of bringing affected parties together to negotiate the formulation of proposed regulations. Currently the U.S. EPA is trying to develop a set of regulations by bringing together all the affected parties to the regulatory action. All the parties are involved in an identification of the issues and are working to develop regulations which are acceptable to the parties involved. These proposed regulations will then be submitted to EPA for consideration.

The "Reg-Neg" Project, as it is called, does not supersede or go around the National Environmental Policy Act (NEPA) requirements or the Administrative Procedures Act requirements with respect to regulation or rule-making. But, the process does emphasize bringing parties affected by a regulation together at an early stage in the development of the regulation in hopes that the proposed regulation will meet with very little controversy from the parties that would normally raise issue with it.

The "Reg-Neg" effort has not produced a set of proposed regulations to date. The EPA has not been able to move forward and publish any rule under this process. However, they continue to try, and I think it is useful to know that they continue to try even though there have not yet been any success stories.

In another case, the Federal Aviation Administration (FAA), has recently concluded a successful effort to negotiate new regulations concerning flight hours and downtime for pilots. We are, therefore, beginning to see a record developed for the use of the Regulatory Negotiation process.

## **CONFLICT MANAGEMENT TRAINING**

Conflict management training is experiencing a high level of popularity within the federal government at the present time. Some of this training is occurring at high management levels where managers are being trained in both vocabulary and technique with respect to conflict management processes.

Another example of government training involves the training of staff level personnel who are out working with the public daily. I am currently involved in ten training sessions throughout the country at each of EPA's regional offices I am training technical and enforcement personnel at Superfund sites on how to deal with an angry and often confused public in situations that they may regularly encounter. Time and again government personnel go out to respond to an emergency in a Superfund situation and find they have one hundred angry residents, ten angry local officials, and ten people from the media looking for a terrific story. How do you deal with that kind of conflict in a productive way — in a way that allows you to accomplish your job? Training is an important area in which a wide range of government employees are being exposed to conflict management techniques and philosophy. Hopefully they will be able to draw up this training as another tool they have to deal with difficult conflict situations.

## **SITE SPECIFIC ENVIRONMENTAL DISPUTES**

The government continues to be involved in some site specific environmental disputes. Many times these disputes occur at the state level — between state government or local officials and industry trying to site something somewhere that people do not want it. Less

frequently at the federal level, the Federal Government will allow itself to be involved in a site specific dispute settlement proceeding where it relinquishes some of its control over decision-making. That is much rarer these days, but it is not unheard of.

## **FEDERAL LEGISLATION**

There are specific pieces of Federal legislation that allude to conflict management or conflict resolution processes. An early example is the federal Coastal Zone Management Act. It was written some 12 years ago and anticipated that the Secretary of Commerce would "mediate" disputes between conflicting parties, in particular when the Federal Government, i.e. the Department of Commerce, was in conflict with a state the Secretary of Commerce would act as a "mediator" of the dispute. While this was a good idea — in terms of using mediation — the legislation envisioned the wrong person as the mediator. Obviously the Department of Commerce Secretary has a vested interest in disputes between Commerce and a state. Nevertheless, through this legislation, people had begun thinking about trying to use mechanisms other than the courts to resolve disputes.

More recently, in the U.S. Department of Energy's Nuclear Waste Policy Act — enacted in December of 1982 — there is a specific requirement that the U.S. Department of Energy negotiate agreements with affected states and Indian tribes where there is the possibility of location of a nuclear waste repository in that state or Indian reservation. The important thing, beyond the fact that the law requires that the Department of Energy "negotiate" anything with the state, is that one provision contained in that agreement must be a formal mechanism for resolving disputes that arise between the federal government and the state in siting of a nuclear waste repository. Along with a number of other practitioners, I have been advising the Department of Energy on how to approach negotiating those types of agreements. In the next year or two, there should be approximately a dozen of these agreements negotiated and concluded. It will be very interesting to see what kinds of formal conflict resolution mechanisms the agreements specify.

## **MEASURES OF SUCCESS AND FAILURE**

In addition to these specific on-going Federal Government projects, private foundations and government agencies are beginning to fund studies to measure the successes and failures that have occurred in the use of conflict management techniques over the last half dozen years. The Administrative Conference of the United States has been in the forefront of this effort and has funded two very important studies in the area of negotiation and conflict management.

The first study was funded about two years ago and was done by Philip Harter, a lawyer in Washington, D.C. He explored the concept of how to develop regulations by negotiation and this study has led to the "Reg-Neg" cases discussed earlier. A second study, about to be released this month, has been done by Fred Anderson at the University of Utah. He has examined a large number of Superfund negotiations where the federal government and industry have negotiated settlements related to liability and cost of clean-up at hazardous waste sites. When these kinds of studies get publicized and widely distributed, we are all going to learn a lot more about the actual application of conflict management techniques. We will begin to see and judge for ourselves what successes and what failures have occurred and why in this newly-emerging area of conflict management.

Additionally, important publications are coming from a number of private groups, including the Conservation Foundation. Larry Susskind, from MIT, has been writing on the subject of conflict management for a number of years, and has compiled a number of very well documented environmental dispute case studies where resolution was reached and others cases where it was not reached.

I would like to reference the Coastal Zone Management Act's 1980 Amendments — one of things the law requires is that the Department of Commerce examine more closely the concept of Special Area Management Planning. I have been told that the States of Mississippi, Louisiana, and South Carolina have been engaged in special area management planning and in this process have involved a wide range of interests in the development of resource management plans. No one would remotely call these efforts conflict management efforts. However, the concept of Special Area Management is not entirely different from some of the concepts surrounding the EEZ. In both cases, there is a geographic area that for whatever reason has some unique or special characteristics. It

is so unique or special that any or all of the particular EPA regulations or Corps of Engineers regulations or state laws and regulations that might impact that area might not be able to protect that unique area in the comprehensive way it might need to be protected. What you end up with is a huge turf battle where everybody wants their regulation to be the one that gets adhered to and implemented. What we are finding in Special Area Management Planning, in selected instances, is that people and agencies are forced to negotiate and deal with competing interests and a variety of actors with a variety of interests. Managing this kind of planning effort successfully obviously employs conflict management techniques.

This an overview of the types of activities going on throughout the Federal Government. Hopefully they are food for thought.

## WHAT NEXT?

The second thing I would like to talk about, are some of my impressions, given this scope of activity at the federal level, about what has to happen next if conflict management techniques and processes are to be employed more often in government decision-making. I would like to say again that I think conflict management techniques are useful "tools" for government decision-makers, they are not a cure-all in and of themselves. Government decision-makers do not have to give up their authority in order to use conflict management techniques successfully. By the same token, the general public or other affected interests do not have to feel like they are powerless as a result of the federal agency not giving up its authority.

I have seen several instances where the use of conflict management techniques improves the public's participation and interest group participation in a federal decision-making activity. By law, most decisions have to be made by the Federal government, not by the public. It is the way in which a federal bureaucrat or a decision-maker or a manager approaches making that decision that can make the difference between a politically acceptable solution and an unacceptable decision. I would suggest that a variety of the types of conflict management techniques including third party intervention, can be used by a decision-maker where he/she can then make a more informed decision based upon the use of some conflict management techniques or tools used early in the process of public and interest group interaction.

There are a number of things that have to happen before any of these processes are going to be applied routinely. First, it is very important that we target the decisions in which we want to employ conflict management techniques. Look at the opportunity, look at the advantages and disadvantages and do not assume just because you are eager to employ your conflict management technique that you can apply it to the first situation that comes along. You have got to pick the situation carefully. We have to be particularly careful because for every success there are ten failures and people will invariably remember the ten failures.

Another important ingredient in finding the right situation is to look for the decision-maker or bureaucrat who is a "risk taker." I look for somebody who is willing to take a risk. This is a new and untried area for many people, there is a lot of fuzziness about "conflict management." It is scary. It is particularly scary if you are the decision-maker and you are about to relinquish some of your control over a situation. I think, for those of us who are practitioners, it is important as well to understand the motivations behind the government people responsible before encouraging them to use the process.

We also have to be careful as practitioners that we do not get used — that the decision-maker, or whoever asks us to step in and help define a process for interaction, is genuinely interested in opening up a dialogue with the parties affected by his/her decision. Again, I think the opportunities you pick are crucial and fact-finding is very important, including conversations with all the affected parties, before you plunge into something.

Thirdly, I think we need to come up with more success stories. We do not have many right now. I say we do not have many and yet I still sit here and think that this is a very valuable thing for us to do, particularly where natural resources are concerned and where we are trying to learn to manage resources better with competing interests. But, there are not a lot of success stories yet and we all, those of us that are practitioners and those of us that are academics, have to be very careful and very diligent about documenting the successes and the failures.

## **HOW DO YOU PAY FOR THIS KIND OF SERVICE**

Finally, how do you pay for this kind of service? We have to find a way to make the financial commitments which are required to pay for these services. Practitioners hold a wide variety of

opinions regarding these issues of funding. Some people think that anything short of totally neutral funding for conflict management processes is inadvisable. There are other people who think that it is relatively unimportant who pays for the services. I think that the Government has demonstrated that, even though you may never find "conflict management services" on a line item budget, the government can and does pay for some of the training and the services that are of value to them as bureaucrats. Industry has shown that they are willing to pay for such services. Actually, industry has a good track record of supplying money to nonprofit organizations who are involved in dispute resolution services. To a lesser extent, because of their limited resources, the public interest community has supported these efforts.

Some state legislatures and local governments are beginning to put money aside for things such as mediating over site specific disputes or alternative methods to adjudication. I believe that there is a broadly-based growing interest in a wide range of conflict management processes. I would suggest that any and all of these processes and techniques should be encouraged at this point until we find out which ones are the most cost effective and produce the best results.

## *Georges Bank and the Department of Interior*

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### **ESTABLISHMENT OF A BIOLOGICAL TASK FORCE**

As part of the settlement of controversy surrounding the Department of the Interior's lease sale #42 on Georges Bank, a Biological Task Force (BTF) was established to advise the Atlantic Area OCS Supervisor of the U.S. Geological Survey (USGS) on the effectiveness of lease sale stipulations designed to protect biological resources. These stipulations included a requirement that operators



avoid or protect sensitive biological resources through restrictions on the discharge of drilling muds and cuttings. In addition, the BTF was given the responsibility to recommend studies or surveys necessary to support its advisory function. The BTF is composed of five federal agencies: National Oceanic and Atmospheric Administration (NOAA); Environmental Protection Agency (EPA); Fish and Wildlife Service (FWS); United States Geological Survey (USGS); and Bureau of Land Management (BLM). The New England States were invited to participate in the BTF as unofficial members. This structure allowed the BTF to be chartered outside of the requirements of the Federal Advisory Committee Act (FACA) which places restrictions on meetings of certain advisory committees. The BTF provided a mechanism for rapid response to problems which might have occurred as a result of oil and gas operations on Georges Bank.

## **THE MONITORING PROGRAM**

On July 14 and 15, 1980 the BTF approved a complex and comprehensive monitoring program for monitoring the effects of oil and gas operations on Georges Bank. On July 31, the BTF formally transmitted this monitoring program to the Atlantic Area OCS Supervisor.

During the same period as the development of the BTF, the Department of the Interior (DOI) was reconstructing its OCS Advisory Board. Two components of that board, the North Atlantic Regional Technical Working Group (RTWG) and the Scientific Committee, were to advise Interior on the BTF monitoring program.

Regional Technical Working Groups were established to advise the Regional OCS Manager (BLM) on various aspects of presale and postsale oil and gas activities. The RTWGs were also given the responsibility for recommending and evaluating environmental studies, sponsored by BLM, for their regional priority and value to decision-makers. The composition of RTWGs includes state representatives, local representatives of federal agencies, and representatives of industry and environmental interests. The same federal agencies on the Georges Bank BTF are (were) included in the North Atlantic RTWG. Thus, the BTF and North Atlantic RTWG are (were) connected through a common membership. There is (was) no formal connection between them.

On October 16, 1980 the North Atlantic RTWG rejected the BTF monitoring program as failing to provide information needed for regulatory and management decisions. Apparently, the federal agencies involved in the design of the BTF monitoring program were unable to convince the RTWG of the value of the program.

The OCS Advisory Board Scientific Committee was chartered to advise the Assistant Secretary, Land and Water Resources (DOI), on the scientific quality and appropriateness of the OCS Environmental Studies Program managed by BLM. The Scientific Committee is composed of 15 nationally recognized scientists with expertise in issues related to OCS oil and gas activities or impacts. During the period of the BTF monitoring program, seven of the committee members were from New England.

On October 10, 1980 the Scientific Committee rejected the BTF monitoring program as failing to provide adequate guidance to BLM for designing and managing the component studies. The Scientific Committee questioned the relevance of the monitoring program to regulatory and management decisions related to OCS oil and gas operations on Georges Bank. The Scientific Committee also provided BLM with what it designated as relevant hypotheses and questions for a monitoring program. This recommendation was important because it provided BLM with a counter proposal to the BTF monitoring program.

In response to all of this advice, on October 21, 1980 DOI concluded that it could not fund the BTF monitoring program. This was a difficult position to justify because DOI had a majority of members on the BTF but had failed to control the development of the monitoring program. On December 15, 1980 DOI formally notified the BTF that it would not support the monitoring program but offered an alternative based upon the advice of the North Atlantic RTWG and the Scientific Committee. This notification was important for two reasons. First, it demonstrated to all parties concerned the value that DOI placed on the advice of its advisory committees. Secondly, for the first time, BLM provided a management official to the BTF with whom the BTF could negotiate.

A period of intensive facilitation followed DOI's rejection of the BTF monitoring program. Numerous meetings of selected members of the North Atlantic RTWG, BTF, Scientific Committee, and BLM were conducted. One of the principal functions of these meetings was to find appropriate spokespersons for the various parties involved in the conflict. The participation of Dr. John Teal (Scientific Committee) and Pat Hughes (North Atlantic RTWG) was particularly beneficial to these negotiations. In a matter of a couple of months, a select group of individuals was able to develop

a consensus of support for the program that Dr. Teal presented to the Scientific Committee in October, 1980.

On March 24, 1981 the BTF endorsed the results of this facilitation and presented a revised monitoring program to DOI. On April 17, 1981 the North Atlantic RTWG endorsed the modified program. The BLM accepted the responsibility for funding and managing the component studies. Studies were initiated in July, 1981. As a sign of its value to regulators, the EPA conditioned its permits for the discharge of drilling muds and cuttings on the continuation of the monitoring program and the results of the studies.

## CONCLUSION

The Georges Bank Monitoring Program is concluding its third and final year for the Sale #42 leases. The program has met its objectives and has served as the basis for regulatory and management decisions. Its successful initiation, following a long period of frustration, serves as a model for future activities of the North Atlantic BTF and other BTFs established for other lease sales.

The episode illustrates the importance of identifying appropriate participants in conflict avoidance or resolution. The DOI has, subsequent to the BTF negotiations, consolidated its OCS functions in the Minerals Management Service. This step will hopefully enhance the ability of parties outside of the DOI to identify and contact appropriate parties to resolve conflicts.

## *OCS Revenue Sharing*

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Pending in the United States Congress is legislation (H.R. 5 and S. 800) which would institute a concept known commonly as "OCS revenue sharing." Similar in nature, these measures would establish a Federal program of block grants to states and flag territories, targeted for ocean and coastal management activities, and

funded from a portion of Federal revenues from OCS oil and gas leasing.<sup>2</sup> Congressional supporters claim two major benefits of such a program: first, improvement of ocean and coastal management via more secure funding, greater reliance on state and local management initiatives, and a recommitment to important national objectives; and second, promotion of Federal resource development activities within the exclusive economic zone (EEZ). This paper investigates the ability of OCS revenue sharing to fulfill the latter objective, analyzing its value in resolving conflict between the Federal Government and the governments of coastal states and localities. In particular, the paper focuses on the OCS leasing program and on the role of economic benefits in shaping state and local perceptions of, and reactions to, that program. Its conclusions, however, are equally applicable to other Federal resource development initiatives in the EEZ.

The topic of this discussion panel, "Conflict Resolution Mechanisms and Experiences," conjures images of elaborate administrative processes, consultation, mediation and compromise. Outer Continental Shelf revenue sharing legislation, of itself, would offer none of these. It would, nonetheless, serve an invaluable role in the resolution of conflicts surrounding resource development in the EEZ. This would be achieved by introducing direct economic benefits to state and local governments and inducing a strong perception that the division of benefits and costs is equitable. By bridging the economic disparity between the Federal Government, which is sponsoring resource development, and the coastal state and local governments, which must accommodate development-related activities, OCS revenue sharing will substantially reduce political opposition to development initiatives in the EEZ.

Recently, the Subcommittee on Panama Canal/Outer Continental Shelf (PCOCS), of the House Committee on Merchant Marine and Fisheries, held hearings in Humble, Texas, and Houma, Louisiana, to investigate state and local attitudes toward OCS oil and gas leasing and development. Although the overall reaction to federally-sponsored activities in the Gulf of Mexico was one of strong support, the hearings uncovered many underlying perceptions of inequity that provide valuable insight into the origins of leasing opposition. These findings lend support to the thesis that OCS revenue sharing will play an important role in mitigating that opposition — that is to say, in conflict resolution. This is an important, and as yet underdeveloped, aspect of the legislation; hopefully, it can be discussed and more fully developed during this workshop.

## THE DYNAMICS OF OPPOSITION TO OCS LEASING

At the risk of oversimplifying a very complex administrative and political process, the decision of a coastal state or locality to oppose OCS development can be distilled down to two fundamental questions:

- 1) what is in it for us?; and
- 2) what is in it for us in relation to what is in it for everyone else?

Thus, the first is essentially an economic question; and the second, an economic question that is tempered by perceptions of equity and fairness. In deciding to oppose or to cooperate with Federal development initiatives, states and local communities will first consider who derives the principal benefit from the development and who bears the principal cost. Those factual determinations produce a yardstick by which the community assesses risk, including consideration of economic, environmental, and political risk. Finally, the community compares its risk with that of the Federal Government and develops a perception of fairness.

While the benefits of OCS development clearly accrue to all levels of government, the scope of benefits and their relationship to costs are difficult to predict. However, valid generalizations can be drawn regarding benefits received and costs borne at various governmental levels and can provide useful insight into one of the fundamental causes of opposition to OCS leasing: lack of clearly defined, direct, and predictable economic benefit to adjacent coastal communities.

## BENEFITS

The primary benefits of the OCS program accrue to the nation in the form of direct U.S. Treasury receipts and increased national energy security. In fiscal year 1983, Federal revenues derived from this program exceeded \$12 billion. These are direct benefits; they are easily demonstrated and highly visible to the residents and officials of adjacent states and localities. By contrast, state and local benefits are indirect and less easily demonstrated, usually taking the form of increased personal income and taxes derived from related economic development. Generally these benefits become less direct and less predictable as one proceeds to lower levels of government.<sup>3</sup>

These benefits are not inconsequential. In fact, it has been estimated that for 1981 the offshore oil and gas industry was responsible for creating \$1.8 billion in household earnings and 125,343 jobs in the State of Louisiana.<sup>4</sup> Moreover, the petroleum industry has clearly been a major factor in that state's climb from 44th in per capita income in 1969 to 35th in 1980.<sup>5</sup> However, when considered in conjunction with potential costs and with perceptions of risk and equity, these indirect benefits may not be sufficient to induce support for Federal development initiatives. While clearly they have induced support in the State of Louisiana, different reactions may unfold in other states, depending upon both the strength of public perceptions and on the role of the petroleum industry in the statewide economy.

## **COSTS**

The costs associated with OCS development may be generally classified as socioeconomic (i.e., provision of related infrastructure, and effects on communities and other business sectors) and environmental (i.e., planning and mitigation costs, and costs related to immediate and long-term cumulative impacts). The actual costs occasioned by socioeconomic and environmental impacts are most severe and most highly visible at the state and local level, becoming more prominent as one proceeds to lower levels of government. Moreover, financial responsibility for mitigating the effects of any such adversities lies squarely with the state and local governments. The recent hearings in Houma, Louisiana, provided many specific examples of such costs.<sup>6</sup> To the contrary, the Federal Government does not bear financial responsibility for the major socioeconomic and environmental effects of OCS development, since the majority occur within or landward of the territorial sea.

The costs borne by the Federal Government are primarily the administrative costs associated with running the OCS program — or more simply, “the costs of doing business.” The Federal Government has assumed responsibility for compensatory mechanisms like the Offshore Oil Spill Pollution Fund, and the Fishermen's Contingency Fund. However, those programs are financed through surcharges on the OCS industries.<sup>7</sup> The one federally financed program providing direct impact assistance to state and local governments — the Coastal Energy Impact Program (CEIP) — has been essentially terminated. Thus, the Federal Government is not financially responsible for the major adverse effects of its resource

development activities and it has essentially refused to share in the financial burden upon states and communities.

## PERCEPTIONS OF RISK AND EQUITY

The factual determinations of benefit and cost combine to create powerful perceptions of risk and equity which ultimately are major influences in shaping the attitudes of coastal communities toward OCS development. On the one hand, in comparison to the direct pecuniary benefits which accrue to the Federal Government, benefits to coastal states and localities are perceived as diffuse, distant and uncertain. On the other hand, the distribution of costs creates the perception that adjacent communities are bearing the principal costs of a federal activity — OCS exploration and development. The withdrawal of federal financial support for compensatory programs, such as CEIP, has fueled this perception.

Contributing further to state and local perceptions of risk is the necessity for them to invest in facilities and infrastructure to support offshore operations. In effect, adjacent communities are asked to speculate on the size and nature of the resource and on the future price of oil and the effect of price on world demand; any variations in these factors can substantially alter the demand for public services.<sup>8</sup> If they underestimate, they face the possibility of inadequate public services; if they overestimate, they face underutilized services and inability to meet debt obligations incurred in providing those services. Inaccurate speculation could result in dire fiscal consequences. Additionally, such consequences will be politically damaging, since state and local officials will be held responsible for those investment decisions. Thus, there is an element of political risk involved in supporting OCS development at the state and local level. This concern was evident in the statements of several politicians at the hearings in Houma, Louisiana, including Congressman W. J. (Billy) Tauzin, who represents Louisiana's third Congressional District:

We collect no sales taxes going offshore and what we do get, of course, is increased economic activity...but I guarantee you when times are bad and we have built the infrastructure to service this industry, we still pay the bills and yet we do not get any of the benefits from that development in terms of the cash resources flowing to the U.S. Treasury.

State and local governments, therefore, perceive that they are being put at risk for the sake of exploring and developing the nation's OCS.

The Federal Government, on the other hand, receives the majority of its benefits in front-end bonus payments and, thus, bears minimal risk. While subsequent royalty revenues may rise or fall if resource estimates prove incorrect or if the price of oil fluctuates, the Federal Government bears no responsibility for inadequate or surplus public services and facilities. The Federal Government is perceived not only to be the primary beneficiary of OCS development, but also to be in a relatively risk-free position.

The relative imbalance between net benefits to the Federal Government and net benefits to state and local governments, leads to a general perception of unfairness which dampens state and local enthusiasm for development initiatives. In Houma, Louisiana, the President of Terrebonne Parish emphasized the issue of fairness:

...I guess if I have a complaint, it lies with the attitude that the Federal Government has taken regarding what I believe is a discriminatory posture against us locally and the State of Louisiana. ...Washington, selfishly I believe, keeps [the benefits] for itself without due respect for the needs of state and local governments.

Obviously, there must be an additional factor in this equation, or else, based on the preceding discussion, all states and localities would be inclined to oppose federal development initiatives. This, of course, is not the case. In fact, the State of Louisiana and its local governments are staunch supporters of OCS leasing and development, despite their feelings that they are not getting a fair return from that development. This additional factor is the role which OCS oil and gas extraction plays in the statewide economy.

In the recent hearings before the PCOCS Subcommittee, the Vice President of the Morgan City, Louisiana, Harbor and Terminal District offered a cogent explanation for the divergent attitudes of states such as Louisiana and California as regards the federal OCS program:

If I may make an observation, I think probably the reason the people in California are not anxious at this time to develop offshore oil is because their economy does not demand it; they do not need it; they are a high tech industry. They have considerably higher employment, less unemployment, than we do. The truth is we need the oil industry. Without it, we would be in terrible shape...our area would be no more than a sleepy fishing village today without offshore and inshore oil.



Dr. Donald W. Davis of Nichols State University also emphasized the importance of the petroleum industry to Louisiana:

One only has to drive the roads of south Louisiana [and] read bumper stickers proclaiming "Oil Feeds My Family," to understand its value to the state.

Thus, determinations of benefit and cost, and perceptions of risk and equity are major influences in shaping the attitude of coastal communities toward federal OCS initiatives, but equally important, is the role of the petroleum industry in the statewide economy.

While the PCOCS Subcommittee hearings uncovered strong perceptions of inequity and unquestionable conflict between the Federal Government and the state and local governments in Louisiana, the tremendous importance of the petroleum industry to the Louisiana economy effectively counterbalances those factors. This counterbalancing effect was reflected in a statement by Mr. William Clifford Smith, a businessman and resident of Terrebonne Parish, Louisiana:

[Despite our concerns]...[we] are certainly not going to tack a moratorium on those leases because that would be a tremendous economic hardship to our area.

To the contrary, opposition to federal OCS leasing in other areas, such as offshore California, Florida, and Massachusetts, will have no readily discernible effect on the state or local economies. Hence, in these areas, attitudes will be shaped almost exclusively by perceptions of risk and equity and opposition will be more likely and more debilitating.

It is important to note, that although sentiment in coastal Louisiana continues to run strongly in support of OCS leasing and development, the perceptions of risk and equity are becoming more dominant to the point that they now condition what has traditionally been unqualified support. This was illustrated by many statements at the Houma field hearings, some of which have been included in this paper. In addition, Louisiana's Governor Edwin W. Edwards recently requested that OCS Sale 81 (Central Gulf of Mexico), scheduled for April, 1984 be cancelled. This request is predicated upon the position that area-wide leasing does not result in a "fair and equitable" return on OCS resources, and therefore, is neither in the best interest of the nation, nor of coastal states such as Louisiana. Clearly, attitudes in Louisiana are shifting. This shift is indicative of fundamental strains in the system of federalism which governs resource development on the OCS.

## **OCS REVENUE SHARING: ITS ROLE IN CONFLICT RESOLUTION**

OCS revenue sharing legislation will substantially reduce political opposition to development initiatives in the EEZ. This would be achieved by introducing a strong perception of direct economic benefit and by mollifying public perceptions of risk and inequity. Block grant funds, distributed to coastal states and municipalities pursuant to OCS revenue sharing legislation, would alter substantially the perception of inequity in the distribution of costs and benefits of OCS development. The sharing of OCS revenues will reduce conflicts between the Federal Government and state and local governments and promote resource development initiatives. This would be accomplished in several manners:

- 1) Coastal states and localities would be provided with funds for impact assistance and resource management efforts, in the format of a block grant. Thus, they would be assured that if impacts occur they will have the resources and the flexibility to address them;
- 2) The visible and direct economic benefit offered by the block grants will provide a financial buffer to the states and localities, protecting them from the effects of large, unexpected vacillations in the size and value of offshore resources. Thus, state and local perceptions of risk will be substantially reduced;
- 3) The simple presence of federal financial support will induce a sense of fairness and help to dispel perceptions of Federal Government insensitivity to the problems and needs of affected states and communities;
- 4) Finally, OCS revenue sharing will help to reduce the perception that there is an element of political risk involved in supporting OCS development initiatives at the state and local level.

The notion of political risk is particularly important. In recent years, political opposition to OCS leasing (primarily in the form of leasing moratoria) has developed an amazingly bipartisan character. At the local, state, and national level, both liberal Democrats and conservative Republicans have taken strong stands in opposition to OCS leasing. Apparently, there is political risk involved in supporting federal leasing initiatives. For instance, in states such as California, where the economy is not petroleum-based, public perceptions of risk and unfairness are the dominant considerations. Local, state, and national politicians have nothing with which to counteract those perceptions, and thus, are placed in a position of considerable political risk if they do not support legislative remedies such as OCS leasing moratoria. Outer Continental Shelf revenue sharing legislation would confer on states a direct

financial incentive to support development, thereby providing politicians with the ability to counteract such perceptions. The end result would be less support for political interventions into the OCS leasing process.

Without doubt, a program of OCS revenue sharing will impart a spirit of cooperation, partnership, and mutual benefit regarding federal development initiatives in the EEZ. This paper has shown how it will work in regard to the federal OCS leasing program specifically, but this discussion is equally applicable to other federal resource development issues. While OCS revenue-sharing is not what one would consider a formal conflict resolution mechanism, it will result in substantially reduced conflict and sound resource development in the EEZ.

## NOTES

1. The term "OCS revenue sharing" may be somewhat of a misnomer. The various forms of federal aid can be placed upon a continuum of diminishing federal authority; categorical grants being characterized by the strongest federal role and revenue sharing the weakest. H.R. 5543 is based upon block grants, a hybrid grant form which mixes elements of categorical grants and revenue sharing and usually involves consolidation of categorical grants. (*CRS Review*, 97th Congress, June, 1981.)
2. All coastal states (including Great Lakes states) and U.S.-flag territories are eligible to receive block grants under both the House and the Senate bills. Block grants are distributed through a formula which considers OCS leasing and production energy facilities located in the coastal zone, shoreline mileage, and coastal population. The House and Senate bills would differ in the proportion of revenues shared in any one year. However, if funded at maximum levels of Fiscal Year 1985, H.R. 5 would require the equivalent of about two and one-half percent of total estimate receipts; and in S. 800, about three and one-half percent.
3. Testimony of Dr. William L. Fisher, Director, Bureau of Economic Geology, University of Texas, before the Subcommittee on Panama Canal/Outer Continental Shelf of the Committee on Merchant Marine and Fisheries, U.S. House of Representatives, October 12, 1983. Serial No. 98-27. p. 101.
4. Loren C. Scott and Associates, *The Petroleum Industry in Louisiana*. A report prepared for Mid-Continent Oil and Gas Association. p. 18.

5. *Ibid.*, p. 29.
6. "...during the period between 1980 and 1982, 85 percent of all offenders incarcerated in the Morgan City Jail were transients... A new jail was built in Morgan City at a cost of \$2 million. The City of Morgan City provides all the fresh water to the offshore industry in our area. The demand for bulk sales of fresh water grew so rapidly that Morgan City was required to double its capacity at the municipal water plant. This utility expansion was paid for through the sale of long-term revenue bonds...The expansion of the offshore marine industry absorbed other industries in our area...Boats in the fishing business converted to use in the oil fields and financial institutions turned their investments to the marine industry. Morgan City, for example, attempted to preserve the onshore support facilities for the fishing industry, such as required ice plants, but they soon disappeared." (Hon. Cedric S. LaFluer, Mayor, Morgan City, Louisiana.)  
"...in neighboring Jefferson Parish, there is a two-lane road to Grand Isle. There is probably four to five hundred million dollars a year spent off Grand Isle in the federal areas, and you can hardly get down this road safely because of the trucks and transportation that brings supplies for the offshore areas." (Mr. William Clifford Smith, businessman, Houma, Louisiana.)  
"...the [erosion] rates for the entire [Louisiana] coastal zone are about 50 square miles per year, that is, 32,000 acres of land per year that is eroding...into the Gulf...I do not know any other way to say it, it is a catastrophe...by and large, the biggest causes are dredging activities associated with navigation channels and oil and gas activities, both onshore and offshore. There is no question about this." (Dr. Sherwood Gagliano, Coastal Environments, Inc., Baton Rouge, Louisiana.)
7. The Offshore Oil Spill Pollution Fund (43 U.S.C. 1811) is funding principal from a levee which is not to exceed three cents per barrel on oil produced from the Outer Continental Shelf. The Fishermen's Contingency Fund (43 U.S.C. 1841) requires the Secretary of the Interior to establish area accounts which cover areas leased under the Outer Continental Shelf Lands Act. Any holder of a lease permit easement or right-of-way in any such area must pay an amount not to exceed \$5,000 into the area account.
8. The affect of a miscalculation in this regard could have dramatic long-term effects on public service requirements in coastal areas. For instance, in Louisiana \$1 million change in annual petroleum industry sales will result in a corresponding increase or decrease

of approximately 12.57 jobs across all sectors of the state economy.

## Discussion

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**Hoyle:** Dan, let me start out by saying that the Department of State has no interest in OCS revenue sharing at all. Secondly, I neither support nor am opposed to OCS revenue sharing because I do not know enough about it to come down one way or the other. But just based on what you said, thoughts do come to my mind and one is that it sounds suspiciously to me like we are setting a precedent here of conflict resolution by extortion. I cannot think of any part of this country that has benefitted more from the oil and gas industry than those coastal states off which the oil and gas industries exist. But, unless I am wrong, the Federal Government does not pay off the State of Wyoming for oil and gas produced on public lands in the State of Wyoming.

**Ashe:** The State of Wyoming gets funding.

**Hoyle:** Let me go on, that is at least within the boundary of the state. What bothers me here is that you are talking about the OCS. You are talking about oil and gas which belongs to all the people of the United States. I do not understand as a matter of fairness and equity, I do understand it as a matter of politics, why people in Nebraska are not going to receive money from this because this is oil and gas produced which according to the OCS Lands Act is held in trust by the Federal Government on behalf of all the people of the United States, not for the people in the coastal communities. I do not know any coastal community in the country that has suffered because of oil and gas being produced off their coast and yet you make it sound as if these poor people are starving to death because they have oil and gas being drilled off their coast.

**Ashe:** I just said benefits are not inconsequential to states like Louisiana. I think the benefits are substantial. However, you have to take that in relation to the costs. They have warranted substantial costs. And they will bear substantial costs ultimately when the oil and gas industry pulls out of Louisiana. One thing in particular — the erosion, the land loss down there is tremendous and largely attributed to oil and gas operations — both offshore and inshore. I think the issue of the inland states versus the coastal states is a valid point.

**Hoyle:** Let's take a case like Pennsylvania. Say the oil and gas is off of New Jersey and the chances are good that that oil and gas can be produced by Gulf or Arco, which have their refineries and most of their facilities in Pennsylvania — not in New Jersey. So, it is going to be the state of Pennsylvania that is going to be impacted more by this offshore oil and gas development than it is the State of New Jersey.

**Ashe:** Pennsylvania would get money under the revenue sharing bill.

**Hoyle:** It would? Even though the OCS development is off of New Jersey?

**Ashe:** I think what is important to note is that states like Wyoming and other states do get money, they do get revenue sharing, they get 50 percent. What we are asking for for the coastal states amounts to about two percent. Those are federal lands too. People keep saying the OCS is federal land but, those are federal lands in Wyoming.

**Hoyle:** But, they are not federal lands in the states.

**Ashe:** What difference does it make?

**Hoyle:** There is a big difference.

**Ashe:** The policy decision is — if a federal activity has an effect on a state, the Federal government should help them out. It does not really matter whether the federal activity is within the state border or offshore in the OCS.

**Finch:** Many of the state fishery agencies are very concerned about block grants because they see in that that the fishery agency — being at the latter end of the animal — will get only the residual effluent which will not amount to very much of substance. Therefore, they do not look for this because presently they are now getting grants under 88309 and 89304 and they see that block grants are being used as a cancellation, subsequently for those other grants, should the Congress in its wisdom accept the administration's advice on the subject.

**Ashe:** Well the administration has not given any advice on the subject.

**Finch:** It has in the form of a budget recommendation.

**Ashe:** Well, the budget recommendations were just to terminate the state grant program. We have not gone along with that. We have not linked the block grants to termination of any federal program.

**Finch:** Nevertheless, there is a real concern among many state people that we know that that linkage would be made.

**Ashe:** Well, if that were the policy decision that were made, then there would not be anything left to do. The states, however, mustered a tremendous amount of political support for the anadromous fish grants and the commercial R&D grant. I do not think they are going to go away because of OCS revenue sharing. This administration, despite all of its attempts, could not do away with those programs. I do not think that the congress passing an OCS revenue sharing bill is going to do that either.

**Grigalunas:** I found the discussion of the various ways of dealing with conflicts fascinating as a neophyte in this area, but it was interesting. We went through a variety of different approaches, particularly Dan and Marion Cox, of different possibilities with their characteristics and I guess what interests me — and this is more of a statement than a question — is what criteria might you suggest for good as opposed to bad conflict resolution mechanisms? I presume that any one of the mechanisms eventually leads to a resolution, what is good, what is bad? You sort of hinted at it when you said “what is cost effective?” Dan, you gave some ideas, at first, when you sort of poked fun at the prior system where we had a lot of lawyers, we as a society have over invested in lawyers apparently we have so many cases, there are long delays in settlements and presumably involving great social cost and high transactions cost, so one of the things that interested me as I listened to the variety was how do we tell the good from the bad? What criteria do you suggest? Furthermore, what kinds of issues, in general, could you say certain types of mechanisms might apply to — can you categorize them that way — maybe someone has done it and I’m reflecting my ignorance.

**Cox:** Well I will take a quick shot at it. I think there are a couple of questions you can always try to ask yourself if you find yourself in a position of having to employ some technique: 1) how defined is the conflict at the point of entry; 2) what is the relationship between the parties in conflict, is this the first time they have ever seen each other or do they have a 15 year history of fighting; 3) what are the resources available to you to deal with conflict — both time and money; and 4) the timing — how urgent or how much do the parties in conflict want to reach resolution of that conflict? That is just a quick shot at it. I mean, there are some criteria that you can apply.



**Grigalunas:** My question was — there are a number of imaginative approaches being pursued, I think by EPA for example, involving the bubble-approach of marketable permits which apparently, at least in experiments, have shown to be able to achieve environmental objectives in various test areas at considerable costs over the “old and efficient approaches.” Another is strict liability for oil spill damages that I would offer as another potentially promising way of dealing with conflict related to a specific marine issue. Do you see these as conflict resolution mechanisms or are these outside of them?

**Nyhart:** I would see them as conflict resolution mechanisms. Let me go back very quickly to three of your points, Tom, one is I think that there is enough variety out there that is developing that the market will be a factor in deciding it's success and that is very pragmatically “what works?” Second comment is that there are two other criteria, one — that I spent a little bit of focus on — that is “what is economically effective and time effective?” The amazing thing is that very little is known about that. Conflict resolution as a business, as an industry, has, I think, relatively little hard data analyzing it. The legal industry, as an industry, has not been looked at in terms of costs and effectiveness at all. So, I think both the market and the driving of economics will make a difference, among these different mechanisms.

**Hull:** I have a question of Dan Ashe, specifically about the bill you described as it passed the House, or if not passed yet then as it is written — did it provide for revenue sharing of hard mineral production revenues or only oil and gas revenues?

**Ashe:** Only oil and gas revenues.

**Slade:** I do not know who to address this question to. This discussion has been very success oriented. Speaking from my own experience as an attorney where I expect the worst and my expectations are usually satisfied — what happens, in industry type disputes, when you go through one of these actions like private judging, a mini trial, arbitration or conciliation and industry A says “fine” and industry B says “nuts, forget it.” It all goes to hell and you have to go to court. Will any of that process that you have gone through stand up in court? Can you have a contingency appeal process in your alternative dispute settlement mechanism that you go through or do you have to go back to square one?

**Nyhart:** The fact that you have the U.S. Judicial system as a final resort is one of the things that makes the voluntary or non-binding mechanisms work in part. Now, the second thing is that for a

number of those the discovery, the fact finding, the investigative input that you will do for any of these alternative mechanisms can be admissible in a litigation if the alternate dispute mechanism fails.

**Slade:** So, it is not a total loss?

**Nyhart:** No it is not.

**Slade:** In one of these alternatives, I may play poker with the facts hoping to come out with some resolution, whereas if it was in court I would hold you to much higher standards than I would in an atmosphere of an alternative type of dispute settlement. And I would hate to get stuck going through that, then hitting court and hearing "Well, you agreed to this before."

**Nyhart:** That could be a problem. What can you hold back? In the mini trial, if you in fact empower the CEOs, for example, playing poker is not going to make any difference because they are driving towards a solution in that particular process.

**Black:** All of you in your descriptions of case studies really were talking about dispute techniques that fell below the adjudication stage. You were all in the generally non-binding, third party or informal categories. I really have difficulty with the basic term "conflict resolution." My problem is that when you talk about resolution, you really talk about dealing in subsequent ways with cause-effect relationships and I am not sure I heard any of that. You deal with essential problem definition and a notion that these problems can be resolved. And finally, resolution gives me the notion that both parties in the conflict walk away satisfied or happy and I do not think that really happens. But, it is more than a semantic problem. It is really a substantive problem in that if you enter into a dispute trying to resolve it rather than trying to reduce the conflict or manage the conflict, I think you are going to waste energies. I, for example, could see in dealing with positions of two parties rather than with areas of common interest where you can actually get to some management resolution if you will. Am I off base with those notions?

**Hull:** In our case I think it was clearly conflict avoidance, it was not resolution. It was an effort to avoid conflict before it actually developed.

**Black:** The EEZ is a conflict environment. I think economically in terms of industry dispute over special use and what have you. It is a conflict environment. Are we really trying to resolve conflicts out there or are we trying to reduce and manage them so that

we can progress? I think the latter, therefore, management is really what we are working for here and not resolution at all. And if you put your energies into resolution you are actually going in a direction that is not productive.

**Cox:** Well, I think you try to do both and if you reach resolution you would not necessarily turn and walk away from it. Right? I tend to use the word "management" or I try to use the word "management" more than resolution because in my mind resolution implies that if you enter into the process you are going to resolve it. However, you do not always resolve, but often you learn to manage it better. But, I do not understand the artificial distinction that you are making about it being a waste of time if you try to resolve.

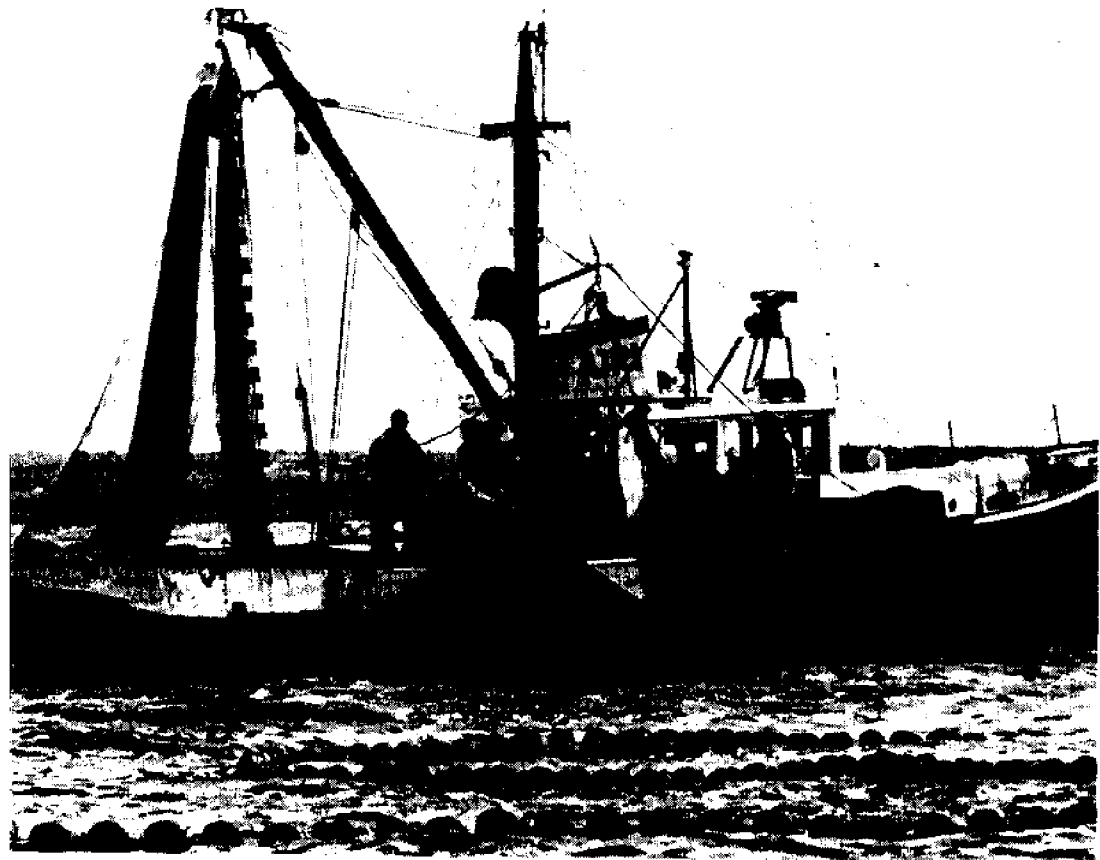
**Black:** I just think that you are dealing with positions of parties rather than with areas of common interest.



## **PART FOUR**

# **Utilizing the Living Resource Potential of the Exclusive Economic Zone**

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When I was first asked to chair this session I was a little bit perplexed, but from comments that we heard yesterday it is apparent I was not alone. I think most of us fairly quickly came to the conclusion, for living resources at least, that problems and prospects are old friends and that we can perhaps refer at least some of these discussions of the Exclusive Economic Zone (EEZ) back to the Magnuson Fishery Conservation and Management Act (MFCMA).

I was reminded of a problem related to foreign fees in which I was involved just a few years ago. In 1979, fees collected from foreign fleets amounted to 16 million dollars. Our estimate of ability to pay was approximately 80 million dollars. I was advised by National Marine Fisheries Service (NMFS) personnel that NMFS was already acting extra-legally by its existing poundage fee. The rationale for this was that the U.S. had not asserted ownership. This conservatism seems to have receded somewhat since fees were about 44 million dollars in 1983. And, with the EEZ, I presume that that particular concern may no longer be relevant.

Now, to put the 40 to 80 million dollars in some perspective let's compare it, for instance, to some of the new offshore wells, which were mentioned yesterday. If one assumes a 10 percent profit margin and 20 percent discount rate, the foreign fee potential is roughly comparable to two new wells. However, fees for allocations are "wells", of course, which would run in perpetuity; they never run dry. It seems possible that the EEZ may offer an opportunity to move away from the arbitrary cost allocations, that have been used in setting fees, towards a more rational system. Not only is the cost allocation arbitrary, but it invites the expansion of cost to meet available income. On the other hand if allocated costs should happen to exceed ability to pay, then we shall have killed the modest goose that lays the golden egg.

We are fortunate today in reviewing fisheries to have recognized authorities on some of the issues involved, both as speakers and panelists. The speakers are: Richard Hennemuth, National Marine Fisheries Service; William Gordon, Associate Administrator for Fisheries, National Marine Fisheries Service; and Steven Crutchfield, Assistant Professor, Department of Resource Economics, University of Rhode Island. And our panelists include Dr. James Crutchfield, Institute for Marine Studies, University of Washington, articulate spokesman on fisheries economics and a member of the Northwest Fisheries Council. Also from the west coast we have August Felando, President of the American Tunaboat Association. From the Northeast we have Mr. Douglas Marshall, Executive

Director of the New England Council and from Florida Dr. Fred Prochaska, Professor, Department of Food and Resource Economics at the University of Florida and a member of the Scientific & Statistical Committees on both the South Atlantic and Gulf Councils.

John Gates, Professor  
*Resource Economics*  
*University of Rhode Island*  
*Kingston, Rhode Island*





## CHAPTER 15

# Overview of the Living Resources

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### INTRODUCTION

The renewable living marine resources possess a great many desirable attributes. They are self-renewing. They are nutritious and good-tasting. They are readily available; the U.S. is blessed with an abundance close to home.

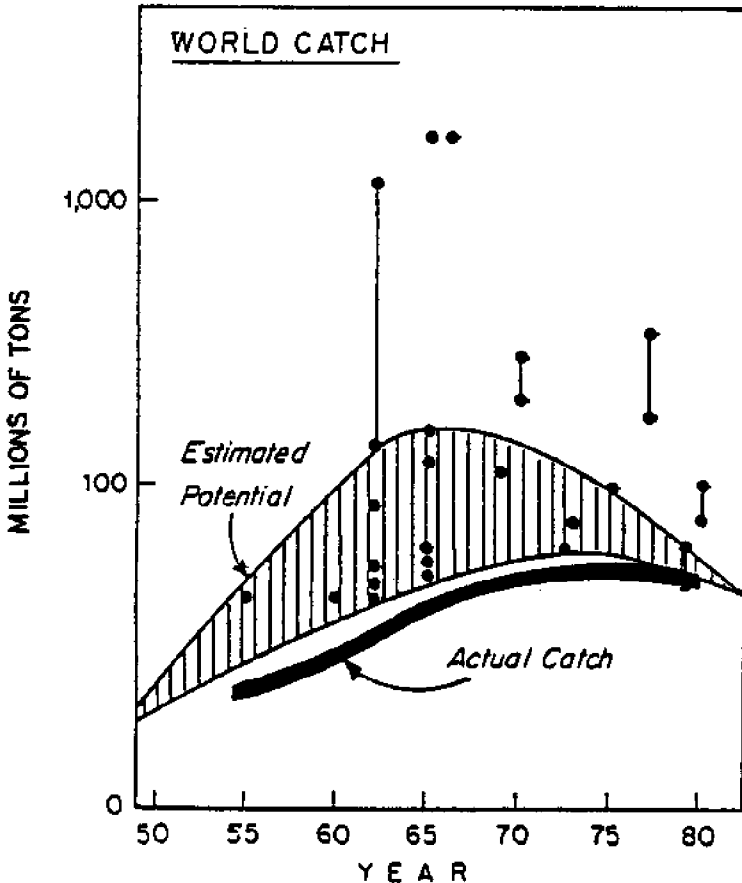
Fish are distributed in time and space so that it is economically feasible to harvest them. The ecological facts of life put some constraints on how we can harvest the resource, but these constraints are not technologically limiting. The constraints arise because of the natural variability in success of reproduction, and we have not developed our methods of utilization to accommodate the changes.

The current harvest of marine resources in relation to their longer-term potential will be presented, as well as some thoughts about the ecological aspects of production as we know them now, and their relation to utilization. What anybody can do about optimizing the utilization of the resources outside of environmental aspects, e.g., processing and marketing, is beyond the scope of this paper.

### GENERAL CONSIDERATIONS

The global marine catch increased steadily by approximately 15 percent per year after World War II, until the 1960s. Since then, the catch has leveled off, and stands now at about 70 million metric

tons (Figure 1). The numbers are not very accurate in either absolute or relative terms; it seems clear, however, that the catch is near the limit.



**Figure 1: Actual landings and estimated potential of world catch for 1950-1982.**

Past estimates of potential trended upward for awhile, but downward more recently. The wide variation is due to the different methods used, and to the different components of the resource which have been included — ranging from more traditional fish and shellfish to plankton. General experience seems to indicate that both the methods of using trophic food-chain calculations and adding up the assessed maximums of single stocks will significantly overestimate the long-term expected annual yield.

The stocks are naturally variable. The size of a recruiting year class can differ by an order of magnitude, even between consecutive years. The data from the past 20-30 years for many stocks around the world indicate the frequency of occurrence of various year class sizes (Figure 2). There seems to be a level of substance within which we are restricted most of the time, but occasionally an abundance occurs that is very important to fisheries and, after which, becomes the expected norm. Furthermore, the peaks and valleys of different stocks occur at different times.

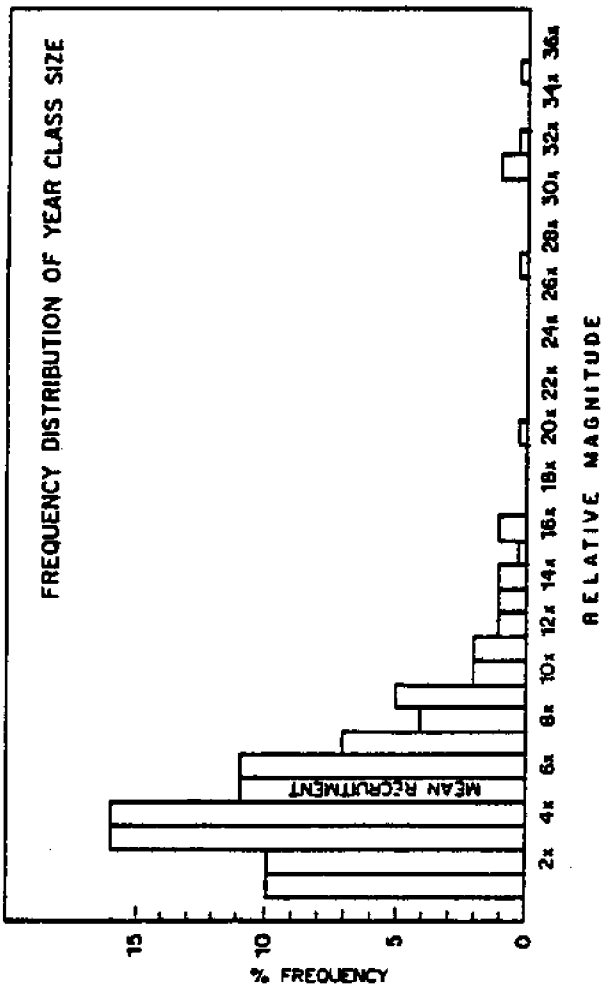


Figure 2: Composite frequency of year class size for 22 different fish stocks for time periods of 15-40 years.

The history of the Georges Bank fishery reflects this phenomenon perhaps more than other regions would, but the same picture can be shown for the North Sea, the China Sea, and, I would guess, also the Bering Sea, as well as most other areas (Figure 3).

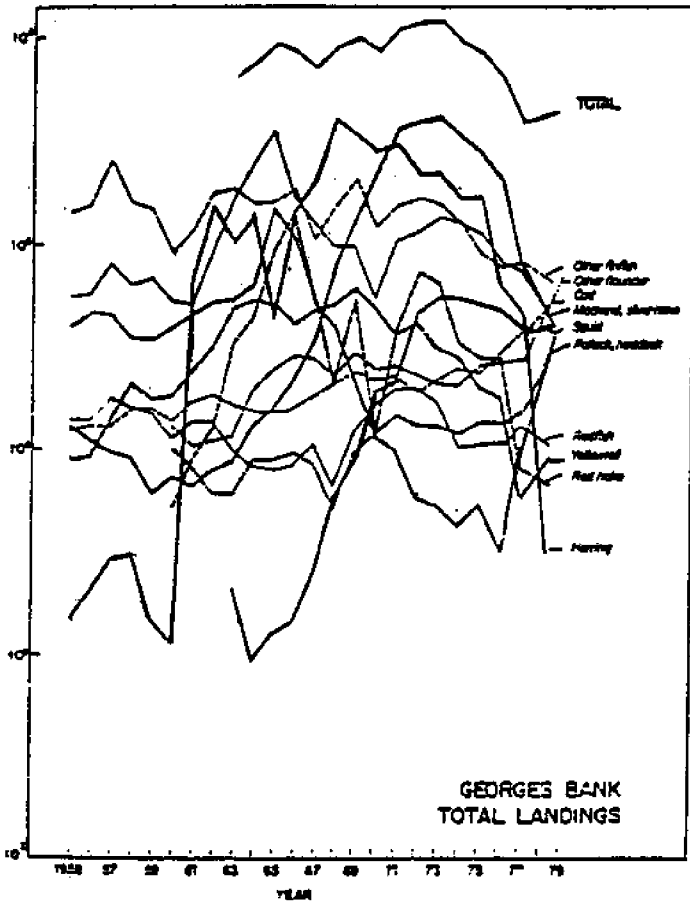


Figure 3: Log weight of finfish landings on Georges Bank from 1955-1979.

Fishing has an effect on this pattern of variability. At the very least, it will alter both the period and the amplitude of natural changes, probably increasing them in both cases. At severe levels of harvest, productivity may be reduced, and possibly cause even the temporary replacement of one species-stock for another.

The implications of all this are manifold: global fish production is near its limits. The fish that we have traditionally counted

on, both domestically and from imports, will require good management just to maintain current supplies. If we are to maximize benefits, we must adopt a strategy of fishing (utilization) that will take advantage of the varying abundance, and the more common substance. This strategy will become more apparent and successful as we improve our knowledge and capability of prediction. In any event, it must include the flexibility to react to changes. Much of this depends on changing the traditional patterns of utilization.

### U.S. FISHERIES

It is common knowledge that the U.S. produces only about half of what we consume. Of the leading countries, the U.S. is almost unique in this respect (Figure 4). This situation may or may not be desirable.

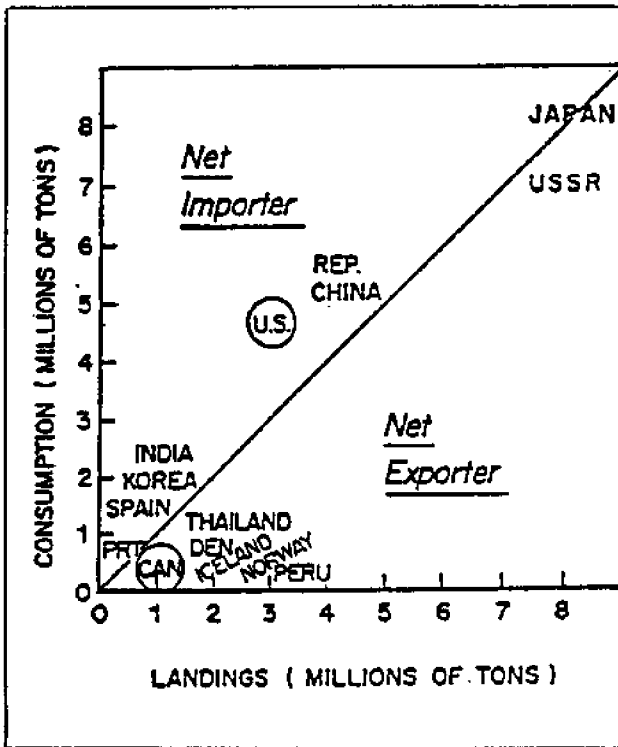


Figure 4: Landings vs. consumption for 14 countries in 1980.

In 1982, the U.S. commercial fishery landed 2.7 million metric tons, an increase of about 22 percent since 1975. If one had selected 1976 or 1977 for comparison, the increase would be closer to 15 percent. The increase in the U.S. catch was primarily in menhaden, Pacific salmon, and Pacific rockfishes. In 1982, finfish and squid accounted for 85 percent; shellfish the remainder. The U.S. exported 298 thousand metric tons of this; we imported 988 thousand metric tons for direct consumption. The foreign catch in U.S. waters was 1654 thousand metric tons; joint ventures amounted to 253 thousand metric tons.

The U.S. catch was distributed among regions as follows (Figure 5): North Atlantic, 732 thousand metric tons; South Atlantic and Gulf of Mexico, 1236 thousand metric tons; Pacific, 339 thousand metric tons; and, Alaska, 399 thousand metric tons.

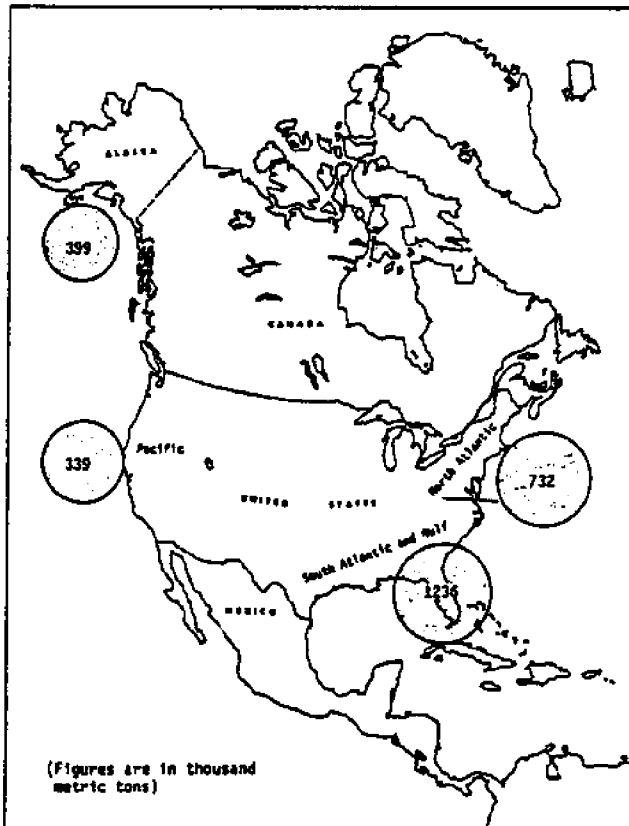


Figure 5: Volume of landings by region for 1982 in U.S. waters.

There has been some development of the U.S. fisheries in each of the regions over the last five years, but the catches are still primarily in the traditional stocks. The northwest Pacific and Alaska areas have the greatest remaining proportion of the foreign fishery, which has dropped greatly since 1976.

Information on the catch in recreational fisheries has become more accurate in recent years, but good estimates of weight of the catch are not yet available. These fisheries are important in every region, and probably represent a catch of about 50 percent of the commercial landings. Many of the important stocks are shared by recreational and commercial fishermen. The landings given in this paper do not include recreational catches, but one must consider that the potential landings given would be variously shared by both.

A more detailed look at each region provides a basis for examining potential. To do this, the aggregate landings of the traditional fish and shellfish stocks have been tallied. These include most groundfish, salmons, herrings, large pelagics, and shellfish which are fully utilized (Table 1). Other less traditional finfish stocks — at least in more recent years — have the major potential for increased catch. In some cases this potential is indicated by substantial foreign catch, and otherwise by assessment based on available survey data. The potential for U.S. increased landings which are given include the foreign landings where appropriate. The data for the estimates of potentials for various stocks were provided by personnel of the Centers and Regional Offices in each of the National Marine Fisheries Service (NMFS) Regions. These represent the best available estimates, but are subject to revision as more information becomes available.

**Table 1. Breakdown of traditional fisheries by major groupings for each of four regions.**

TRADITIONAL U.S. ZONE FISHERIES*	
ZONE	PERCENTAGE
<b>NORTH ATLANTIC</b>	
Groundfish	28.0
Pelagics	51.0
Shellfish	20.0
Large Pelagics	0.3
Unclassified	0.7
<b>SOUTH ATLANTIC AND GULF OF MEXICO</b>	
Pelagics	81.0
Shellfish	15.0
Large Pelagics	1.0
Unclassified	3.0
<b>PACIFIC</b>	
Groundfish	45.0
Salmon	12.0
Pelagics	16.0
Shellfish	8.0
Large Pelagics	3.0
Unclassified	16.0
<b>ALASKA</b>	
Groundfish	3.0
Salmon	66.0
Shellfish	18.0
Pelagics	13.0

\* Based on 1982 landings.

## NORTH ATLANTIC

Traditionally, the North Atlantic has supported a multi-species trawl fishery. The area and total resource was fished very heavily by long-distance fleets from 1960 to 1977. Since then, the reduced effort has allowed recovery; more recently, domestic fishing effort has increased substantially. During 1982, Canada landed 30 thousand metric tons of finfish and shellfish from the disputed zone on north-east Georges Bank. Therefore, the final decision on the location of the marine boundary line could significantly affect U.S. landings.

Possibilities for increased landings include silver hake, herring (offshore), sand lance, dogfish shark, mackerel, and squid (Table



2). If all these resources could be harvested, it would amount to a 127 percent increase in U.S. yield, or a total of about 1666 thousand metric tons.

**Table 2. Listing of those species which have potential for increase in the North Atlantic region.**

NORTH ATLANTIC, POTENTIAL FOR INCREASE*				
1982 Landings (Thousands of MT)				
SPECIES	U.S.	FOREIGN	JOINT VENTURE	ESTIMATED POTENTIAL
Silver Hake	16	2	1.0	154
Herring (Offshore)*	0	0	0.0	250
Dogfish	7	-	-	65
Atlantic Mackerel	4	3	0.5	152
Sand Lance	0	0	0.0	150
Squid	8	29	3.0	74
TOTAL	35	34	4.5	845

\* When stock recovers.

## SOUTH ATLANTIC AND GULF OF MEXICO

Potential for increase is primarily in the mixture of groundfish species and thread herring (Table 3). The groundfish potential is based on estimates of by-catch and trawl surveys. The thread herring potential is somewhat more tenuous. Estimates indicate a possible 135 percent increase to about 2906 thousand metric tons.

**Table 3. Listing of those species which have potential for increase in the South Atlantic Region.**

SOUTH ATLANTIC AND GULF OF MEXICO, POTENTIAL FOR INCREASE				
1982 Landings (Thousands of MT)				
SPECIES	U.S.	FOREIGN	JOINT VENTURE	ESTIMATED POTENTIAL
Groundfish	16	-	-	1,203
Reeffish	14	-	-	69
Thread Herring	-	-	-	400
TOTAL	30	-	-	1,672

**PACIFIC**

Pacific cod and hake, anchovies, jack mackerel, and possibly squid are stocks which could provide for an expanded U.S. fishery (Table 4). The jack mackerel is generally mixed with the Pacific mackerel which cannot support increased effort; anchovies are highly variable from year to year, as are squid. These factors may restrict harvest below projected potential levels. Under favorable circumstances, a possible increase of 214 percent, to about 1065 thousand metric tons, is estimated.

**Table 4. Listing of those species which have potential for increase in the Pacific region.**

SPECIES	PACIFIC, POTENTIAL FOR INCREASE 1982 Landings (Thousands of MT)			ESTIMATED POTENTIAL
	U.S.	FOREIGN	JOINT VENTURE	
Pacific Hake	7	7	68	200
Anchovies	47	.	.	224
Jack Mackerel	26	.	.	175
Squid	16	.	.	120
TOTAL	96	7	68	719

**ALASKA**

Quite a large potential increase exists, including many offshore species currently fished primarily by foreign countries (Table 5). Cod, flounders, ocean perch, pollock, rockfish, sablefish, and mackerel are all designated as possibly contributing to an increased U.S. catch. Estimates indicate an increase of 700 percent, to about 3200 thousand metric tons.

**Table 5. Listing of those species which have potential for increase in the Alaska region.**

ALASKA, POTENTIAL FOR INCREASE				
1982 Landings (Thousands of MT)				
SPECIES	U.S.	FOREIGN	JOINT VENTURE	ESTIMATED POTENTIAL
Cod	22	55	15	257
Pacific Flounder	10	88	18	163
Pacific Ocean Perch	-	10	-	152
Pollock	1	1,052	129	2,008
Rockfishes	-	5	-	55
Sablefishes	3	9	-	40
Atka Mackerel	-	14	13	47
<b>TOTAL</b>	<b>36</b>	<b>1,233</b>	<b>174</b>	<b>2,722</b>

## SUMMARY

In sum, the estimated total potential harvest comes to about 8.7 million metric tons, compared to current landings of about 2.7 million (Table 6). Achieving the potential catch is, of course, another matter. Increased U.S. landings by a factor of 50 percent, to about 4.1 million metric tons, seems to be a realistic target, based solely on availability of resources.

**Table 6. Landings of shellfish and finfish/squid in U.S. waters during 1982, and the respective potential for increase.**

TOTAL U.S. WATERS 1982 CATCH			
(Thousands of Metric Tons)			
SPECIES	1982 LANDINGS	POTENTIAL INCREASE	PERCENT INCREASE
Shellfish	444	0.0	0
Finfish & Squid	2333	5900	145
<b>TOTAL</b>	<b>2777</b>	<b>5900</b>	<b>103</b>

The observable and predictable fact is that the resources will vary in magnitude from time to time, significant changes in some

species — for example, squid — occurring between consecutive years. Thus, at various times, and lasting for variable periods, the species composition will differ. Attempting to push the resources to its limits of yield will result in more variable year-to-year harvests. As the substance of the populations are reduced, the fishery will depend more on the less frequent abundances. For some of the "underutilized" stocks, information is rather sketchy, and the period of observations is short. Given the proclivity to first observe stocks when they are abundant, the estimates will tend to be optimistic.

It requires good knowledge and management just to maintain the current yields, and better knowledge and management to increase them. In some areas, for example the eastern coast, habitat changes have already reached the point where resource productivity is affected. If the current trends of pollution and habitat changes continue, the chances of achieving the increased harvest will be reduced.

## Discussion

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**Burroughs:** What kinds of things do you anticipate doing to nail down the recreational catch which seems to be increasing?

**Hennemuth:** Well the surveys they are doing now have improved quite a bit over the years. I was just talking about that the other day with some people and while maybe imprecise they are very comparable and at least they are pretty accurate at the moment and so for about two years of the new survey the 1st year of which was totally pretty good. I do not know what that number is, I have not seen it, but it will be coming out fairly soon. I think they feel that now that they have some of those problems solved, and they keep on with the survey that over the next few years they will be getting a pretty good handle on what the volume is and what the species percent are as well as a lot of operating costs. The way it looks, I suspect that will be pretty good and in a few years we will have a pretty good idea and we will be able to change the things we do.

**Burroughs:** At this point have there been any management repercussions?

**Hennemuth:** There is a large potential of recreational fishermen out there. As one gets the numbers it is going to have some effect, what effect, I do not know.

**Curtis:** Two questions. I am not certain on the numbers but the global numbers I saw in fishing is in the mid to upper 70 million figure. That suggests that there is a corollary that about 20 percent of that was wasted in terms of catch, either through spoilage or through the process of actually getting it to consumption level and a second figure I saw related to non-human uses for animal feed. In both of those areas there is concern by FAO and others, at the global level, of trying to address both reduction of wastage and concern about whether or not we need to really look closely at not going as heavily to non-human use and increasing human use. Within the U.S. catch, what is the situation on both those scores and what, if anything, is being done to direct more of the fish to human consumption?

**Hennemuth:** The numbers that are there represent nominal catch which is supposed to correct for the catch of stuff which we do not use. Even that can change. There are some processes now that can utilize what is currently wasted as far as human consumption because they are able to squeeze the stuff off the bones and mix it up and throw some crab smell in it and eat it that way. But at the present time the figure bandied about the U.S. is about 25 percent wastage, if you will, in terms of the stuff that we actually consume and eat.

The other thing is that our biggest catch of all is menhaden — all of which goes to industrial use at the present time. You said 47 percent of the U.S. catch so that is significant in terms of poundage and none of it is utilized directly in human consumption. I think if you eat a chicken you get some of it but the turnover rate is not too great. So the U.S. is subject to this sort of thing, especially in the big volume fisheries not being considered, at least at the moment, suitable for human consumption — that is not to the liking of the U.S. taste, not desirable. We suffer that probably more than most other nations.

**Curtis:** Thank you.

## CHAPTER 16

# What is Right and Wrong with the Present System?

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The potential to utilize the living resources of the U.S. Exclusive Economic Zone (EEZ) is directly related to our potential for managing the harvest and maintaining the abundance of these resources. I have been asked to examine what is right and what is wrong with the present system. This is a large subject to deal with in a few minutes — after all, the mission of the National Marine Fisheries Service is similar — it is to “achieve a continued optimum utilization of living resources for the benefit of the Nation.” My perspective, as is that of most of you, is that of a manager; what we do affects the harvesting, processing, and marketing sectors of the industry — and, ultimately determines whether we make the best use of the EEZ potential without destroying it for future years.

First, what is *right* with the system? At the top of the list is the Magnuson Fisheries Conservation and Management Act of 1976 (MFCMA). It extends our fisheries jurisdiction to 200 miles, provides for the orderly management of our major fisheries within this Fisheries Conservation Zone (FCZ); and enables us to control foreign fishing and to use the allocation process as a means to expand our markets in other countries. (Incidentally, we celebrated the eighth anniversary of the MFCMA just last week.)

There are 26 fishery management plans (FMPs) in place; these have been amended an average of three times each — which adds up to more than 100 substantive management actions that have taken place over the last eight years. The system has been demonstrated flexible enough to adapt to the variations and contingencies in fisheries and fishery resources anticipated by the MFCMA. The long delays in the preparation and approval of FMPs

that occurred in the first years have been radically shortened. An increasing number of FMPs are managed through framework measures which enable actions like routine closures to be done in a few days. Framework measures also permit annual changes to be made without amendment in a few weeks — a most important fishery planning innovation. All this has been accomplished despite the administrative complexities brought on by the Regulatory Flexibility Act, the Paperwork Reduction Act, and Executive Order 12291.

We have adopted a habitat policy which, I believe, will strengthen our ability to address habitat problems relating to our fisheries more directly, and will allow us to head off some of the longer-term concerns in production of fish stocks.

We have used allocations to promote U.S. fishing and processing by increasing over-the-side sales by U.S. fishermen to foreign processors — from zero in 1978 to an anticipated 400,000 mt. this year. We expect to collect over \$40 million in 1984 foreign fishing fees; we have negotiated beneficial fisheries trade concessions and commitments with Japan, Korea, and Portugal. Foreign fishing is being reduced as our own fisheries grow, and we are using the reductions on a case by case basis to increase U.S. utilization of those resources.

No question, then, that there is a good deal right with the system and that we have important achievements to our credit in utilizing the living resource potential of the EEZ.

But, I wish to address — at greater length — what is *not* right with the system, since understanding the problems will clarify areas of failed or limited potential, and enhance our chances for future success. The problems are basic policy issues that have been around for a long time, but resolving them takes on new urgency and dimension as fishery management plans are implemented and monitored under the MFCMA. The generic issues I want to talk about are the effects of management on: (1) our fishing capacity and capability; (2) our processing capacity; (3) our marketing capacity; (4) our research and communication capacity; and (5) our jurisdictional authority. All are interdependent and concern our capacity as managers to achieve the full living resource potential of the EEZ.



## **INCREASING MARKET DEVELOPMENT OPPORTUNITIES FOR U.S. COMMERCIAL INDUSTRY**

The original Fishery Conservation and Management Act established the concept of the total allowable level of foreign fishing (TALFF) as being the difference between the optimum yield and the domestic harvest by commercial and recreational fishermen. Subsequent amendments have given priority to developing the domestic fishing and processing industry. The concept of phasing out foreign fishing as a means of doing this has been energetically discussed but ideas vary. One school says we should phase out foreign fishing completely over a fixed period of time, say five years. Others see phasing out as a less rigid program. They argue that, as long as our fishermen can only harvest part of the stocks, foreign harvest of the balance can be turned to advantage. Moreover, it is disruptive to our relations with these countries to establish too rapid a reduction of their access.

As the situation exists at present, the comprehensive data required from foreign vessels, monitored in part by observers at no cost to the United States, provides valuable information needed to manage the fisheries. Foreign fishing fees are collected which help to finance our industry. The allocation process is being used to foster research commitments, trade concessions, joint venture commitments, tariff barrier reductions, technology transfer, and other actions advantageous to the U.S.

The United States demand for fish continues to grow, but U.S. commercial landings of fish have not increased at the same rate — even though total domestic commercial landings in 1982 were about 18 percent higher than in the years immediately preceding the MFCMA. These circumstances have led to a large trade deficit in fish products. Consequently, it is now the long-range policy of the U.S. to shift foreign activities more and more from direct fishing to joint arrangements with U.S. harvesters and ultimately to purchasing U.S. processed products. However, this has to be continuously rebalanced so that the foreign phase-out results in the maximum economic advantage to the U.S. fishing industry.

A first step in increasing market development opportunities has been to increase the U.S. harvest of groundfish. Availability of foreign off-shore markets, or joint ventures, has promoted this increase. In turn, the interest of U.S. fishermen in these markets has led to the phase-down of TALFFs and thus the displacement of directed foreign fishing. This "joint venture" arrangement,

however, does not return direct benefits to the domestic processing industry, as the value added by processing activity is retained by the foreign buyer rather than by a domestic firm.

The next step is the expansion of domestic processing capacity. To do this, U.S. processors will need foreign markets where they can sell underutilized species and derived products. We must emphasize trade negotiations for the elimination or reduction of tariff and non-tariff barriers that restrict the importation of U.S. fishery products in foreign countries.

A third step is to increase the U.S. demand for, and consumption of, domestically harvested and processed seafood products. Through joint industry and government educational, informational, and marketing activities such as the "Catch America" program, consumer awareness of the values and varieties of seafood are rising. Significant benefits to the domestic seafood industry will be realized through the continuation of such programs.

In summary, we need: (1) to provide foreign market access through negotiations, and, through better information on market conditions and trade opportunities to increase foreign markets, to decrease foreign fishing and help reduce our massive trade deficit; (2) to facilitate industry access to private venture capital for processing plants, support facilities, and vessels (in fisheries that are not overcapitalized); (3) to conduct research and development, and disseminate existing and new technological information to allow the industry to modernize and improve its capital facilities; (4) to review regulation of the industry to ensure fair and equitable treatment; and (5) to increase U.S. markets for domestically harvested and processed seafood products. These approaches will allow the fishing industry to benefit from a climate that encourages private investment and to operate with greater assurance of success in utilizing the resources available in the EEZ.

## **TECHNOLOGY DEVELOPMENT AND TRANSFER**

A large proportion of fishery resources within the FCZ are harvested by foreign vessels because the U.S. domestic industry is largely incapable of producing acceptable products at competitive prices for foreign markets. At the same time, more than 60 percent of the seafood consumed domestically is imported, even though the U.S. fishery resources are among the richest. Of course, U.S. consumers are no different than consumers in other nations. They prefer certain products and species, and changing their preferences

is difficult. The potential to expand and enhance the U.S. seafood industry is enormous; the realization depends, to a large degree, on advancements in seafood technology.

Although research and development of new gear and equipment may be required in some cases, most fisheries can be developed through use of gear and equipment available in the world market. However, information on the costs and characteristics of such gear and equipment is not always readily available, and in many cases fishermen will also need to learn new techniques for operation of the gear.

However, the major technology development problems, grouped by classes of research, are: (1) quality assurance research; (2) new product development; (3) processing research; and (4) marketing research. In view of these concerns, our technological research must be directly targeted towards increasing efficiency and productivity in the harvesting and processing sector, the quality and safety of seafood products, as well as other problems that affect the competitiveness of U.S. seafoods in domestic and foreign markets.

## **INFORMATION NEEDS FOR PLANNING, DECISION-MAKING, AND MANAGEMENT**

To "achieve a continued optimum utilization of living resources for the benefit of the Nation" requires assuring continued productivity of the resources and an optimum harvest that is equitably distributed among the multiple, often competing, users. This is what most of us spend our lives trying to do, disrupted occasionally by the vagaries of nature and politics. Essential to our task is a sound information base on which to make our decisions and a system that allows easy access to the information base by the decision-makers.

The information base has several parts.

### ***Resource Information***

- Basic life history and biology of the species or species groups, and interactions with other species and with the physical environment. One good thing about this kind of information is that, once obtained, most of it does not have to be gathered again, although the more we know, the more we find we do not know.

- **Fishery-independent surveys** — done by research vessels throughout the species' range. This gives distribution and abundance, age and growth, population size, year class strength, spawning success, etc. The problem here is that this must be done every year or on a regular basis as necessary.

- **Fishery-dependent surveys** — the commercial and recreational fishery statistics on volume and value of landings, and catch per unit of effort data. The trouble here is that some landings do not get into the reporting channels, they may not always be reported accurately, and the surveys must be done year after year, regardless.

- **Analysis** — somebody has to analyze these data and figure out what it all means. Fisheries are dynamic, the environment is changing, and it takes a lot of smart people to make sense out of it. The trouble here is when the smart people start figuring out what a lot of data means, different opinions start showing up and judgments must be made as to who is right.

### ***Social and Economic Information***

Categories of information needed for each fishery — on an historical, current, and continuing basis include: harvesting and processing sector characteristics, including foreign investment and international markets and cost and earnings data; relationships among the various sectors; the social and cultural characteristics associated with the fishery including such things as community organization; and recreational, subsistence, and Indian treaty fisheries.

These are just some of the things that go into the information base. We must have a long-term strategy for building and maintaining the information base and making it easier to use. We need to find ways to replace the data we are now getting from other countries as foreign fishing is phased out. We need to make use of new technology to reduce the cost of collecting data, managing it, and analyzing it. Unless we apply new technology to fisheries information management, we will find ourselves lost in a sea of information.

### **OVERCAPITALIZATION IN THE FISHERIES**

What our resource, social, and economic information base has been telling us, among other things, is that overcapitalization of fisheries has been, is now, and will continue to be, one of the major problems affecting the economy of certain elements of the fishing

industry. Achieving rational management in fisheries has become more difficult with mounting competition among fishermen for valuable yet limited resources. Today we find that the number of vessels and fishermen are well in excess of the number necessary to harvest the optimum yield (OY) of those species in greatest demand. Biological factors, of course, play a role in development of an overcapitalized fishery. However, the key problem is the common property nature of the resource, coupled with rising demand for protein or food in general. Rising population and per capita incomes have served to increase demand for fishery products. Evidence of this is found in the sharp rise in the "real" value or prices of landings — well in excess of the general rise in all prices. The average price of fish and shellfish, for example, was up about 300 percent between 1965 and 1982. An important factor in this gain, of course, was that demand for selected fishery products has outpaced the ability of the resource to supply the quantity demanded. The dilemma has been that as demand and prices have risen, economic profits have attracted more and more fishermen. As effort has surpassed the ability of the resource to produce and no limit has been placed on entry, overcapitalization and overfishing have occurred.

We have found that in many cases production has not changed or declined while more fishing effort has been introduced. Since 1960, total landings of fish and shellfish have risen only modestly, yet the number of vessels has increased by 75 percent. This long-term trend in the numbers of vessels rising faster than the quantities landed has continued since the implementation of the MFCMA. Current landings are about 18 percent above those in 1976, while the number of vessels is about 25 percent higher.

Examples abound. In the New England groundfish fleet, the number of vessels grew only marginally between 1965 and 1976, but even that level of effort was greater than needed because of a 50 percent decline in landings — largely the result of a sharply reduced resource. Since 1976, landings have risen 43 percent, but during the same period the number of vessels increased about 65 percent, in anticipation of greater profits. In the Alaska king and tanner crab fisheries, increased landings and high profits during the 1960s and 1970s were matched by increases in the number of vessels participating. Fishermen used their profits to buy bigger and better vessels. However, since 1980, a collapse of the resource — probably due largely to environmental factors — caused landings to decline by nearly two-thirds. Yet the number of vessels in the fleet have remained near 1980 levels, even though many vessel

owners are trying to find alternate fisheries. Other fisheries that have experienced overcapitalization include sea scallops, shrimp, tuna, halibut, and salmon.

Choosing the right management measures to arrest overcapitalization is always difficult. Government, through a variety of regulations, has stepped in to alleviate the situation but has been generally unsuccessful. In an effort to treat all fishermen fairly, regulations have not limited entry into the fisheries, so overcapitalized, inefficient fisheries continue to exist. In the end, some form of limited entry — whether it be through licensing, fishermen's quotas, charging of fees, or a competitive bidding process — may have to be considered to reduce excess fishing capacity in some fisheries.

## **INCIDENTAL SPECIES CATCH**

Choosing the right management measures to control incidental species catch is another problem we have been attempting to solve, with mixed success. Most fishing gear cannot target exclusively on one species of fish. Reducing incidental capture of other species of fish, while harvesting a primary target species, presents the fishery manager with formidable challenge. Lobster caught in the groundfish trawl fishery off New England, or finfish caught incidentally in a shrimp fishery, are examples of incidental catch that may be of higher or lower value than the target species. A sensitive subset of this problem is reduction in the capture of "prohibited species" — a term applied to incidental catch that may not be retained because of its value or stock condition, and which must be returned to the sea. Salmon and halibut caught in the trawl fisheries off the West Coast and Alaska are examples.

We are concerned about management of incidental catch for several reasons, the foremost of which is conservation. Small, discrete stocks could be fished unchecked to depletion as an incidental catch in a larger fishery. As fisheries open or expand, this situation becomes more common. Fish species once discarded at sea are now increasing in value. Marine mammals, sea turtles, and certain other species must be protected by law. Limited resources must be allocated among user groups. International conventions require conservation of certain species (notably halibut and salmon) by restricting the taking of those species in all but specifically authorized fisheries.

There are direct benefits from managing incidental catch. Higher yields from controlled catches result in correspondingly greater economic values. Restrictions on foreign catches of certain species preserve those species for our fishermen, and for future years. Proper incidental catch controls can lead to more selective, efficient fisheries.

But excessive controls may also have serious negative effects. A fishery burdened with excessive controls may become too expensive, causing fishermen to abandon it, resulting in loss of economic and food benefit. Income from foreign fees might be lost. The cost of enforcing excessive incidental catch restrictions could outweigh any benefits.

Methods for controlling incidental species catch include non-retention of prohibited species, higher fees for foreign incidental catch, quotas or catch limits, seasons and closures, and gear restrictions. Effective controls vary among fisheries in relation to the fishing practices, fish stocks, and fishing areas. Complex statistical requirements and at-sea enforcement tend to drive up the costs of management. However, seasons and closures that minimize incidental catch are practical and easily understood, especially where there is separation between stocks. Gear requirements and restrictions tailored to the fishery hold the most promise and generally do not reduce efficiency of fishing operations.

## **MANAGEMENT OF INTERNATIONAL TRANSBOUNDARY STOCKS**

Problems associated with the west coast salmon typify the issues associated with managing transboundary stocks. In the Pacific Northwest and Alaska, salmon stocks migrate between U.S. and Canadian waters without regard to international boundaries, stream of origin, or distance from natal streams. The management of this resource requires coordination between the U.S. and Canada as well as the various states of the United States that are concerned with this resource. To resolve this problem, long and difficult negotiations have been conducted but no final agreement has been reached.

Some of the specific problems associated with transboundary stocks relate to (1) fragmented scientific information concerning the stocks; (2) conflicts over how the resources should be shared between countries; and (3) conflicting approaches to fisheries management, e.g., one national user may drive down a stock for

maximum commercial yield, while another seeks to build it up for optimum recreational benefits.

It may appear that these problems could be resolved through reasonable negotiations; however, negotiators are dealing with problems for which any solution would be controversial. For example, any agreement reached between countries could limit freedom for independent management action and raise issues over sharing yields and reconciling conflicting national approaches to management. Obviously, negotiators are reluctant to reach simple agreements under these conditions and, therefore, attempt to get the appropriate consent from the affected national constituent groups — a difficult chore since there is usually a wide diversity in the objectives of these groups.

While we may not resolve all the problems associated with management and sharing of transboundary stocks, we can accomplish some measure of success by fostering cooperation between the affected parties. Opportunities for cooperation exist in such areas as scientific studies, the exchange of information regarding unilateral management actions, and informal efforts to coordinate management measures without binding agreements.

## **MANAGEMENT OF COASTAL INTERJURISDICTIONAL RESOURCES**

When the MFCMA was first being considered by Congress, much of the discussion centered around management of the coastal migratory stocks such as striped bass and bluefish, and whether these resources should be included in the MFCMA. These are stocks of fish that spend time in inland waters, migrate up and down the coastlines with no regard for state boundaries and authorities, and even migrate in and out of the FCZ. Furthermore, they were not sufficiently subject to the MFCMA's authority, and therein lies the problem. Let me hasten to say that I am not implying that state management agencies cannot manage the fishery resources, or that Council management is better — just that there have not been effective mechanisms developed for cooperative interstate management of interjurisdictional species.

Let's examine the avenues that now exist for managing such resources, using the east coast migratory striped bass population as an example. This resource, which was identified years ago as being in a declining and depleted state, was determined by all involved to be in need of comprehensive and immediate management.



The vehicle chosen by the states was the Atlantic States Marine Fisheries Commission, as it represents all the states from Florida through Maine. Next, the Federal Government provided, through the NMFS state/Federal program, enough funding to develop a comprehensive plan for the troubled resource — identified as the migratory stocks from North Carolina through Maine. The Commission contracted with the State of Maryland to develop a plan that would identify options for management, document the problems affecting the resource, and provide the responsible state agencies with proposed management measures to halt the resources decline, and provide stability to the striped bass stocks. In October 1981, the member states of ASMFC adopted the plan and agreed to implement the management measures contained therein. (Already we are about three years from the time we recognized the problem, and the stock has continued its decline to dangerously low levels.) In the two and a half years since the states adopted the plan, 10 of the 12 states have incorporated measures into regulations, two states have failed completely in adopting measures to protect the resource. This brings us to the present, with the striped bass stocks so low that petitions have been sent to my agency to list the Chesapeake Bay strain a threatened and endangered species, and bills have been introduced in the state and federal legislatures to put a total moratorium on the taking of striped bass. The ASMFC recently called the state agencies together to develop plans to restrict harvest of these stocks by an additional 55 percent, in a further effort to protect the small remaining spawning stock and reverse the downward trend of the stocks. In a few short years, things have gone from bad to worse to disaster — largely due to the fact that no useful mechanism exists to manage coastal interjurisdictional fisheries. Nothing is available that can be put into place in a timely fashion and apply to all jurisdictions involved. Striped bass is probably an extreme example of the problem of comprehensive resource-wide management needs, but is definitely not unique. I see similar problems in bluefish, shad, salmon, herring, and mackerel.

While I have told you my troubles (yours too), I have not given you any solutions. Solutions are much harder to find and identify than troubles. I am not without hope, however, as I see the states working much more closely with the Interstate Commissions, the Councils, and between and among themselves to manage these resources. The Federal Government is also encouraging the development of a cooperative framework for coordinated national management of marine and estuarine interjurisdictional resources. We are

encouraging (and sometimes funding) the development of multistate cooperative plans, while continuing to recognize the authority and jurisdictional prerogatives of the states.

## **LACK OF LONG-TERM OBJECTIVES**

Lastly, I am concerned about establishing long-term targets for the best future use of the fisheries. I recognize that this is not always easy. Many of the problems I have been talking about arise from reluctance to restrict present use for future gain. Reducing commercial and recreational fishing causes hardships and is unpopular. Sometimes the causes of depletion are uncertain, as with the king and tanner crab fisheries, so that the cure cannot be foreseen easily. Sometimes full utilization of one fishery may jeopardize that in an associated fishery. Sometimes full use may be only partially in U.S. control, as in the Gulf of Maine. Sometimes there is disagreement about where the future should lie for a particular fishery, as with interjurisdictional fisheries of all sorts. Nevertheless, I am convinced that it is not enough to hang on to what we have. As managers — whether we are at the international, federal, state, or regional level — we must rethink our short-term exploitation strategies so that major investments in the harvesting, processing, and marketing sectors are protected. We need to set ourselves long-term realistic targets and timetables for restoring, enhancing, maintaining, and increasing the profitable use of our marine living resources if we are to realize their full potential.

Perhaps the best way to proceed would be for each Council, working with the industry and recreational interests, to develop a long-term plan for each fishery under its jurisdiction. Such plans would include, where appropriate, a considered and orderly phasing out of foreign fishing and a take-over by U.S. fishermen and processors, and, to the extent possible, specific quantitative and temporal goals that are achievable within FMP objectives. We at NMFS are strongly in favor of this concept. None of us can foresee all events that may affect the timing and success of such a program, but by establishing specific long-term targets for each fishery and by keeping our approach flexible, I believe we can materially accelerate the full utilization of the living resource potential of the EEZ by all segments of our domestic industry.

## CHAPTER 17

# Economic Distribution Issues

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### BACKGROUND

The Magnuson Fisheries Conservation and Management Act of 1976 (MFCMA) went into effect in March 1977. Among other things, the act provided for a 200-mile Fishery Conservation Zone (FCZ), over which the United States declared exclusive management authority with respect to nonmigratory fish stocks. In the case of the New England fisheries, the net impact of this 200-mile FCZ has been to virtually eliminate foreign fishing within these waters, save for an occasional joint venture or small-scale effort targeted at low-value species. The act also provided for a new system of fishery management, a procedure by which Fishery Management Plans are crafted, implemented, and enforced, and a new set of agencies and intergovernmental jurisdictions designed to oversee the management process.

In this paper, we take a look at the New England groundfish fishery to see what changes have taken place in the seven years that the MFCMA has been in force. In particular, we wish to compare the status of the industry in 1984 with the industry in pre-MFCMA days, looking at a number of qualitative and quantitative indices. The question is also raised as to how well the results of the last seven years relate to the implicit and explicit goals of the MFCMA, and what implications can be drawn from this experience for management in the future.

In the years prior to 1977, the New England fishery was in a state of decline. While year-to-year fluctuations in yields are to be

expected in any fishery, it was felt that one factor contributing to the general decline in the fishery was the presence of foreign fishing activities in the Georges Bank area. Foreign harvests, especially of cod, haddock, and other groundfish increased substantially during the 1960s. Accordingly, stocks for most major species fell during this period resulting in a drop in domestic catch rates.

In response, the New England fishing industry was a major force behind the drive to enact some sort of exclusive fishing zone which would permit the control or elimination of foreign fishing activity off the U.S. northeast coast. Getting rid of the foreigners, it was felt, would substantially enhance our catches of groundfish and other important species, permit a regeneration of depleted stocks, and provide incentives for expansion into harvesting of previously underutilized species.

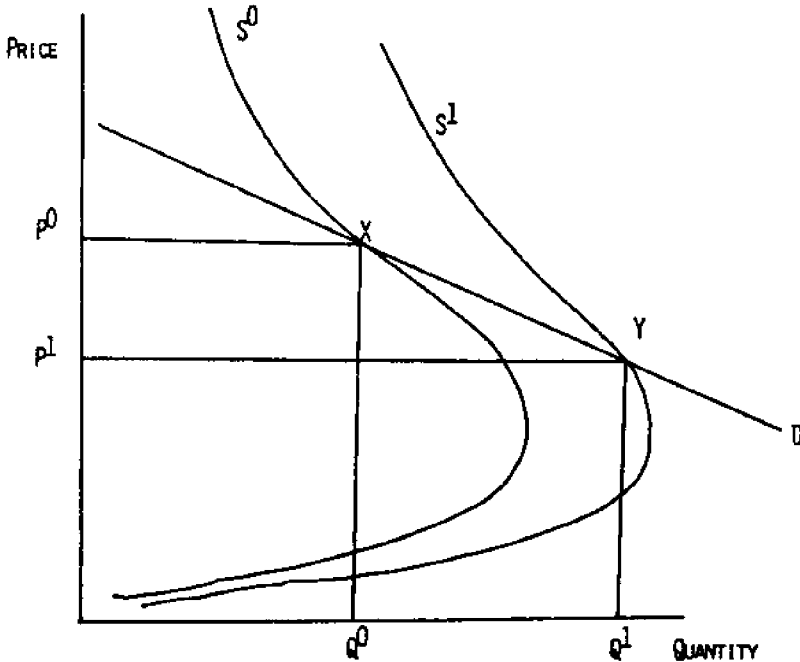
The argument that restricting foreign fishing activity will benefit domestic fishermen has considerable merit. In a recent article, Crutchfield [3] presents a model of a fish stock jointly utilized by two fleets, "foreign" and "domestic." If "foreign" fishing effort is reduced, over time the reduction in fishing mortality will encourage increases in stock size, and so increase the catch per unit effort of the domestic fishing fleet. In figure 1, this is represented by an outward shift of the biological supply (average cost) curve labelled  $SS^0$ . Assuming that some restrictions apply viz that the demand for fish and the supply of fishing effort are both less than perfectly elastic, a new bioeconomic equilibrium will result with higher domestic landings.

These increased landings will be made up of two components. First, increased harvests due to higher catch rates as stocks increase. Second, increased harvests due to increased fishing effort from pre-existing participants and from vessels attracted into the fishery by profit opportunities.

This latter point is also illustrated in figure 1. As the stocks recover after foreign activity is reduced, average cost (as defined by cost per unit of harvest) falls in the domestic fleet. This encourages both expansion of activity by existing vessels and entry into the fishery by vessels from other areas and by newly constructed vessels.

As new domestic effort begins to replace the excluded foreign fishing effort catch per unit effort will begin to fall, as will returns to fishing effort (and, assuming less than perfectly elastic demand, fish prices). In the long run, as long as there is free entry into the fishery and no control on fishing effort, the net result will be a return to a condition of open access equilibrium, where the marginal

vessels are just meeting costs and much potential rent from the fishery is dissipated.



**Figure 1:** Increased harvest due to increased fishing effort from pre-existing participants and from vessels attracted into the fishery by profit opportunities.

Whether any long-term benefit will accrue to the fishing industry from such a restriction on foreign activity depends on a number of factors. Clearly, if they receive more fish at lower prices, consumers of fish are better off. If stocks take a significant amount of time to increase or if there is a time lag between the appearance of additional profit and increased entry into the fishery, then those in the domestic fishery at the time of the exclusion of the foreigners will enjoy a period of increased economic rents that may persist for some time. Inevitably, though, it would seem that returns will eventually be driven down to opportunity levels unless some sort of entry limitation is put in place.

To promote efficient use of the resource in the long-term, some control over domestic fishing activity must be in place to prevent overexpansion of that fleet. The reduction in or elimination of foreign effort and the expected appearance of positive economic profits are likely to stimulate the entry of additional effort to the fishery. Unless

limited entry of similar schemes are enacted to limit the expansion of effort to economically efficient levels, the quasi-rents generated by exclusionary policies may eventually be dissipated by excessive effort...Exclusion of foreign harvesters from the management zone in order to stimulate the domestic utilization of the resource may also represent a sub-optimal policy approach. If the domestic fishery is underutilized, the benefits of such a policy may take considerable time to emerge. If the domestic industry is already fully developed, the potential quasi-rents generated by the exclusion of foreign fleets may eventually be dissipated. [Crutchfield [3], pp. 325-326.]

## **THE NEW ENGLAND EXPERIENCE SINCE THE MFCMA**

In the years since the MFCMA went into effect, there has been a large increase in the number of fishing units participating in the New England fisheries. Based on available data as reported to management authorities, the total number of vessels of all gear types participating in the fishery rose from 600-650 in the mid to late 1960s to over 1800 by 1980. When we consider the single most important gear type (otter trawlers — NMFS Gear Code 5) the rate of increase is equally impressive. The number of otter trawl vessels reporting landings in New England increased from 487 in 1976 to 976 in 1982; an increase of 100 percent. See table 1 and figure 2. Interestingly, despite the rapid increases in fuel prices during 1973-1974 and 1978-1980 average recorded vessel horsepower has increased about 10 percent since 1970. Other fleet characteristics seem little changed since the enactment of the MFCMA. Average reported vessel length, gross tonnage, and crew size have stayed more or less constant through the 70s and into 1982.

Although the profile of the average vessel has not changed much save for its horsepower, the pattern of reported fishing effort of the otter trawl fleet has changed quite dramatically since the 200-mile limit went into effect. The average number of reported days absent from port was constant through the early 1970s; however, since 1975 it has dropped 18 percent from 102 to 85 days absent per year. The reported number of days spent fishing has also decreased since 1976, falling from 52 to 38. One reason for this, of course, is that for much of this period the fishery was under a system of quota regulation. An increasingly complex series of quotas was successively imposed on the groundfish fleet, with the result being a progressive decrease in the number of days spent fishing. Whether the pattern of fewer days spent fishing per year will persist in the future under the new management plan is a matter of conjecture.

Table 1: Vessel Performance.

(New England Otter Trawl Vessels)

Year	Fleet Size	Total Days Absent	Total Days Fished	Total Trips Per year	Average Days Absent	Average Days Fished	Average Trips Per year
65	512	63,878	33,997	24,627	125	66	48
66	545	62,601	33,300	27,032	115	61	50
67	559	62,219	33,316	27,615	111	60	49
68	538	57,757	29,698	26,631	107	55	50
69	550	56,732	28,600	28,050	103	52	51
70	562	60,253	28,887	31,584	107	51	56
71	566	57,299	27,677	29,036	101	49	51
72	565	57,506	26,725	27,403	102	47	49
73	553	54,814	25,383	27,374	99	46	50
74	575	56,568	27,370	26,968	98	48	47
75	587	60,727	30,348	28,704	103	52	49
76	590	58,363	30,562	27,258	99	52	46
77	594	56,782	28,631	29,106	96	48	49
78	643	61,497	27,392	30,478	96	43	47
79	768	68,508	30,336	33,715	89	40	44
80	896	75,923	33,062	38,886	85	37	43
81	890	72,519	28,480	38,270	82	32	43
82	975	82,887	37,440	41,925	85	38	43

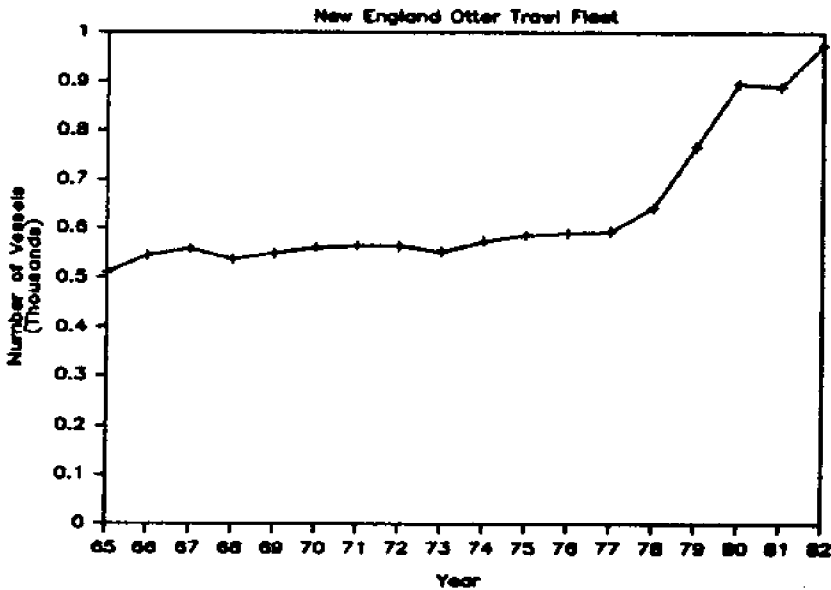


Figure 2: Fleet Size.

One factor emerges clearly from the statistics. The years since the enactment of the MFCMA have seen a surge of entry into the New England groundfish fishery. Clearly, those in the fishery or on the fringes anticipated an increase in earnings; the effect of excluding the foreign fleets would be beneficial to domestic harvesters. One illuminating statistic is that of the 386 vessels added to the otter trawl fleet since 1976, 44 percent were new vessels.<sup>1</sup> Given the substantial investment required to build and run a vessel of this type, this illustrates the confidence on the part of the fishing industry and of financial institutions in the post-MFCMA groundfish fishery.

Table 2 and figures 3-7 present data from 1965 to 1982 on the output of the New England otter trawl fleet. In the years since the MFCMA went into effect, the total domestic catch of this fleet has risen 86 percent from about 200 million pounds to 373 million pounds.<sup>2</sup> A portion of this increase can be attributed, of course, to the displacement of foreign fishing effort by domestic effort, as evidenced by the large increase in fleet size noted above.

**Table 2: Catch Statistics — Fleet and Per-Vessel.**

Year	Total Catch (Pounds)	Catch Per Day Absent (Pounds)	Catch Per Vessel (Pounds)
65	354,951,456	5,557	693,265
66	346,936,937	5,542	636,582
67	267,301,587	4,296	478,178
68	290,689,655	5,033	540,315
69	272,391,304	4,801	495,257
70	278,187,919	4,617	494,996
71	238,633,540	4,165	421,614
72	228,858,696	3,980	405,060
73	235,306,122	4,293	425,508
74	220,593,607	3,900	383,641
75	203,120,567	3,345	346,032
76	196,030,303	3,359	332,255
77	240,932,476	4,243	405,610
78	248,203,753	4,036	386,009
79	278,463,542	4,065	362,583
80	314,173,442	4,138	350,640
81	330,800,540	4,582	371,886
82	373,589,994	4,507	383,169



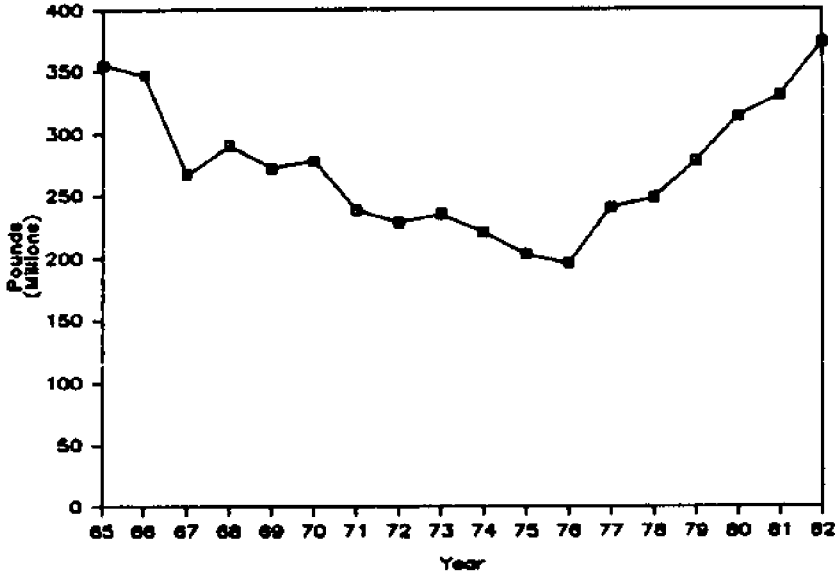


Figure 3: Total Catch.

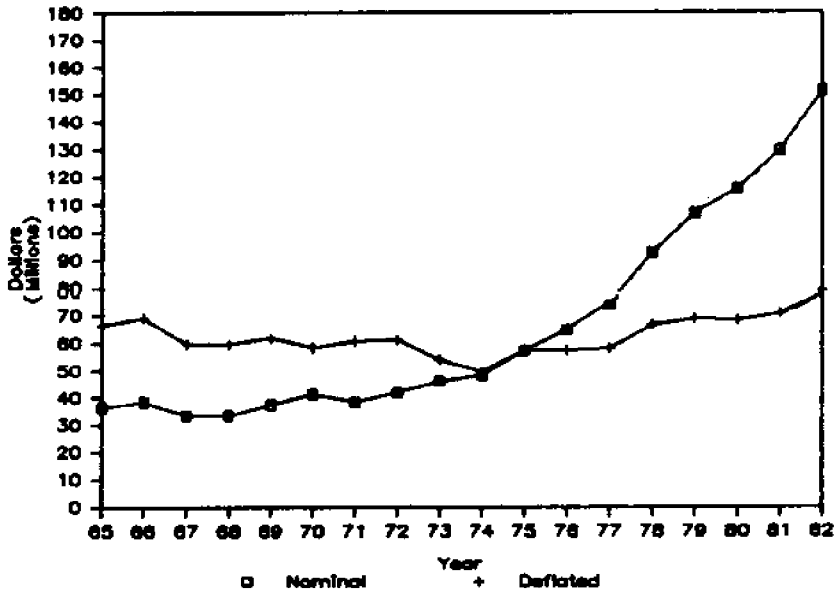


Figure 4: Total Revenue.

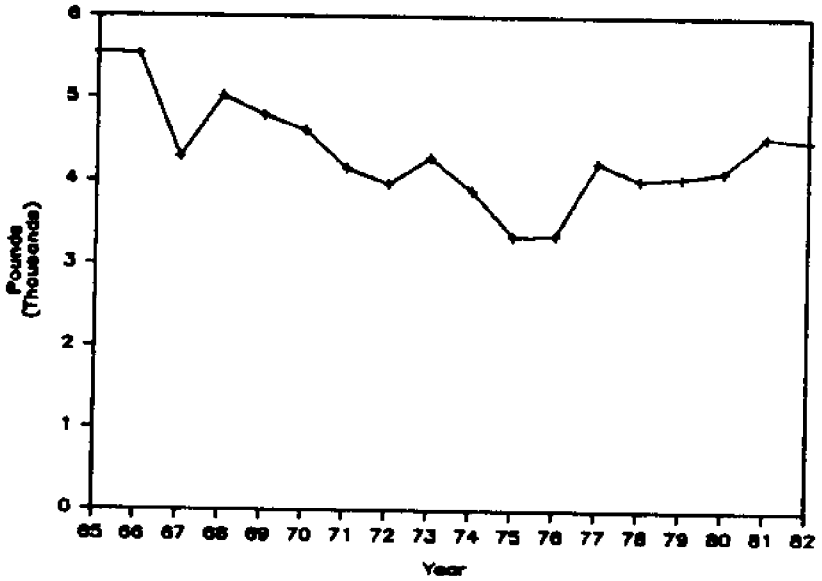


Figure 5: Catch per Day Absent.

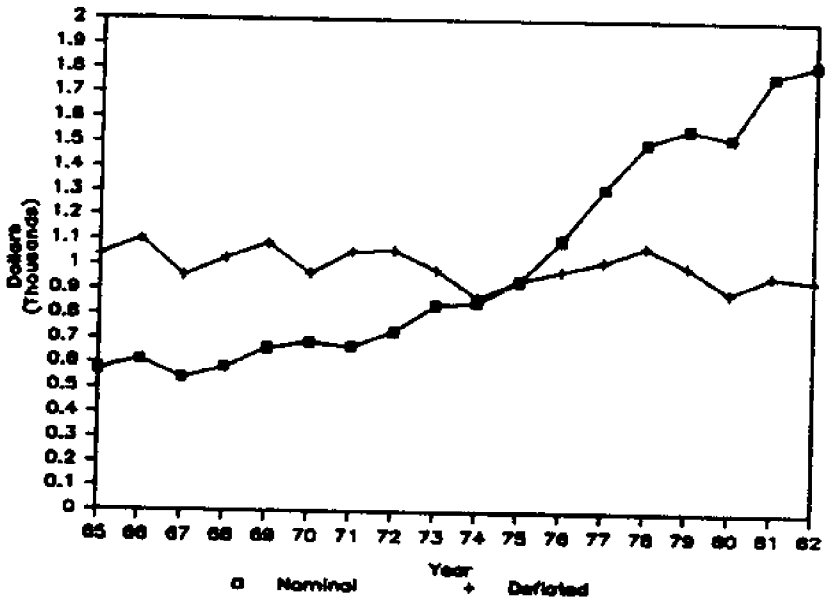


Figure 6: Revenue per Day Absent.

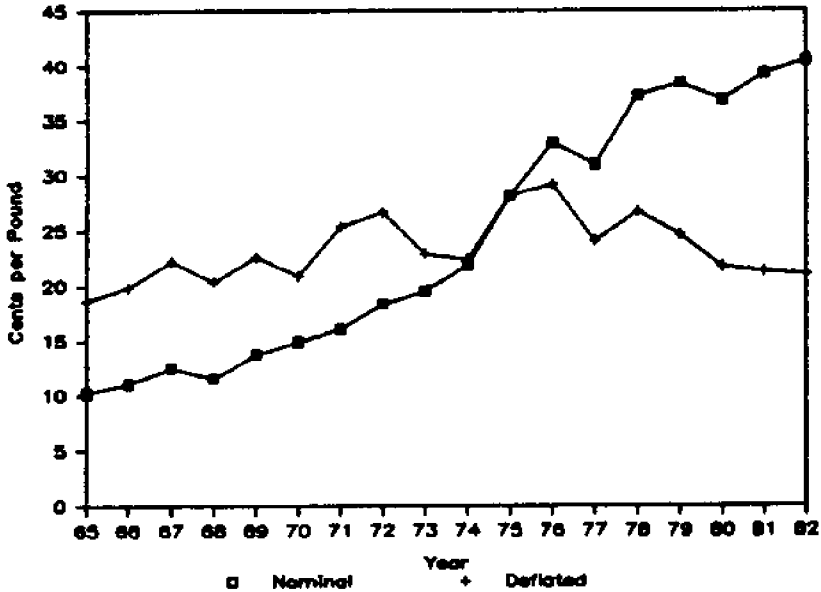


Figure 7: Average Price.

Despite the rapid increase in the size of the otter trawl fleet, per vessel catch statistics have also shown fairly marked increases since 1976. Average catch per vessel has increased about 12 percent over 1975-1976, although catch rates are about equal to those of the early 1970s. Average catch per day absent, perhaps the most generally used statistic of vessel productivity, has also risen; up about 34 percent since 1975-1976. This increase may be somewhat misleading, since reported days absent per vessel fell between 1976 and 1981 (as noted above). Generally, however, these indices seem to indicate rising vessel productivity in the last few years.

Table 3 presents some summary statistics for the gross income of the otter trawl fleet. Although nominal price has increased about 33 percent since 1975-1976, the rate of increase has been less than the rate of inflation: real prices have actually fallen since 1978 and by 1982 were about equal to those of 1974-1975. While the increase in landings has been such that total real income in 1982 exceeded pre-MFCMA levels, this statistic must be adjusted for the large increase in fleet size. When calculated on a per-day-absent or per-vessel basis, real revenues, which had risen in 1977 and 1978, were by 1982 at or below the levels of 1976, and were well below real incomes for the late sixties and early seventies.

Table 3: Fleet Revenues and Prices.

Year	NOMINAL				REAL			
	Average Price (cts)	Total Fleet Revenue (\$ M.)	Average Revenue (\$1,000)	Revenue Per Day Absent (\$)	Mean Price (cts)	Total Fleet Revenue (\$ M.)	Average Revenue (\$1,000)	Revenue Per Day Absent (\$)
65	10.3	36,560	71,406	572	18.7	66,370	129,629	1,039
66	11.1	38,510	70,661	615	19.9	69,072	126,739	1,103
67	12.6	33,680	60,250	541	22.3	59,594	106,609	958
68	11.6	33,720	62,677	584	20.4	59,415	110,438	1,029
69	13.8	37,590	68,345	663	22.7	61,767	112,305	1,089
70	14.9	41,450	73,754	689	21.0	58,360	103,844	969
71	16.1	38,420	67,680	671	25.4	60,549	106,977	1,057
72	18.4	42,110	74,531	732	26.7	61,084	108,114	1,062
73	19.6	46,120	83,400	841	22.9	53,944	97,549	984
74	21.9	46,310	84,017	854	22.4	49,457	86,013	874
75	28.2	57,280	97,581	943	28.2	57,290	97,599	943
76	33.0	64,690	109,644	1,108	29.2	57,307	97,131	982
77	31.1	74,930	126,145	1,320	24.1	59,148	97,893	1,028
78	37.3	92,580	143,981	1,505	26.8	66,518	103,450	1,082
79	38.4	106,930	139,232	1,561	24.7	68,804	89,589	1,004
80	36.9	115,930	129,386	1,527	21.8	68,363	76,299	900
81	39.3	129,860	145,911	1,779	21.4	70,727	79,469	969
82	40.5	151,240	155,113	1,825	21.1	78,837	86,856	951

While real revenues have been decreasing in the last few years, real input costs have been rapidly rising. In particular, the costs of fuel and oil increased rapidly from 1979 to 1981. For example, the deflated cost of no. 2 diesel oil rose 87 percent between 1976 and 1982 — 33 percent in 1979-1980 alone. At the same time, interest rates and therefore financing costs increased: for example, the rate on a 30 year mortgage on a new home rose from 8.6 percent in 1976 to 14.5 percent by 1983. A recent report by the New England Fishery Management Council estimates that fuel cost as a percentage of gross stock, doubled between 1978 and 1981. Similar rates of increase were noted for interest expense as a percent of gross stock.<sup>3</sup> Caught between flat or falling real incomes and rising input costs, it would appear that the otter trawl fleet in the years since the enactment of the MFCMA would show declining profit margins. In the next section, we take a closer look at the trend in input costs and net returns since 1976.

When examining the economic condition of the New England groundfish fleet, looking at aggregate data masks several important regional and port dependent variations in the structure and behavior of the fleet. Even within the otter trawl classification, many differences in vessel configuration, lay systems, and cost structures exist between ports. In this study, we expand the analysis to estimate revenues and costs for "typical" vessels in three different ports: Point Judith, Rhode Island; Gloucester, Massachusetts; and New Bedford, Massachusetts. We use a computer simulation program,

developed by the authors at the University of Rhode Island, to estimate current dollar and deflated input costs in 25 different categories based on a profile of the average vessel in each port in each year from 1976 to 1982. These costs are subtracted from reported average revenues to obtain nominal profits. The input costs are then distributed by the port-specific lay systems to estimate economic returns to vessel owners, captains, and crew members in each year.

Table 4 reports vessel profiles for the three ports in question from 1976 to 1982. Data are the average values for reported length, gross tonnage, crew size (including captain), days absent from port, average yearly revenue, average yearly catch, and average yearly price in Point Judith, Gloucester, and New Bedford.<sup>4</sup> These data are used as inputs to a computer simulation model of the New England otter trawl fleet developed by the authors. This program, entitled RENVES, prepares estimates of annual and per-day-absent costs in 25 cost categories. Cost estimates are derived from survey data collected over the past several years by researchers at the University of Rhode Island. The program also accounts for port-specific costs (e.g., welfare fund contributions in New Bedford), different procedures for calculating joint, crew, and vessel costs, and allows for specification of alternative lay systems (i.e., broken or clear lays). Independent variables used to calculate costs include days absent from port, gross tonnage, gross stock, and crew size. Further details on the program are available from the authors upon request.

Table 4: Vessel Profiles by Port.

	Pt. Judith:					
	Vessel <sub>1</sub> Length	Gross Tonnage	Crew Size	Days Absent	Gross <sub>2</sub> Stock	Interest Rate <sub>3</sub>
1976	52	52	3	110	94.2	8.76
1977	69	69	4	114	133.1	8.80
1978	56	56	4	94	108.9	9.30
1979	56	57	3	100	126.5	10.98
1980	60	60	3	97	147.1	12.25
1981	61	66	3	91	168.8	14.17
1982	64	76	3	100	263.8	13.00

Table 4 (continued):

	Gloucester:					
	Vessel Length	Gross Tonnage	Crew Size	Days Absent	Gross Stock	Interest Rate
1976	68	109	5	129	198.3	8.76
1977	68	95	5	129	246.1	8.80
1978	66	84	5	125	293.7	9.30
1979	59	66	5	95	174.2	10.98
1980	64	87	5	83	180.4	12.25
1981	64	75	5	85	173.6	14.17
1982	63	72	5	85	168.8	13.00

	New Bedford:					
	Vessel Length	Gross Tonnage	Crew Size	Days Absent	Gross Stock	Interest Rate
1976	72	112	6	125	203.1	8.76
1977	71	120	6	127	255.0	8.80
1978	67	115	6	136	284.0	9.30
1979	70	120	6	110	245.8	10.98
1980	73	128	6	151	339.8	12.25
1981	71	115	6	133	274.0	14.17
1982	74	122	6	108	242.5	13.00

1.

2. Feet

3. Thousands of dollars per year, not deflated

. 30 year mortgage for new homes, percent

Tables 5-7 present the estimated revenues and costs for the three hypothetical vessels in each year from 1976 to 1982, converted to deflated per-day-absent values to facilitate cross-port comparisons. Included are several different summaries. First, costs by item and year are reported. Second, these costs are summed by overall category: boat fixed costs, boat variable costs, shared expenses, crew expenses, and overhead. The difference between gross stock and total estimated costs is reported as "nominal profit."

Table 5: Summary for Point Judith, Rhode Island.

Cost Item	Real Dollars per Day Absent						
	1976	1977	1978	1979	1980	1981	1982
Fuel	135	159	132	156	190	211	202
Ice	12	20	13	19	32	39	53
Food	37	35	35	39	39	35	35
Repairs and Maintenance	153	146	150	127	123	126	116
Gear and Supplies	87	105	75	77	88	91	118
Wharfage	4	5	4	3	3	4	4
Amortized Replacement Cost	270	298	275	278	298	369	343
Crew share	611	729	679	647	694	785	1102
Licenses and Boat Taxes	3	3	3	2	2	2	2
Truck and Transport Costs	3	4	3	4	6	6	10
Insurance	51	79	38	48	62	69	93
Office	3	2	3	3	3	3	3
Clerical and Legal Expenses	9	8	10	9	9	10	9
Travel	15	13	14	15	15	16	15
Shack	6	7	7	6	7	8	11

Table 5 (continued):

Cost Breakdown							
Gross Stock	1286	1536	1411	1380	1516	1713	2332
Crew Expenses	37	35	35	35	35	35	35
Fixed Boat Expenses	82	107	71	70	92	98	120
Variable Boat Expenses	243	255	228	208	217	225	273
Total Boat Expenses	325	362	299	286	309	323	397
Overhead Expenses	273	301	278	280	300	371	345
Total Expenses	515	583	486	502	573	616	723
Nominal Profit	771	953	925	878	943	1097	1609

Owner or Boats Summary							
	1976	1977	1978	1979	1980	1981	1982
Boat's Share of Gross Stock	592	707	649	635	697	786	1073
Boat Expenses	-325	-362	-299	-286	-309	-323	-397
Boat's Share of Trip Expense	-70	-86	-70	-83	-105	-119	-134
Captain's Bonus	-53	-63	-59	-56	-60	-60	-95
Amortized Replacement Cost	-270	-298	-275	-278	-298	-369	-343
Boat Surplus/Loss	-127	-102	-53	-68	-75	-90	104

Captains Summary							
	1976	1977	1978	1979	1980	1981	1982
Captain's Share of Gross Stock	174	207	190	186	205	231	315
Captain's Bonus	53	63	58	56	60	68	95
Shared Expense paid by Captain	-21	-25	-21	-25	-31	-35	-39
Crew Expenses paid by Captain	-9	-9	-9	-9	-9	-9	-9
Net to Captain	196	236	220	209	225	255	362
Outside Income	-213	-192	-232	-211	-219	-235	-219
Captain's Surplus	-17	44	-12	-2	6	20	143

Crew Summary - Total Excluding Captain							
	1976	1977	1978	1979	1980	1981	1982
Crew's Share of Gross Stock	521	622	571	559	614	694	944
Shack	6	7	7	6	7	8	11
Crew's Share of Trip Expenses	-62	-75	-62	-73	-93	-105	-114
Crew Expenses	-28	-26	-26	-26	-26	-26	-26
Net to Crew	437	526	491	465	502	571	811
Outside Income	-427	-385	-464	-422	-438	-470	-439
Crew Surplus	10	143	27	43	64	101	372

Crew Summary per Man/Year - Excluding Captain							
	1976	1977	1978	1979	1980	1981	1982
Crew's Share of Gross Stock	174	207	190	186	205	231	315
Shack	2	2	2	2	2	3	4
Crew's Share of Trip Expenses	-21	-25	-21	-25	-31	-35	-39
Crew Expenses	-9	-9	-9	-9	-9	-9	-9
Net to Crew	146	176	164	155	167	190	270
Outside Income	-142	-128	-155	-141	-146	-157	-146
Crew Surplus	3	48	9	14	21	34	124

Totals							
	1976	1977	1978	1979	1980	1981	1982
Gross Stock	1286	1536	1411	1380	1516	1713	2332
Shared Expenses	-153	-186	-152	-181	-229	-258	-291
Net Stock	1133	1350	1259	1199	1287	1455	2041
Shack	-6	-7	-7	-6	-7	-8	-11
Crew Expenses	-37	-35	-35	-35	-35	-35	-35
Boat Expenses	-325	-362	-299	-286	-309	-323	-397
Amortized Replacement	-270	-298	-275	-278	-298	-369	-343
Outside Income	-641	-578	-697	-633	-657	-705	-659
Total Surplus per Vessel	-146	70	-54	-39	-19	15	596
Total Surplus per Man	-37	18	-14	-10	-5	4	169

Table 6: Summary for Port 3: Gloucester, Massachusetts.

Cost Item	Real Dollars per Day Absent						
	1976	1977	1978	1979	1980	1981	1982
Fuel	253	210	185	176	261	235	192
Ice	28	37	34	30	47	43	38
Food	53	49	50	50	49	49	49
Repairs and Maintenance	188	153	136	143	172	184	135
Gear and Supplies	254	170	149	111	125	100	90
Payroll Taxes	30	36	44	0	26	0	0
Lumping Fees	12	20	23	0	30	0	0
Wharfage	8	6	5	4	6	5	4
Amortized Replacement Cost	466	357	303	336	495	446	383
Crew share	1882	1204	1107	943	996	863	619
Licenses and Boat Taxes	3	3	2	3	3	3	2
Truck and Transport Costs	6	7	7	6	10	9	8
Insurance	129	147	119	82	98	72	62
Office	2	2	2	3	3	3	3
Clerical and Legal Expenses	8	7	8	10	11	11	11
Travel	13	12	12	15	18	17	18
Shack	11	12	14	10	10	9	8
<b>Cost Breakdown</b>							
Gross Stock	2309	2510	2862	2001	2173	1886	1756
Crew Expenses	90	84	85	85	84	84	84
Fixed Boat Expenses	160	174	146	114	134	108	98
Variable Boat Expenses	378	366	336	260	333	253	233
Total Boat Expenses	538	540	482	374	467	361	331
Overhead Expenses	469	360	305	339	498	449	385
Total Expenses	932	903	823	675	879	732	653
Nominal Profit	1377	1607	2039	1326	1294	1154	1103
<b>Owner or Boats Summary</b>							
	1976	1977	1978	1979	1980	1981	1982
Boat's Share of Gross Stock	1062	1155	1317	920	1000	868	808
Boat Expenses	-538	-540	-482	-374	-467	-361	-331
Boat's Share of Trip Expense	-140	-128	-118	-99	-151	-132	-110
Captain's Bonus	-93	-104	-121	-83	-86	-74	-71
Amortized Replacement Cost	-464	-357	-303	-336	-495	-446	-383
Boat Surplus/Loss	-175	26	293	28	-199	-146	-86
<b>Captain's Summary</b>							
	1976	1977	1978	1979	1980	1981	1982
Captain's Share of Gross Stock	249	271	309	216	235	204	190
Captain's Bonus	93	104	121	83	86	74	70
Shared Expense paid by Captain	-33	-30	-28	-23	-36	-31	-26
Crew Expenses paid by Captain	-18	-17	-17	-17	-17	-17	-17
Net to Captain	292	328	385	259	268	230	218
Outside Income	-182	-170	-174	-222	-256	-251	-258
Captain's Surplus	110	158	211	37	12	-21	-40
<b>Crew Summary - Total Excluding Captain</b>							
	1976	1977	1978	1979	1980	1981	1982
Crew's Share of Gross Stock	997	1084	1236	864	939	815	759
Shack	11	12	14	10	10	9	8
Crew's Share of Trip Expenses	-131	-121	-111	-93	-142	-124	-103
Crew Expenses	-72	-67	-68	-68	-67	-67	-67
Net to Crew	805	909	1072	713	740	633	597
Outside Income	-486	-454	-466	-522	-603	-671	-689
Crew Surplus	319	455	606	121	57	-39	-93
<b>Crew Summary per Man/Year - Excluding Captain</b>							
	1976	1977	1978	1979	1980	1981	1982
Crew's Share of Gross Stock	249	271	309	216	235	204	190
Shack	3	3	4	3	3	2	2
Crew's Share of Trip Expenses	-33	-30	-28	-23	-36	-31	-26
Crew Expenses	-18	-17	-17	-17	-17	-17	-17
Net to Crew	201	227	268	178	165	158	149
Outside Income	-122	-114	-117	-148	-171	-168	-172
Crew Surplus	80	114	151	30	14	-10	-23



Table 6 (continued):

	Totals						
	1976	1977	1978	1979	1980	1981	1982
Gross Stock	2309	2510	2862	2001	2173	1886	1756
Shared Expenses	-304	-279	-256	-216	-328	-287	-238
Net Stock	2005	2231	2606	1785	1845	1599	1518
Shack	-11	-12	-14	-10	-10	-9	-8
Crew Expenses	-90	-84	-85	-85	-84	-84	-84
Boat Expenses	-538	-540	-482	-374	-467	-361	-331
Amortized Replacement	-466	-357	-303	-336	-495	-446	-383
Outside Income	-648	-625	-641	-815	-939	-923	-948
Total Surplus per Vessel	232	613	1081	165	-150	-224	-236
Total Surplus per Man	46	123	216	33	-30	-45	-47

Table 7: Summary for New Bedford, Massachusetts.

Cost Item	Real Dollars per Day Aboard						
	1976	1977	1978	1979	1980	1981	1982
Fuel	259	259	245	297	368	342	306
Ice	30	39	30	39	52	45	45
Food	68	64	64	64	64	64	63
Repairs and Maintenance	198	178	150	170	118	116	142
Gear and Supplies	163	179	132	134	128	100	101
Payroll Taxes	38	46	46	42	43	34	34
Welfare and Pension Funds	107	115	111	106	97	83	86
Lumping Fees	13	22	20	20	26	22	19
Wharfage	8	7	6	7	5	5	6
Amortized Replacement Cost	493	454	377	514	394	429	500
Crew Share	1087	1180	1144	1057	912	754	816
Licenses and Boat Taxes	3	3	2	3	2	2	2
Truck and Transport Costs	6	8	6	8	10	9	9
Insurance	137	155	106	108	105	80	78
Office	2	2	2	2	1	2	2
Clerical and Legal Expenses	8	8	7	8	6	7	9
Travel	13	12	11	13	9	11	14
New Bedford Advertising	4	5	5	4	4	3	3
New Bedford Auction Fees	3	2	2	2	2	2	1
Shack	12	13	12	12	11	9	9

## Cost Breakdown

Gross Stock	2441	2641	2544	2438	2249	1903	1985
Crew Expenses	158	148	149	149	148	148	147
Fixed Boat Expenses	168	184	132	138	126	105	109
Variable Boat Expenses	405	411	334	354	299	259	286
Total Boat Expenses	573	595	466	492	425	364	395
Overhead Expenses	496	457	379	517	394	431	502
Total Expenses	1159	1198	1040	1121	1133	1018	1011
Nominal Profit	1282	1443	1504	1317	1116	885	974

## Owner or Boats Summary

	1976	1977	1978	1979	1980	1981	1982
Boat's Share of Gross Stock	1123	1215	1170	1121	1035	875	913
Boat Expenses	-573	-595	-466	-492	-425	-364	-395
Boat's Share of Trip Expense	-197	-209	-194	-221	-258	-233	-216
Captain's Bonus	-94	-102	-99	-91	-79	-65	-71
Amortized Replacement Cost	-493	-454	-377	-514	-394	-429	-500
Boat Surplus/Loss	-234	-145	33	-196	-121	-215	-268

## Captains Summary

	1976	1977	1978	1979	1980	1981	1982
Captain's Share of Gross Stock	220	238	229	219	202	171	179
Captain's Bonus	93	102	98	91	78	65	70
Welfare and Pension paid by Bo	18	19	19	18	16	14	14
Shared Expense paid by Captain	-39	-41	-38	-43	-50	-46	-42
Crew Expenses paid by Captain	-26	-25	-25	-25	-25	-25	-25
Net to Captain	266	293	283	260	222	180	197
Outside Income	-188	-173	-160	-191	-140	-160	-203
Captain's Surplus	78	120	123	69	82	20	-6

Table 7 (continued):

Crew Summary - Total Excluding Captain								
	1976	1977	1978	1979	1980	1981	1982	
Crew's Share of Gross Stock	1098	1188	1145	1097	1012	856	893	
Welfare and Pension	89	96	93	88	81	69	72	
Shack	12	13	12	12	11	9	9	
Crew's Share of Trip Expenses	-193	-205	-191	-216	-252	-228	-211	
Crew Expenses	-132	-123	-124	-124	-123	-123	-123	
Net to Crew	875	969	934	857	729	581	640	
Outside Income	-627	-577	-535	-639	-469	-531	-678	
Crew Surplus	248	392	399	218	260	47	-38	
Crew Summary per Man/Year - Excluding Captain								
	1976	1977	1978	1979	1980	1981	1982	
Crew's Share of Gross Stock	220	238	229	219	202	171	179	
Welfare and Pension	18	19	19	18	16	14	14	
Shack	2	3	2	2	2	2	2	
Crew's Share of Trip Expenses	-39	-41	-38	-43	-50	-46	-42	
Crew Expenses	-26	-25	-25	-25	-25	-25	-25	
Net to Crew	175	194	187	171	146	117	128	
Outside Income	-125	-115	-107	-128	-94	-107	-136	
Crew Surplus	50	78	80	44	52	9	-8	
Totals								
	1976	1977	1978	1979	1980	1981	1982	
Gross Stock	2441	2641	2544	2438	2249	1903	1985	
Shared Expenses	-321	-340	-314	-374	-463	-423	-383	
Net Stock	2120	2301	2230	2064	1786	1480	1602	
Shack	-12	-13	-12	-12	-11	-9	-9	
Crew Expenses	-158	-148	-149	-149	-148	-148	-147	
Boat Expenses	-573	-595	-466	-492	-425	-364	-395	
Amortized Replacement	-893	-454	-377	-514	-394	-429	-500	
Outside Income	-815	-750	-696	-831	-610	-697	-881	
Total Surplus per Vessel	69	341	530	66	198	-167	-330	
Total Surplus per Man	12	57	88	11	33	-28	-55	

Also presented are estimates of the net economic return to each of three participants in the fishing enterprise: the vessel owner, the captain, and the crew. For each participant, net economic surplus is defined in the following manner: total payments as calculated by the share system net of costs (again as filtered by the specific cost sharing arrangement), less an estimate of opportunity or outside income. This last term is the amount the skipper to typical crew member could earn in alternative employment. If the crew member or skipper could earn wages or salaries in excess of net payments from fishing, then the net surplus is negative. This measure provides an estimate of the true economic return to fishing activity taking into account alternative income or employment possibilities. This measure differs from account and income tax statements which are prepared for other purposes. Finally, the net economic surplus for the vessel as a whole is calculated as the sum of the surplusage to each of the individual participants.

Considering first nominal profit, results in two of the three ports are consistent with the hypothesis of diminishing real returns to fishing. For both Gloucester and New Bedford, nominal profits peaked in 1979 and have been declining since. Point Judith presents

a different picture; estimated profits per-day-absent increased between 1979 and 1982. (See tables 5, 6, and 7, and figures 8 and 9). This was due, in part, to rather substantial increases in average reported revenues per reported day absent: for 1976 to 1979 nominal profits were fairly constant.

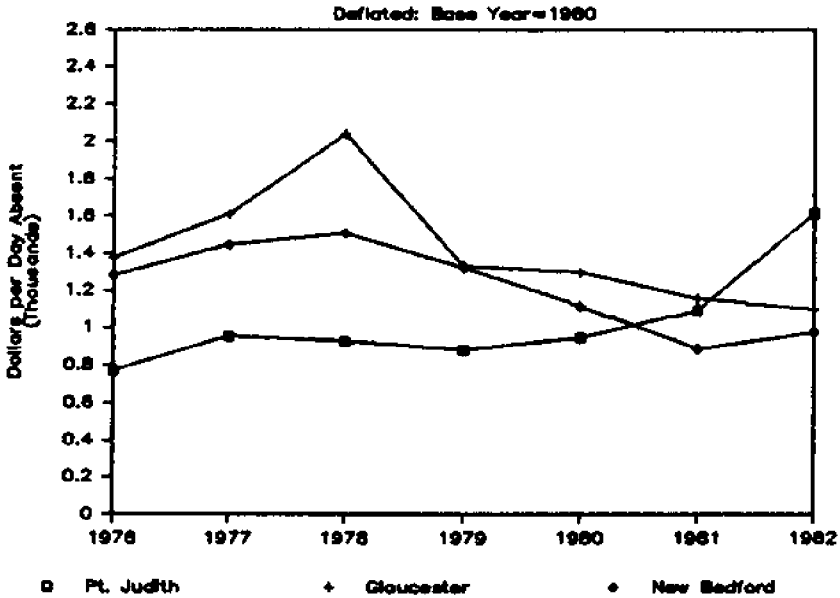


Figure 8: Nominal Profit.

A similar pattern appears when considering net economic surplus. Both New Bedford and Gloucester show sharp drops in net surplus after 1979; indeed, the net return to fishing inclusive of opportunity costs for crew and captain are negative in 1980, 1981, and 1982 for New Bedford and in 1981 and 1982 for Gloucester. Again, Point Judith shows a different pattern of economic returns since 1976; negative in some years and positive in others, especially due to large increases in gross stock per-day-absent in 1981 and 1982.

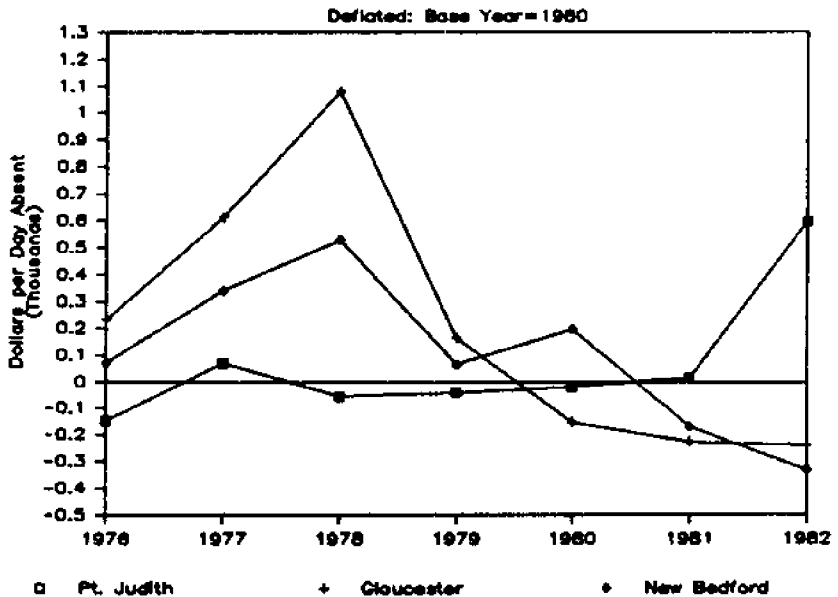


Figure 9: Total Surplus.

It is interesting to note the distribution of the surplusage between participants in the fishing enterprise. For the most part, the economic returns of the captain and the crew members are positive, over the time period considered here (although declining since 1979). Much of the loss (if any) is borne by the owner of the vessel. The largest single component of the owner's costs is what we have termed "amortized replacement cost". While this is a true cost in an economic sense, it usually overstates out of pocket expense for the boat owner. Part of this cost is an interest charge on equity ownership in the vessel. It would also seem that the vessel owner seems to bear most of the burden of the decreasing net economic position of the enterprise. For the two ports where the vessel showed a net decrease in surplus during the period 1978-1982, the largest decrease in surplus (both in absolute values and in percentage terms) accrued to the boat owner. It is important in analyzing economic status in this industry to not be misled by examining a standard accounting for the boat. Such a measure can be seriously misleading since much of the economic surplus may accrue to labor (the crew) and management (the captain) rather than to capital (the boat). At least in the examples considered here, the captain and crew members seem to have been somewhat insulated from increasing costs relative to the vessel owner.

It should be noted here that these estimates are indicative of general trends only. Many of the cost items, particularly interest and replacement costs and opportunity incomes, are difficult to estimate *ex-ante*. Further, wide variations in costs and returns can be expected in real-world fishing enterprises depending on random factors such as weather, skill of the captain, and luck. Still, these estimates of nominal profit and net economic surplus do give an indication of the overall trends in the economic status of the otter trawl fleet.

Based on the evidence presented in this paper, some initial conclusions may be drawn about the impact of the MFCMA on the New England groundfish fishery. First and foremost, the years since 1976 have seen a dramatic increase in both landings of fish and harvesters. With an increase in fleet size of 65 percent, total landings have gone up 90 percent. More vessels are participating in the fishery, more output is being produced by processors and converters, and more fishermen are employed in New England than before the MFCMA became law. Viewed from the standpoint of gross output and employment the act can be considered an unqualified success.

In efficiency, however, the case is much less clear. Increases in fleet size are not always desirable, particularly in an open access fishery plagued with declining stock abundance. If the fishery is to be regulated for stock protection, economic efficiency, or whatever purpose, a fleet 65 percent larger will make the job of regulatory enforcement that much more difficult. In addition, if increases in aggregate harvesting capacity outstrip the increased stocks generated as foreign effort is withdrawn, if we merely replace foreign fishing effort with domestic fishing effort, the potential economic benefits from an efficiently managed resource may be lost.

Looking at the results presented here, it seems clear that the net returns to fishing effort in the New England otter trawl fleet, however defined, have declined rather dramatically since 1978. Whether this is due merely to one-shot increases in relative input costs (i.e., fuel and interest expense) or whether it represents dissipation of economic rent as predicted by the economic models referred to earlier, remains to be seen. On the one hand, catch per-day-absent has not declined, at least through 1982, which would seem to indicate that rent dissipation has not yet taken place. If input costs stay stable over the next few years, the industry could stabilize at normal rates of return. On the other hand, if stocks are in fact decreasing due to increased harvesting, then the slide in vessel earnings is bound to continue.

In summary, then, it can be said that the MFCMA has had some definite beneficial impacts on the New England fishing industry. While it is too early to assess the permanent impact of the new regulatory regime on the fishery, theory suggests that the industry will reach a new equilibrium characterized by slim economic surplus but higher levels of employment and output relative to pre-1976 levels.

## NOTES

1. New England Fishery Management Council. "Northeast Region Multi-Species Fishery Management Plan". Page 3.22.
2. Data supplied by Analytical Services Division, National Marine Fisheries Service Northeast Fisheries Center, Gloucester Massachusetts.
3. New England Fishery Management Council. "Northeast Region Multi-Species Fishery Management Plan". Page 3.29.
4. Data supplied by NMFS.

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5. Gates, J. M., 1984. "Principle Types of Uncertainty in Fishing Operations". *Journal of Marine Resource Economics* (1) 1, 31-50.
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7. ———, 1984. Northeast Region Multi-Species Fishery Management Plan.
8. Norton, V. J., M. Miller, and E. Kenney, 1984. "Indexing the Economic Health of the U.S. Fishing Industry's Harvesting Sector". Paper presented at the Eighth Annual Seminar of the Center

for Oceans and Law Policy, University of Virginia in Cancun, Mexico, January, 1984.

9. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Fisheries of the United States. Various Years.

## Discussion

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**Allen:** I am assuming that what you said was with a limited entry system we would have avoided all these new boats and we would not have gotten into this declining situation as in New Bedford. But I would question whether we also could have provided for the expansion and the increasing profitability that has taken place in Point Judith.

**S. Crutchfield:** I do not really know, again it is difficult to say what would have happened if what I had recommended or somebody else had recommended (limited entry) had been put in place 10 years ago. I cannot explain, for example, the increase in Point Judith. It does not seem to be consistent with the idea of rent dissipation or what have you, again one can believe what one wants to believe. However, I do feel that the increase in fleet size that we have seen is not something that can be considered totally positive even though it does increase employment. It raises a danger of further on down the road regulating or responding to shocks in the system such as problems with the stocks or increasing fuel costs or what have you. The problem of dealing with that is just going to make it that much more difficult. The way I interpret your question, Dick, there is no real way I can respond to it. Yes, Point Judith had some good years and I cannot say whether or not we would have good years in New Bedford if we had regulated, on the other hand I cannot say that if we had a limited entry program, that Point Judith would not have taken off in the last couple of years.

**Allen:** One of my big problems with a limited entry program is: given the highly variable nature of the resources and our inability to predict them on a real time basis, how can you provide for taking advantage of the abundant resources that are there and the markets that develop and shift things around? I do not think that the bureaucratic system that you would have to have to put something like that in place can really respond to that variability. It seems to me you need to have flexibility in the fleet to do that and it is almost like two extremes: 1) you either have to let things go with some minimum conservation measures and allow the



economic system to guide things; or 2) you get into a highly structured system that I just do not believe we are capable of utilizing in a timely way.

**Gates:** I think it is perhaps useful to keep in mind that one can look at this simply as a thermometer which measures the temperature between the good and the bad. As to whether you judge it good or bad that is policy discussion.

**Gordon:** I did not like the last statement that said, if industry looked more at some of these barometers like stock condition and economic condition, and made their decisions accordingly then you would not see the rate of decline you have seen in profitability — it would smooth out. But industry is not going to act as a unit, they are going to act independently. As long as they act independently, as at the present, you are going to have this sort of thing — ups and downs with availability of the resources. Unlike the menhaden industry which is highly integrated now. They pay attention because their livelihood depends on one species. So they want the community to respond and they make their investment strategies all in line with what the scientists are saying and what the economic conditions are. But they are highly coordinated compared to most of the groundfish fisheries elsewhere. I think most other fisheries will act independently even looking at all these good things they will not act in unison. They will play the odds. And so I think you are going to have this. And when you do, Congress reacts. As a result, Congress is getting fed up with industry going up town complaining about something. "We gave them the Magnuson Act — make it work." I hear this over and over again. When John Breaux starts making statements like he has made over the last several months — he is becoming pretty impatient with an industry that he does not understand very well but says, "what the hell, it should be wonderful for you guys, we have given you everything, we have given you the resource, why can't you make it work?" Certainly the administration, this one or the next one to come regardless of what political affiliation it is, is not going to spend a lot of money jacking up industries. They are going to let them go down the tube. I think some of the programs that have been around for a long time — good or bad — are going to disappear.

**Nixon:** Maybe it is my lack of understanding of the concept of dollars-per-day-absent, but some of the numbers did not seem to relate to the real world and the one that is of greatest interest to me is the insurance costs. Steve, would you clarify that issue to

a couple of us who were confused about that? If you would explain those numbers, I think it would be helpful.

**Gates:** The insurance cost — the fact is we are in the process of trying to improve the numbers on that. At the moment they are based upon a survey of the insurance costs as related to the size of the vessel. I know that that really needs to be broken up into two insurance components.

**S. Crutchfield:** I would also just clarify what these numbers mean. Some of the overhead charges, office, clerical, legal and everything are essentially annual charges which then get cut and divided by total-days-absent to arrive at sort of a dollars-per-day absent. Obviously for some cost that we have included in calculating such things as insurance and some sort of overhead charges on a per-day-absent basis is really rather meaningless. So it would be important to consider these things in some sort of total framework. But, the reason we converted to dollars-per-day absent is to facilitate comparisons across ports where you have got widely differing patterns of fishing effort, differing numbers of days spent fishing and these sorts of things. We wanted to avoid problems of comparing alternative scales where we have got large vessels fishing a large number of days absent compared to small vessels fishing fewer days absent. And that is why we converted. But, again it does mask some of the cost and make some of them appear, perhaps, a little unrealistic.

**Allen:** Just one thing I would say about the difference between New Bedford and Point Judith. I think it is clear if you understand what the boats are doing in the port you make a big mistake by calling them all New England otter trawlers in the Groundfish Fleet because there is just very little similarity between the New Bedford otter trawler fleet and the Point Judith otter trawler fleet and what they fish on. It is clear that in Point Judith over the last few years the butterfish fishery has been the big thing that has increased stocks. They have not been fishing on cod and haddock, hardly a haddock comes into Point Judith, a few cod fish at some times of the year. Yellowtails pretty evenly through the year, flounders, but things like the butterfish, whiting is a tremendous volume fishery in Point Judith, the squid, when you have a good squid year usually the Point Judith boats are in the forefront of the squids so to just use these things and then set up comparison and try to say by the numbers "why did Point Judith do so differently than New Bedford?" is pretty misleading.

**Gates:** Well, yes. What you say, Dick, is very true and I think deserves emphasis — mainly that the fishing fleet, and this has been said several times — is in no way or shape a homogenous group and if you begin to say surely the otter trawl fishery is the same — wrong! It is not. And when we began this effort it had no connection with this different workshop and we wanted to be able to make specific statements about port, size of vessel, etc. I think it works very well in that sense. Now, the only problem with that is that when we want to use it in this context you have pages and pages of potential output. So, you have to chose something as being representative. You probably should not draw any great inferences from the fact that Point Judith is different than New Bedford. We know that. And, this clearly illustrates it.

**Allen:** You could also probably see if the total number of vessels in New England are going up 80 percent, the number in Point Judith might have gone up 100 or 120 percent, the size might have gone up substantially, the number of days-absent might have gone up substantially, if you figured out the distance they go from shore you would probably find that the whole pattern of the fisheries has changed as well. It is a pretty complicated mix of things.

**Gates:** Yes, we began this as simply the analogy I used earlier was a thermometer — being able to generate the taking of temperature that reflects the port, etc., all the differences that we know of at least. And then, hopefully, this is useful for a number of applications. As you know, we did use it at Point Judith, the Fishermen's Forum and I went over to New Bedford a couple of weeks ago.

**Knauss:** Poor Gordon here...the question of what is right and what is wrong with the fishing industry links with the transboundary problem the U.S. had with Mexico and Canada but you did not mention the transboundary problem with the FCMA and the local states where some fisheries come across the 3-mile limit and from one management program under the FCMA to a different management program or a non-management program. To what extent is that a problem of a general sense or a minor problem in a couple of areas?

**Gordon:** I did not talk much about this because Bob McManus talked about the consistency with the states and the coastal zone management act. It is a big problem in some states. In Alaska it is a major problem; Florida remains a problem; New England has not been a problem because by and large the states with one exception sort of exceeded and adopted the Councils Plan. But the

one failure in New England was the Herring Management Plan in the state of Maine and they sort of opted out of limiting their fishermen at the time that the FCZ was closed and as a result just undermined that plan and we abandoned the plan as a result of it. This was in part a turf battle, I guess, in as much as Maine has traditionally had a herring fishery by-and-large for sardines. But, as we moved into the adult fishery offshore then there were differences in interpretation of what is an adult fishery and what is a juvenile fishery. As a result of those differences Maine simply did not go along with closing down their fishery arguing they were adults. I guess there was a size difference at one time, difference of opinion on how you age a fish and the end result was that we just abandoned the plan and of course that was coupled with an economic decline in the value of herring in the European markets anyhow and also it did not make a heck of a lot of difference in terms of the herring fishery. But the bottom line is it simply did not work without reconciling those differences. I think that is going to be true of other fisheries. In lobster on the other hand, New Jersey had a problem and they opted for a delay in implementation as far as New Jersey was concerned, but all the states said "Yes, we will reconcile our lobster management with that in the FCZ" and I do not see any problems down the road once the time frame passes for New Jersey. But, that is not true in all areas.

## CHAPTER 18

# Regional Fisheries Perspectives

### *Northwest Pacific*

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#### THE NORTHWEST SITUATION

I want to comment on a number of things relating to the Northwest situation that will fit within the national framework that Bill Gordon sketched in so admirably. Fortunately, he saved me some time by ticking off some of the more important things. I think I can make specific some of the things he was talking about as general problems and perhaps highlight the use and abuse of them.

I will not waste time with a long description of the Northwest fisheries other than to make five points. First, they are big. If you include the foreign fisheries in the Alaska area, they constitute the largest North American fishery by far — in volume and in value because of the salmon, crab, halibut and other very high value species that dominate the catches in the area. Second, they are dynamic. The structure of the American fisheries and of the American fisheries vis-a-vis foreign operations in the areas is changing very rapidly. In particular, the phenomenal growth of the joint venture fisheries has altered, probably permanently, the structure of the whole groundfish industry in the area.

Third, there are still major jurisdictional problems with Canada. As Bill Gordon has pointed out, an agonizing situation developed in which we have achieved a unanimous American position, and Canadians have achieved a unanimous Canadian position by backing off to where we were ten years ago. We are right back to ground zero. But the Pacific Fishery Management Council cannot make

sense of its salmon management in ocean harvest when 40 percent of the chinook salmon and about 50 percent of the coho salmon that come from the Columbia River and from hatcheries in the area are taken by Canadian fishermen. There is no resolution of this vital interception issue on the horizon.

Fourth, we have had two major resource disasters in the Pacific Northwest that have profoundly influenced both the fishery and the management problems. The king crab fishery, a \$100 million dollar a year operation, has simply collapsed for reasons that may be associated with some degree of overfishing but apparently with other non-fishing factors as well. It is a matter of profound concern. The coastal salmon fishery is in very deep trouble — chinook salmon in particular. It was accentuated by the savage impact of El Nino on the whole ocean fishery which dropped to perhaps a tenth of normal level last year and promises to be no better, perhaps worse, this year. And fifth, we do have in the Northwest our full complement of resource conflicts.

## FISHING COMMUNITY CONFLICTS

Most of these conflicts are within the fishing community rather than between the fishing community and outsiders. There may be more, but I think the most important of these conflicts are:

- 1) foreign vs domestic;
- 2) joint venture vs shoreside processing;
- 3) by user groups (conflicts between gear types, the traditional type of nastiness in the industry);
- 4) by location (home port of the fisherman);
- 5) the recreational vs commercial which is very severe in the case of salmon and increasingly so in groundfish;
- 6) the Indian/non-Indian problem which is peculiar to the Northwest and horrendously complex; and
- 7) the jurisdictional problem.

A couple of general comments about these controversies are in order. Not surprisingly they are all distributional issues! They are essentially user conflicts over who gets what. For the most part, the thing that makes them so difficult to deal with is that they are rational. There is nothing irrational about the Alaska trollers screaming about giving up a few thousand chinook for the benefit of a much larger catch of chinook and coho for Puget Sound, Oregon, and Washington coastal fisheries. The fact that the national interest may give you a different answer is of no concern to these

people and, from their own point of view, they are perfectly correct. They are fighting for their own livelihood. Virtually all of these distributional conflicts are pretty much in that same category. They are not just backstabbing. They are based on rational self-interests and, until we find some way of compensating the losers in the greater interest of the national fishery picture, we are going to have this type of "minority veto" that these distributional problems impose on us.

A more serious problem is that user conflicts may poison the integrity of both our data systems and our research establishments. That is a hard thing to say, but there is an element of truth in it and it is very disturbing for both fishery management and, in the long run, for the industry itself. When Councils are faced constantly with data that have been filtered to present a particular point of view, not only by the industry and its representatives but frequently by the states and their own staffs, then we are in trouble. And that has become a real problem in the Northwest. In short, these tough allocation issues have to be faced openly and resolved.

Bill Gordon has already adequately covered foreign vs domestic fishing, and I will only add one point to his comments. In Alaska the issue of pushing foreigners out has become so emotional that it has reached the point of arguing for the elimination of the foreigners even before we are able to make use of those fish in our markets or elsewhere. But, the United States will be in a difficult position if a couple of hundred thousand tons of perfectly usable fish go to waste because we do not permit a licensed and controlled foreign harvest when our own people are simply unable to do the job.

## **JOINT VENTURES**

The role of joint ventures has been a very controversial one although apparently on a different level than in other parts of the country. Fishermen in the Alaska and Northwest area, with very few exceptions, are solidly behind the joint venture concept for the obvious reason that it has bailed the trawl and king crab industries out of some tremendously difficult problems. Last year joint ventures in Alaska and to a lesser degree off Oregon and Washington took more than 400,000 metric tons of fish providing a flow of about 50 million dollars to American fishermen that otherwise would have had to be allocated, by law, to foreign fleets which had requested them. That made a big difference in the situation with respect to

the fishing industry and to the coastal communities which depend on it.

The processing industry is still strongly opposed to joint ventures on the ground that they inhibit the growth of American processing capacity to which the joint venture trawler operator answers: "Put your money where your mouth is. If you propose to process the fish, we would rather deal with you; but we are not going to give up 50 million dollars of income while the American processing industry gets up to something above the 1910 level in technology." That remains a tough controversy.

The policy implications are important because Alaska politicians simply cannot be elected unless they espouse the principle that all fish caught in Alaska ideally should be processed in Alaska. Unfortunately, shoreside processing of these low-priced, high-volume pollack (and, to a lesser extent, cod) simply cannot be done in competition with over-the-side at-sea processing to which American ventures eventually will come. Oddly enough we have been a little more pessimistic than we might have been about the speed with which better types of American processing are developing. We have two modern factory trawlers producing extremely high quality groundfish products in the North Pacific now. We anticipate, believe it or not, that we will have six more next year. They are either on the water or in the building stage at the present time. Probably half of them are going to go broke, but the other half are likely to make fairly significant impacts. They are producing, for the high end of the fillet market, a product of superb quality competitive with Icelandic fish which command premium prices in the market; and they are doing very well.

## **A VARIETY OF GEAR TYPES**

The user conflicts by gear type are even harder to resolve. Bill Gordon mentioned the by-catch problem. To give you some numbers for the big three that are affected — halibut, crab, and salmon — a recent study by Natural Resources Consultants indicates that the discounted present value of these fish, had they grown up (less natural mortality, and less the mortality inflicted by their own fleets in catching immatures), runs around 12 to 18 million dollars a year. That is not hay. On the other hand, those figures do not take account of any significant effort to avoid by-catch problems within reasonable cost limits. A lot can be done, through gear



changes and redistribution of effort in area and time to reduce by-catches significantly at relatively low costs. The point Mr. Gordon made is most important: Unless we deal with the by-catch problem on some sort of rational basis, instead of beating chests and tearing hair out, the present marginal development aimed at Americanization of a million tons of fish now caught by foreigners is simply not going to be possible. If Alaska continues to build enough fences around the halibut, salmon, and crab fisheries, it cannot simultaneously develop an American trawl operation.

It is important to stress that these by-catch problems can be worked out. On the positive side all the interests involved, including the organized halibut fleets and the crab people, are working very closely with the trawlers to do just that. The by-catch problem may well be in hand within a year or two with industry agreement — which is the right way to go about it.

## **ALASKA v WASHINGTON AND OREGON**

What is much more difficult, in dealing with user conflict problems in the Northwest, is the constant, continuing process of trying to ease fishermen from the lower 48 out of the highly lucrative Alaska fisheries. Better than 70 percent of the total crab catch taken off Alaska is taken by Seattle and Oregon boats. Probably 95 percent of the developing groundfish operations are based on large vessels from the lower 48. There are good reasons for that situation. The capital is there. There are no places in Alaska where you can base a 120' dragger and have it serviced properly from year to year or even have its equipment properly cared for. Even though it costs \$25,000 each trip to take the boat to Puget Sound, the vessel owner really has no option. If we follow a policy of trying to Alaskanize the entire operation, we simply are not going to develop that large groundfishery. Ultimately, it is going to be based in Alaska largely because the necessary facilities will eventually be provided. For the moment, the effort to discriminate leads to constant running battles at the council, state, and the federal levels. Regulations, devious or not, designed to keep "foreign" fishermen out of Alaska will probably continue to be proposed.

## RECREATIONAL v COMMERCIAL FISHING

The recreational vs commercial conflict is particularly vicious in west coast salmon. The ocean commercial catch in California, Oregon, and Washington is based on two highly valuable species, chinook and coho, both of which are in trouble. The recreational fishing experience is a high priced one, highly valued and engaged in by a high proportion of Northwest anglers. From a management standpoint, there are two things that are important about the recreational/commercial conflict. First, the optimum population level, looking only at maximizing the commercial value of that resource, is not the population that will maximize the value of the recreational experience. These are typically quite different levels. To some extent, then, the problem is not one that can be resolved either by studying the fish hard enough or even by valuing the two activities economically (if we could). What really is needed is some kind of sensible allocation framework or scheme agreed to by the recreational and commercial industry.

Fortunately, in the last year, the two user groups in both Oregon and Washington have agreed to a sliding scale arrangement. During periods of low abundance the sport fisheries take a greater percentage, and with high catches, a larger percentage goes to the commercial fleet. It has been worked out and agreed to and written into the salmon framework plan, and about 90 percent of the howling of the Council meetings has now disappeared. Not a perfect answer but a sensible one for the recreational/commercial dilemma.

## NATIVE FISHERY RIGHTS

Treaty Indians vs non-Indians represents much too complex a situation to analyze in the time available. There is general agreement that the judge was correct in his interpretation of the law with respect to the meaning of access to the fishery by treaty Indians. But, nobody can answer what was in the judge's mind when he said 50-50, (actually, a little more than 50 percent for the Indian vs the non-Indian users), or why it had to be instituted immediately with no phase-in time. The result was to dump a large amount of additional, heavily subsidized, and quite efficient fishing capacity into an industry already staggering under two or three times the amount of gear that the resource could support. Predictably, the economic consequences have been really difficult for everyone concerned.

## FISHERIES JURISDICTION AND BOUNDARIES

The jurisdictional problems have been mentioned. I will state very briefly that we have not only the conflicts with Canada over salmon and with Mexico over anchovy, but we also have some serious conflicts between the Councils and the states on some fairly critical issues. With respect to salmon, there have been three instances in which California and Oregon have simply ignored Council regulations and opened the fishery within three miles. These actions have the effects, since the salmon are not tagged in any way, of completely nullifying any kind of effective enforcement. The preemption procedure is so clumsy and so unworkable for a "flash" fishery like the salmon fishery that the season is over long before the legal mechanism can be triggered. We have been lucky so far in getting away with *ad hoc* resolution of those problems. We cannot continue to do so, and state-Council confrontation on the Pacific Coast may reach serious proportions unless this imprecise definition of state and Council jurisdiction is clarified fairly quickly.

## CONCLUSION

I would conclude by stressing that there is nothing in fishery science or in economic analysis that can tell us whether one distribution of benefits is better than another. What we can do, as fishery scientists and economists, is to show what the consequences of different distributions among user groups will be and, hopefully, to narrow down the range of political infighting by doing so. We have suffered for a long time under management regimes and industry attitudes based on the view that somehow, if we study the fish long enough, the decision about who should get which allocation will miraculously fall out of the study. But they will not. So Councils and industry alike are going to labor under unnecessary difficulties unless we take, right now, the attitude that allocation problems are at the heart of fishery management problems. Who is going to get what is critically important if you are going to get any degree of acceptance of a sensible management regime. I think we are moving in that direction and the success that our Councils have had have been in cases where we have arrived at sensible allocation decisions among user groups is a hopeful sign.

Finally I would say, as a long-time and therefore biased member of a Council, that we are doing much better in the mechanics of our operation. The Councils have learned the importance of early

industry participation and plan development, and they are getting better cooperative work going along that line. By the same token, the industry has learned that coming to the Council with well reasoned, factual presentations gets them a lot farther and shortens the time involved as compared to the kicking and screaming that went on in the early years.

In general, the relations of the Pacific Council and to some extent the North Pacific Council and the industry have improved significantly in some of the critical fisheries. In other cases, a worrisome level of conflict still exists. We have succeeded in promoting growth of American participation and thereby curtailing foreign fishing in some very significant areas to the considerable benefit of our industry. The work that Bob Stokes and I have done, paralleling the sort of thing that Steve Crutchfield was presenting today, shows much the same result. We have gained; but, the gain to the American community generally has been far less than it would have been had the gains in American participation been matched with some sort of rational effort control. Very little progress has been made on the west coast in reducing redundant capacity.

So that is about where it stands. The Northwest is a tremendously exciting area in terms of its fishery contributions, tremendously emotional in dealing with management problems, and it can report some real progress on the part of both industry and the management process.

## Discussion

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**Allen:** Just an observation, it seems to me that there is a big difference between the whole philosophy of management on the west coast as compared to the east coast. I do not know where it comes from, but the west coast, in my view, has always been highly structured management, including very precise seasons and particularly the salmon day-to-day openings and closings, who can fish and who can fish where, and how much gear they can fish — a lot of regulations. In California in fact, when I was out there, I was surprised to find that you cannot do any kind of fishing unless it is permitted. On the east coast, it is kind of the other side of the coin — we can go out and pretty much do what we want until somebody decides that it is not a very good thing to do and maybe we ought to put some limits on that. Over time, we certainly have had limits put on us. However, it is not the highly structured management that you have on the west coast, and I have come to believe that our system may be preferable and avoid some of these really intense problems that you have there because — from what I have seen — every additional management step creates another problem that you did not foresee which then takes another effort to correct that which then leads to some more problems. One of the greatest things the New England Council did was to back away from quota management on the groundfish and get rid of that whole concept. To me quota management is the root of all evil. As soon as you start to put a cap on what you can catch, then you get into all these allocation problems. How do you divide it up? How do you make it right between all the different participants in the fishery? And if you can avoid that in any way, it seems to me it is much better.

**Crutchfield:** If I can answer briefly, your factual basis is wrong in part. The Pacific Council, for example, examined in total 16 different fisheries with respect to potential management plans, only three of them have ever been subjected to management plans — the groundfish fishery, the salmon fishery, and the anchovy fishery. The other 13 were examined in some detail and it was decided that it simply was not worth the effort to go into a management program. The fisheries — dungeness crab fishery for example is economically very important — vary so much from year to year

for natural reasons that completely swamp the variations in fishing effort that it was not worthwhile to try management and we do not. Another example is pink shrimp, and, of course, there are others. There are quite a lot of fisheries that are not regulated other than in ways the states traditionally require licensing and that sort of thing. The three that were regulated are regulated in a pretty highly structured fashion, as far as salmon is concerned, but the groundfish program is a very loose regulatory system in which the vessels involved have a considerable amount of freedom as to location of their fishing effort, catch composition and the like. So, it is hard to tell. I do not know the details but I suspect that the situations in which the fisheries are carried on are very different. For one thing our coastal areas are so much wider. We are dealing with at most usually one or two states in a fishery where you have a much more complex state interaction system. But whether one works better than the other is a horseback judgment, I could not guess.

**Allen:** I was not talking specifically about the Councils, but the combination of state regulation and more recently the Councils regulations, but primarily the states seem to go on in that direction.

**Crutchfield:** To see what an unregulated salmon fishery was like, take a look at the history of the salmon fishery before regulations.

**Gates:** It is my perception historically that states have had a stronger role in management in the west coast than here perhaps.

**Crutchfield:** Very much so.

**Nixon:** Just a quick question about the fairly remarkable statement about the Indian treaty fishing benefits accruing to 15 individuals, could you elaborate on that?

**Crutchfield:** It is the distribution. Trying to explain this without getting into a legal nightmare is a little difficult. The two judges involved and the two treaty areas in Puget Sound and along the Washington Coast and the Columbia River established the fact that treaty rights enable the Indians to fish in-common with non-Indians. And in-common was interpreted to mean 50 percent of the harvestable fish plus an additional allowance for ceremonial purposes (these must be very religious Indians because the ceremonial amounts are very large). The point I was making is that a very high proportion of the Indian catch in Puget Sound is taken by one tribe, the Lummis. A high proportion of the catch that they take is made up of sockeye, one of the very high priced species, they are taken from the shared stocks with the Canadians of the Fraser River Run and some Puget Sound Runs.

Of the Lummi Indians who fish, probably seven or eight of the tribal members are first class, high-line purse seiners. And they take the bulk of the Lummi tribes' take, and the Lummi take about 80 percent of the total Indian catch under the treaty allowances. The rest is taken largely by the Quinaults on the coast who distribute their fishery equally among tribal members and by one other tribe, whose name escapes me, in southern Puget Sound where again a handful of regular commercial fishermen — who could hold their own with anybody — take the bulk of the Indian catch. So, a majority of the benefits the Indians have derived, which are very substantial indeed, have not been distributed to the majority of the tribes at all but simply to a handful of people. I make no judgment whether this is right or wrong, but it gives a slightly different perception than I think is generally presented.

## *Gulf Coast*

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Gulf of Mexico fisheries will realize minimal impact by the U.S. declaration of an Exclusive Economic Zone (EEZ). Like other U.S. fisheries, most of the potential impacts from an EEZ have already been incurred with the creation of the Fisheries Conservation Zone (FCZ) via implementation of the Magnuson Fishery Conservation and Management Act of 1976 (MFCMA) and the establishment of the American Fishery Promotion Act (AFPA). A few potential impacts may, however, be attributed indirectly or incidentally to establishment of an EEZ in the Gulf of Mexico. These are mostly through items omitted from the EEZ proclamation and/or legislation and items which further support MFCMA and AFPA. These impacts are loosely grouped into domestic and international issues for purposes of discussion.

## DOMESTIC ISSUES

The issue of sovereign rights, as it pertains to the domestic fishery and fishermen, draws at least two reactions in the Gulf of Mexico. First, the Gulf of Mexico Fishery Management Council as a group opposes the concept that domestic fishermen should be charged for use of the fishery resources, and therefore, strongly supports the disclaimer that there be no royalty, fee, tax or other assessment of revenue for fishing by domestic fishermen in the Gulf. A second sovereign rights issue relates to conflicts between individual states and the Gulf of Mexico Fishery Management Council. These conflicts have diverted resources, time and energy from other fishery activities. Prime examples in the Gulf of Mexico were opposition by the State of Louisiana to seasonal closure of the shrimp fishery in the FCZ off the Texas coast and Florida's opposition to the use of fish traps and purse seines off Florida shores in the FCZ. Some industry representatives believe the establishment of sovereign rights in fishery resources will help settle the issue of jurisdiction over fishery resources and fishermen. Others, however, argue that the jurisdiction was already clearly established by passage of the MFCMA. It appears that sovereign rights, at minimum, will not add to or prolong the conflicts and may actually help reduce the conflicts through discouraging individuals from challenging some aspects of the individual fishery management plans.

A second issue of concern to segments of the Gulf fisheries relates to the exclusion of tunas from regulation under the EEZ as was the case with previous fishery management legislation. The Gulf and South Atlantic Fisheries Development Foundation and other fishery-related groups contend that both the economic potential and capacity exists to develop a domestic bluefin tuna fishery in the Gulf of Mexico. It is estimated that present foreign allocations could be used to develop a highly profitable domestic fishery in the South Atlantic and Gulf of Mexico, if tunas are included in either the MFCMA or EEZ. Presently, Canada and Japan jointly have approximately one half of the Atlantic bluefin tuna quota. Furthermore, the International Convention for the Conservation of Atlantic Tuna instituted a prohibition on a directed fishery in the Gulf of Mexico.

One final domestic issue that may be addressed relates to oil and gas exploration with an EEZ and potential impacts on the fisheries. Oil and gas drilling and production activities have a long history in the Gulf. No changes in oil and gas exploration are anticipated because of establishment of the EEZ. However, if for some



unanticipated reason oil and gas activities were to expand as a result of the EEZ, the overall impact would most likely be beneficial. The recreational sector probably would be benefitted through the construction of additional offshore platforms which serve as artificial reefs. In addition, recent studies of port and associated marine service facilities indicate expansion of offshore drilling would not negatively affect onshore fishing support facilities.

## **INTERNATIONAL ISSUES**

Collecting rents or fees from foreign fishermen as a result of sovereign rights acquired through the establishment of an EEZ status is probably not an issue in the Gulf of Mexico. Currently there is no legal foreign fishing taking place in the Gulf and historically only a minor amount has been done, principally by the Cubans and the Japanese. Furthermore, there does not appear to be much potential for developing foreign fisheries in the Gulf EEZ mainly because of the limited amounts of surplus stocks available. Royal red shrimp is one resource where a surplus exists. There may be a potential for foreign fishing for squid and herrings, however, their stock conditions are still in question. There is a surplus of some groundfish species. However, to be profitable, these species would need to be fished with trawlers. The possibility of catching shrimp as a by catch in the fish trawls, however, would require severe restrictions to be placed on the potential fishery because the shrimp resource is considered to be fully utilized in the Gulf of Mexico.

The EEZ, like the MFCMA, probably has its greatest impact on Gulf fisheries through similar actions imposed by Mexico and other neighboring South American countries. Historically, Gulf of Mexico fishermen have fished extensively in foreign waters primarily for shrimp, grouper and red snappers. Most of these fisheries have been placed off limits to Gulf fishermen since 1976. Negotiations are presently underway to regain some fishing rights in Mexican waters. The establishment of a U.S. EEZ in the Gulf itself probably will not affect the negotiations. However, the fact that the U.S. chooses to independently establish an EEZ, rather than through the Law of the Sea Convention, may have a negative impact on the negotiations. There are some who feel that the U.S. position does not promote the best of international cooperation in the management of fishery resources.

The establishment of EEZs by other nations may affect Gulf of Mexico fisheries in still another indirect way. Elimination of fishing grounds for countries who have traditionally fished off the coasts of other nations may result in increased international competition for fishery products if the efficient fleets of foreign countries are replaced with less productive fleets of the home country. World supplies would then be reduced and prices would be increased. Spiny lobster and shrimp are two important Gulf of Mexico products that likely would be affected because of their importance in international trade. These are high-valued species which are sought by both Japan and the U.S. Increased prices for these products would encourage further entry into these fisheries which are already severely overcapitalized in the Gulf of Mexico.

## Discussion

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**McManus:** I was confused by what you said about the purse seine fishery. I thought you said Florida stopped that. As I recall, Florida failed to stop it.

**Prochaska:** We have purse seine fishery for bait type fish and stuff. I was referring specifically to mackerel for the allocations and that I do not believe has happened. I remember trying to economically engineer some numbers for a fishery that did not exist — could not completely exist for a year or two.

**McManus:** Well, all right, but that was the first case that led to litigation. When last I looked, Florida had lost. I do not think that the purse seiners took the quota, isn't that right Bill?

**Gordon:** No, I do not believe they took the quota, but I do not think it had anything to do with litigation. The answer to the question, Bob, is Florida did not stop it because it is still in court.

**Prochaska:** I think the point is even if it is delayed for three years there is a lot of time the resource is needlessly directed in one direction or the other. Eventually probably everything will get some type of agreement if not a resolution.

**Allen:** My question relates to this rational approach of people in the industry and I think of the shrimp fleet as being relatively highly organized as a fair number of fleets, but I do not have a real good feel for what percentage of the boats belong to fleet owners versus independent owner operators and I wonder of the expansion that you talked about from the six thousand boats to the ten thousand, is there any way of knowing what proportion of that is increases in fleet operations versus independent boat and whether the fleet operators look at the resource and the number of boats and are making rational judgments on putting capital into the fleet?

**Prochaska:** I cannot give you that number, in fact we would really have to do a lot of predicting and guesstimating to get the numbers in the last couple of years just in total. I do not have the breakdown in respect to fleets, but there are fleets in there. I would say our biggest fleets are based in Florida, but fishing in Guyana or somewhere like that.

**Gordon:** Just to answer that question, I think the fleet owners that operated in U.S. waters by-and-large have vested themselves with some of that, but I would say there is more private ownership than there is fleet ownership.

## *New England*

### **DOUGLAS G. MARSHALL**

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I agree with Bill Gordon that there are a number of things right with respect to fishery management and the use of the resource under the EEZ. I think that the Magnuson Fishery Conservation and Management Act (MFCMA) was a piece of landmark legislation. It may have been a little bit late as a matter of fact. I thought for a long time before passage of the act that the Law of the Sea negotiations were not really going anywhere very fast and that there would not be much real loss if we were to go ahead and extend our own jurisdiction. Of course, at that time, I worked for the Federal Government so I did not say those things. We toed the party line very carefully in the State Department, but there was a lot of sentiment within the department for extending jurisdiction unilaterally, particularly on the part of people who were involved in fisheries management. I think many of us were quite pleased when that did happen.

We did not take a position as a council, the New England Council, with respect to the President's proclamation of an exclusive economic zone. We were never asked to. The Council did, however, endorse the President's decision not to sign the Law of the Sea Treaty. I think that action indicates that if the declaration had been put to a vote the Council would have generously supported the President's decision to declare an EEZ. Quite frankly, there is not much difference in what happens with respect to fisheries in the New England area under MFCMA or under EEZ. There was some legislation proposed prior to the declaration — one bill in the House and one in Senate. The one on the House side (and the other as

well) would have made some changes in the MFCMA that were perhaps significant. One made it explicit that the U.S. did not necessarily have to allocate surplus fish to foreign countries. It would have been discretionary depending on other considerations. I think that already happens in fact. That provision would have been just a more explicit statement of that right. The other thing that the proposed legislation would have done was specifically to ban the extraction of economic rents from U.S. harvesters of the resource. I think that would also get support from the New England Council if it ever came to a vote.

## **ISSUES NOT CONFLICTS**

There are a number of things that I think are issues. I do not choose to call them conflicts although at times I think some of them are elevated to the level of conflicts. Generally speaking, I just think of them as issues that we talk about from time to time although the Council and the Federal Government and the fishing industry, in their various roles, address each other sometimes with words of considerable acrimony. I do not think these issues themselves are handled much differently with an EEZ than they were under the MFCMA. My perception of what these issues are can be summarized and I think they do not come out very much different from Bob McManus' description of what he sees as conflicts. In a sense they very much boil down to user groups conflicts. I think Jim Crutchfield's list, which is more explicit perhaps than my own, again is essentially the same kind of thing. It is walking around the elephant and looking at it from different angles and maybe we each describe it a little differently but the fundamental beast is pretty much the same.

There are domestic and jurisdictional issues involved. Primarily those between state governments and the Federal Government and the council system dealing with issues in the FCZ. Some of the issues have been very serious and certain cases Bill alluded to earlier. The herring fisheries where we had a plan was not working very well. The National Marine Fisheries Service (NMFS) essentially killed the plan by simply withdrawing all the regulations that related to it. The plan may still be on paper — I do not think anything has been formally done to remove the plan. But there are no regulations connected with the plan and, effectively, the fishery is an unregulated fishery.

Some other things that Bill mentioned: the Fisheries Service has strengthened its role in habitat protection in coordination with the states and the Councils. I do not personally feel that the habitat issue has very much to do with the Council. The Councils deal essentially with issues beyond three miles, while the habitat issues are much more an item of coastal degradation and wetland preservation that is properly dealt with between the Federal Government and state government. I do not have any problem with NMFS and the states working out something. But I do not feel the Council should really have been involved or had anything to do with this whole exercise. We are scheduled to hear a presentation at our next Council meeting by our acting Regional Director on what the new NMFS habitat policy is and how it is going to be handled. I think everybody will be very polite and listen, however, I do not think it is going to make a nickel's worth of difference in anything the Council has done or will do in the next five years except that it gets to another point I will stress a little later. It increases the paper work and it increases the complexity of the review and perhaps, to that extent, it is detrimental to the whole process.

## **PHILOSOPHICAL DIFFERENCES**

There are some other issues that I would mention. One of them is a very important one and it is almost central to all the discussions that have taken place about fisheries for the past several years. It is the question that Dick Hennemuth sort of hinted at earlier when he was asking questions of Jim Crutchfield, and that is the issue of basic, fundamental philosophical differences in approach as to how you go about handling fishery resources and particularly how you go about "managing fisheries." We all know that there is not a lot you can do with fish in the ocean in terms of management. When we talk about management what we really are talking about is regulating the harvesting of fish. I think Mr. Hennemuth put his finger on it in that there really are great differences of approach and outlook on these issues between the west coast and the east coast. Even on the east coast there are some substantial differences of opinion as to how certain things should be done.

The New England Council has traditionally had a "Yankee" attitude that people are best left alone to the extent that you can do that without letting the whole thing go to hell. I think that is reflected in the development of management plans that our Council has done over the past four or five years. It is equally evident

in the big plan that we are currently engaged in which we call variously the Atlantic Demersal Finfish Plan or the Mixed Trawl Plan. As a plan, as it is developing now, it is so broad in scope that we may regulate shrimp fishing in the FCZ, if you want to call shrimp a demersal finfish. Before we are through, not just for the sake of shrimp, we will possibly require separator trawls that will weed out small juvenile fish of other commercially valuable species. We are building a plan that is going to have a lot of leeway in it. However, the main thrust of the plan is: "Don't mess around with the people anymore than we have to to allow the fish to continue to reproduce in quantities that provide some hope of viable fishing activities."

And in respect to this I think it is very interesting that Mr. Hunt yesterday described environmentalists as "not necessarily people who are no-growth in attitude but who are people who are essentially no-risk in attitude." I think that is another fundamental difference. A lot of people who have studied fisheries tend to think in terms of minimizing risks to the resource and to the participants in the industry. On the other hand, I think that most of the people who are involved in fisheries are sort of like a lot of other people in the business world, they are innately risk takers. They do not mind putting their savings and all the money they can borrow on the line and going out and taking chances. There is a fundamental dichotomy between people who study fish and people who catch fish. I think it is well for groups like this who are essentially fish or industry studiers, if you will, to keep that in mind.

## **USER GROUP CONFLICTS**

Another issue that I think we have always had is user group conflicts. Specifically, in our own New England area, conflicts due to different gear types. The New England and the mid-Atlantic Councils were working, before I left the government and came to New England to work for the Fishery Management Council, on a set of gear conflict regulations. They have been at it for nearly six years now. When we started out in the exercise I used to go to the mid-Atlantic Council meetings as the State Department representative on the Council. We thought we were going to solve all the problems. We developed a very elaborate system of marking gear and some setting patterns that were going to be prescribed. We designed a whole set of rules that would have penalized people for molesting other people's gear, for not setting properly, not

marking properly, and so on. The National Marine Fishery Service rejected several versions or drafts of those regulations for a variety of reasons. It allowed us, to curse NMFS, as we frequently do, for being obstructionists and not letting us get on with what we wanted to do. In retrospect, we should have sent them all a bouquet of roses because I think that some of the things we were trying to do in those days probably would not have worked.

The New England Council grew very impatient with the lack of progress in gear conflict regulations and some of our Council members felt that the mid-Atlantic Council was dragging its feet. So, we set about to simplify the whole process a bit and to address what we think is immediately addressable. We are going to amend the lobster plan to require lobster pots and gear to be marked in certain ways and end buoys on each end of lobster trawls to be marked in ways that will identify a particular buoy as marking the eastern end or the western end of the trawl. If someone comes along with a dragger or purse seiner or whatever, he will then know which side of the buoy he can go on safely without tearing up the lobster gear. We hope to be able to set out, for information only, some setting patterns by areas, describing generally what people do in a particular area when setting out lobster trawls. Saying whether they go along the contour at the fathom lines on the map or go east and west or in circles, or north and south and so on. Others might keep this in mind and maybe miss some of the gear. There would be no penalty involved for not following the general patterns but following of them would lessen the chance of losing gear.

I do not know how this amendment is going to come out since it has not gone through the Council yet. It is, though, the course we are presently taking. It is a much simpler course than the one we started out with. I think that the chances are that it will not solve all the problems but that it will lessen some problems.

## **REMAINING ISSUES**

We still have some foreign fishing problems. We think we have serious problems of enforcement of regulations. I still think there are problems in terms of the checks and balances. Mr. Gordon says we should not tinker with the MFCMA any more. Most of the tinkering with the Act is because of dissatisfaction with the way the system has worked in terms of checks between the Council and the Federal Government. I am not sure that the thing is over. Dissatisfaction continues to exist.



Finally, let me say that the New England Fishery Management Council is on record, and this is a decision that has been reaffirmed since the original decision was made, favoring the inclusion of Atlantic bluefin tuna into the MFCMA. We left out the west coast tuna deliberately as a gesture of good will for the San Diego tuna seiners. There is a considered opinion on our side of the country that there really are lots of similarities between swordfish and other billfish and tuna. We concede that eventually you cannot manage any of these fisheries without a lot of international coordination and cooperation. But we also believe that you can have that cooperation with coastal state control and jurisdiction over those animals while they are in our FCZ or our EEZ as the case may be. So we say let's have some international treaties or arrangements to manage these fish, but in the meantime let's get them under our control. On our coast it is primarily a matter of bringing the Japanese longliners under control and of allowing for the development of the U.S. tuna fishery perhaps in the Gulf.

## *Tuna Fishermen*

### **AUGUST FELANDO**

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### **INTRODUCTION**

Eighty years ago, the Canned Tuna Industry of the United States was born in San Pedro, California. Today, the United States remains as the World's first market for canned tuna. Over 50 percent of the tuna that is landed by the international tuna fleets for canning purposes is consumed in the United States. Most of such tuna is caught in the Pacific Basin. U.S. flag tuna vessels are engaged in the tropical tuna (yellowfin, skipjack and bigeye) fishery of the Eastern Pacific, the albacore and bluefin fisheries of the North Pacific, and in the tropical tuna fishery of the Central and Western Pacific. The growth in this latter fishery has developed in a substantial and dynamic fashion in the past two years, thereby creating much interest and speculation about the future development of the

tuna resources found in the tropical waters of the southwest portion of the Pacific Basin.\* To date, U.S. tuna seiners have transhipped catches via refrigerated containers from Guam, Hawaii, Tinian (Northern Mariana Islands) and American Samoa. Albacore tuna vessels have transhipped their catches from Midway and landed directly in Honolulu, Hawaii. U.S. canners have plants located in American Samoa, Hawaii and California.

Clearly, the tuna resources of the Pacific Basin are of primary importance to the supply of both frozen and canned tuna to the United States market. Tuna caught in the Pacific Ocean accounted for 99% of the landings by U.S. tuna fishermen in 1982. Thus far in 1983, the catch attributed to waters west of 150 degrees west longitude account for most of the landings of U.S. fishermen for the first time in the history of tuna fishing by U.S. vessels. In 1982, over 95% of the imported canned tuna entering the United States came from Pacific Basin States, namely, the Philippines (36%), Thailand (24%), Japan (24%) and Taiwan (11%). For the first quarter of 1983, imports of canned tuna from such countries have doubled the total for the same period in 1982.

The following review is concerned with certain legal aspects and activities concerning the U.S. Tuna Industry in the Pacific Basin, with particular emphasis on the activities of the U.S. Tuna Purse Seine Fleet.

## **REGIONAL LICENSING AGREEMENT FOR FISHING TUNA: THE PACIFIC WAY**

### ***Introduction***

On February 24, 1983, an agreement was initialed by the representative of the Republic of Kiribati, signed by the representative of the Micronesian Maritime Authority of the Federated States of Micronesia, the Palau Maritime Authority of the Republic of Palau and the American Tunaboat Association (ATA). On May 6, 1983, such agreement was ratified by the Legislature of the Republic of Palau, so as to bring such agreement into full force and effect for the period 1 January 1983 to 31 December 1984.<sup>1</sup> Ratification by the Government of the Republic of Kiribati was completed on 21 March 1983.<sup>2</sup> Authority to execute the Agreement had been previously granted to Chairman Sassao Gouland of the Micronesian Maritime Authority.

In the press release, prepared and distributed after the signing ceremony by representatives of the Republic of Kiribati, the Micronesian Maritime Authority and the Palau Maritime Authority, the following characterization of the agreement was offered:

"...This agreement represents a milestone in the path of fisheries development within the Pacific Region as it demonstrates the willingness of coastal States within that region to further the growth of a regional approach to access arrangements. The agreement also shows the will of the American Tunaboat Association to develop a sound relationship with coastal States in the region within whose zone their vessels fish."

At present, this agreement exists as the only operational regional licensing arrangement for fishing tuna in the world. During the period July 1, 1980 to December 31, 1982, a regional licensing agreement for fishing was operative between the ATA and the Maritime Authorities of Micronesia.<sup>3</sup> On March 17, 1982, at Port Moresby, Papua New Guinea (PNG), an arrangement was negotiated and signed by the President of ATA and the PNG Minister for Primary Industry. Such an interim licensing program was negotiated by PNG government officials "having regard to the terms and conditions of access which are presently afforded to member vessels (of the ATA) under the ATA-Micronesian Licensing Agreement...(PNG) will explore with the other parties to the Nauru Agreement, the possibility of establishing a regional licensing system under uniform terms and conditions for governing the fisheries covered by this arrangement." Such "arrangement" entered into force on March 17, 1982 and terminated December 31, 1982.

Representatives of the Government of PNG attended a pre-negotiation meeting with representatives of the Republic of Kiribati, the Micronesian Maritime Authority and the Palau Maritime Authority at Honolulu during the week of November 21, 1982, however, they left Honolulu on November 27, 1982. The first negotiating session with the ATA commenced on November 29, 1982 and ended on December 8, 1982 without the attendance of PNG Government Officials.

The above review identifies all understandings reached by the ATA in its dealings with South Pacific countries regarding access to tuna fishing grounds. The following review will be limited to an explanation of significant provisions in the existing agreement between the ATA and the Republic of Kiribati, the Micronesian Maritime Authority, and the Palau Maritime Authority (hereinafter

referred to as "KMP"). Reference to previously terminated agreements will be made only for comparison purposes.

### **Agreement Area**

Unlike the agreement between ATA and the Micronesian Maritime Authorities (1980-1982), the agreement between ATA and KMP is not limited to Republics of the Trust Territory of the Pacific Islands. The Republic of the Marshall Islands is not a party, nor is the Commonwealth of the Northern Mariana Islands.<sup>4</sup>

The geographic area covered by the agreement is referred to as the "Zones." For instance, within one (1) zone, closed areas of fishing include a three (3) nautical mile band of water around all islands and reefs, a twelve (12) nautical mile band of water from baselines of a certain island group, and a fifty (50) nautical mile band of water drawn from a baseline that represents the entrance of a port. However, in the last instance, fishing would be permitted on a case-by-case basis. In total, there are twelve (12) large zones, and within three zones, there exist seven (7) smaller zones. From the western edge of the "Zones" (Agreement Area) to the eastern edge, the distance is over 5,000 miles. It is estimated that the "Zones" cover over three (3) million square miles. The Republic of Kiribati itself claims a 200 mile fishery zone of about 1,015,000 square miles, the Republic of Palau has a claim of about 176,744 square miles, and the Republic of the Federated States of Micronesia claim about 856,609 square miles.<sup>5</sup>

The purpose of the "multiplicity of zones" within the region covered by the agreement may be differently explained by the parties. The ATA has the view that such an arrangement was clearly created to prevent any country party to claim that the fee payment formula represents a charge only for the right to fish for tuna within its 200 mile zone of jurisdiction.

### **Administration of Agreement**

The country parties to the Agreement agreed to having one party nation the administrating authority on their behalf, and if a change should occur, they would have the duty to notify the ATA.<sup>6</sup> At present, the administering authority for the agreement is the Micronesian Maritime Authority. Such administrator is under a duty to provide the ATA copies of all changes in applicable laws and regulations within 30 days of the effective date of such changes. Further duties of the Administrator include the following:

1. To review applications for Certificates of Access and to issue such Certificates in a prompt manner;
2. To forward all Certificate of Access numbers to the ATA after establishing the qualifications of the applicant;
3. To review all fees transmitted by the ATA, and to maintain and distribute records, data and other information forwarded by the ATA.

The parties sought by their agreement to reduce administration and related burdens to a minimum. In fact, with the means of communication now available through Telex and Satellite, there exists very little complexity and moderate costs regarding the administration of the Agreement.

### ***The Certificate of Access***

The fee payment for the Certificate of Access is based upon the net registered tonnage of the vessel as recorded in the Ship's Document. The certificate is valid for one calendar year regardless of when the certificate is issued during such year.

Thus, a country party may receive funds under the agreement from vessels that do not fish within its claimed fishery zone. Its actual share of the fees received under the agreement with the ATA is based upon its agreement with the other two countries. The ATA believes that the share arrangement between the parties distributes the proceeds (after deducting administrative costs) in proportion to the amount of tuna taken within a country's 200 mile fishery zone during a calendar year. In a given year, therefore, a country party may benefit greatly by the availability and presence of tunas off its coast. If the tunas are not abundant off the coasts of the three country parties in the second year but are captured in other ocean areas covered by the Agreement, the country parties still benefit under the agreement even though minimal amounts of tuna are caught off their coasts. Unlike a bilateral arrangement, the country parties are involved in a system that reduces the risk factor in obtaining fee income derived from ATA member vessels.

One duty of the ATA member vessel is to report the location of its catch by recording the latitude and longitude coordinates by degrees. The ATA then forwards such information to the Administrator if recorded as caught within the "Zones" or the geographical area covered by the agreement. Such arrangement places little or no stress on the captain of the ATA member vessel to identify successful fishing locations in a particular area in the "Zones", since he knows that his data for that location is summarized

along with the data provided by other ATA members. ATA believes that this procedure creates a high confidence in the integrity and reliability of the data provided, since there exists no incentive for a captain of an ATA member vessel to falsify his fishing location and catch data. It is immaterial to the ATA member vessel how the catch and location data is used to determine the distribution of the fee income among the country parties to the agreement. His only concern is that his individual catch and fishing location data be held in confidence. The agreement establishes such policy of confidentiality.

### ***Collection of Catch and Effort Data***

The ATA is obligated to transmit a detailed catch and effort data report to the administrator three times a year as well as a final calendar year report. In addition, consultations will be held between the ATA Scientific Consultant and representatives of the country parties on a semiannual basis for the purpose of reviewing the data collected so as to improve the data collection and reporting program. A logbook must be maintained by each ATA member vessel, and it is subject to inspection by authorized officials of the party states.

To a great extent the program for the collection and recording of the catch and effort data in the Ship's Logbook is based upon the system established by the Inter-American Tropical Tuna Commission (IATTC). Therefore, such task is one that is familiar to the captains of ATA vessels. The ATA Scientific Consultant was selected because of its excellent scientific reputation, familiarity and experience with the ATA member vessels and their crews, and because they employ biologists trained under the IATTC system.

### ***Other Provisions in the Agreement***

The agreement ensures that fishing by ATA member vessels does not disrupt traditional and locally-based fisheries, and that such vessels utilize designated ports within the "Zones" in accordance with the local rules and regulations. With respect to Palau and the Federated States of Micronesia, an application for a Certificate of Access is also considered an application for a multiple entry port permit. The Republic of Kiribati has designated two ports of entry and has provided information on the rules of entry for ATA member vessels.

The agreement also requires the ATA member vessels to have certain insurance coverages, e.g., oil pollution liability insurance.

Subject to approval by the parties to the agreement, other countries may become party. In the event a new entrant is approved, then the provisions of the agreement dealing with the fee for Certificates of Access and the description of the "Zones" are to be renegotiated. It is also agreed by the parties that in the event of "substantial improvement in the market situation for the first year of the agreement," the parties would conduct a "correctional review of the fee schedule for the purpose of increasing the second year fee to reflect such improvement."

### **LEGAL ASPECTS OF FISHERIES DEVELOPMENT IN THE PACIFIC BASIN: FEDERAL STATUTES APPLICABLE TO THE U.S. TUNA FLEET**

The following review is intended only to identify and explain those federal statutes that impact the development of the U.S. Tuna Fishery in the Pacific Basin.

The Fishermen's Protective Act of 1967, as amended, prevents the total financial collapse of an owner of a U.S. flag tuna vessel that has been illegally seized by a foreign country.<sup>7</sup> The Magnuson Fishery Conservation and Management Act of 1976, as amended, declares that the tuna, as a highly migratory species, are not subject to the exclusive management authority of the United States, that the United States Government shall not recognize the claim of any foreign nation to a fishery conservation zone (or the equivalent) if it fails to recognize and accept that tuna are to be managed by applicable international fishery agreements, and that if a foreign nation is not allowing vessels of the United States to engage in fishing for tuna in accordance with an applicable international fishery agreement or illegally seizes a tuna vessel, the Secretary of Treasury must impose an embargo on all tuna and tuna products from such foreign nation.<sup>8</sup> The Nicholson Act establishes the prohibition of foreign flag vessels unloading its catch of tuna in a port of the United States.<sup>9</sup> The coastal laws (including the Jones Act) require the use of U.S. flag vessels in the transportation of passengers and cargo between two points in the United States, and have an impact on Guam as a tuna transshipment port. Such laws do not apply to American Samoa, the Northern Marianas and the Trust Territory of the Pacific Islands.<sup>10</sup>

The payment of an ad valorem duty of 50 percent on the cost of repairs, equipment, etc., in a foreign country on a tuna vessel may not apply in certain cases. Such statutory provision is helpful to tuna vessels that operate in the Pacific Basin and that do not work from a port of the United States for two years or more.<sup>11</sup> A U.S. flag tuna vessel is not considered to be engaged in foreign trade and therefore is not subject to the 50 percent duty arising under section 466 of the Tariff Act, except when such vessel exchanges its license for a registry or obtains a permit to touch and trade from U.S. Customs, or does in fact engage in foreign trade. The U.S. Customs Service has ruled that a tuna vessel which "puts into a foreign port or place and obtains bunkers, stores, or supplies suitable for a fishing voyage" is not considered to have touched and traded there. However, fish nets and netting are considered vessel equipment and not vessel supplies.<sup>12</sup>

Non resident alien crewmembers aboard foreign and domestic vessels are classified and admitted as not immigrants by the Immigration and Naturalization Service, however, such classification does not apply to alien crewmembers serving aboard a fishing vessel having its home port or operating base in the United States. Thus, any alien crewmember aboard a U.S. tuna vessel which arrives in the United States (including Guam, Puerto Rico, and Hawaii) without an immigrant visa or evidence of previous lawful admission for permanent residence, will not be permitted off the vessel while the vessel is in port. An exception to this rule arises when the entry can be clearly justified as being in the national interest.<sup>13</sup>

Departure of a vessel of the United States from a port of the United States normally requires that 75 percent of the crew, excluding licensed officers, must be citizens of the United States, however, this does not apply to fishing vessels.<sup>14</sup>

In absence of a permit issued under the Marine Mammal Protection Act of 1972, as amended, a U.S. flag tuna vessel cannot catch tuna associated with marine mammals.<sup>15</sup> At present, the general permit issued to the American Tunaboat Association has geographical limits, namely (to the Pacific Ocean area bounded by 40°N latitude, 40°S latitude, 160°W longitude, and the coastline of North, Central and South America.)<sup>16</sup> Thus, the remainder of the Pacific Ocean area is not available to U.S. flag tuna vessels for the purpose of fishing tuna associated with marine mammals.

The Tuna Conventions Act of 1950, as amended, does not apply to all of the waters of the Pacific Basin, because the Convention for the Establishment of an Inter-American Tropical Tuna Commission provides in Article II that the Commission is to perform



its investigations on the tunas and other fishes "in waters of the eastern Pacific Ocean."<sup>17</sup>

The Central, Western, and South Pacific Fisheries Development Act was enacted in 1972 for the purpose of authorizing a program for the development of tuna and other latent fisheries resources in a significant portion of the Pacific Basin.<sup>18</sup> Such law was recommended in a report prepared by the Pacific Island Development Commission (PIDC) in 1970. To date, no funds have been appropriated under the authority contained in such act. In 1974, a nonprofit Hawaiian corporation, the Pacific Tuna Development Foundation (PTDF), was created for the purpose of implementing a fisheries development program in the Central, Western and South Pacific Ocean. Funds obtained by the Secretary of Commerce under the Saltonstall-Kennedy Act,<sup>19</sup> along with matching funds from certain segments of the U.S. Tuna Industry, and from Hawaii, American Samoa, Guam, Northern Marianas, and the Trust Territory of the Pacific Island were made available to finance tuna exploration and research projects. The PTDF Board of Directors consists of an equal number from the political entities and the U.S. Tuna Industry and one member from the public-at-large who is selected by the other members.

Significantly, the Department of Commerce has never requested appropriations pursuant to the authority contained in the Central, Western and South Pacific Fisheries Development Act. Instead, the Department has financed its share of the PTDF program through the Saltonstall-Kennedy Act. Although Congress amended the Saltonstall-Kennedy Act so as to require monies obtained under such act to be allocated solely to fishery development, the competition for such funds is intense from fishery development foundations throughout the country and also from the government agencies.

There are a number of other federal statutes that impact the tuna fleet in terms of regulatory enforcement by federal agencies. Examples are as follows: Communications Act of 1934,<sup>20</sup> which treats fishing vessels as cargo vessels for purposes of implementing the Convention of Safety of Life at Sea, 1974, the Federal Water Pollution Control Act,<sup>21</sup> and the Oil Pollution Act of 1961.<sup>22</sup>

## **LEGAL ASPECTS OF FISHERY DEVELOPMENT IN THE PACIFIC BASIN: PROCLAMATIONS, TREATIES, AND STATEMENT OF UNITED STATES POLICY APPLICABLE TO THE U.S. TUNA FLEET**

The Proclamation of President Reagan of an exclusive economic zone dated March 10, 1983, neither claims nor recognizes sovereign rights over tuna. The Proclamation states:

"This Proclamation does not change existing United States policies concerning the continental shelf, marine mammals and fisheries, including highly migratory species of tuna which are not subject to United States jurisdiction and require international agreement for effective management."

The above language concerning tuna was substantially repeated in the press release statement offered by President Reagan. In the accompanying fact sheet, entitled "United States Oceans Policy," the following remarks concerned tuna:

"The President's statement makes clear that the proclamation does not change existing policies with respect to the outer continental shelf and fisheries within the U.S. zone..."

Since 1976, the United States has exercised management conservation authority over fisheries resources (with the exception of highly migratory species of tuna) within 200 nautical miles of the coasts, under the Magnuson Fishery Conservation and Management Act. The United States neither recognizes nor asserts jurisdiction over highly migratory species of tuna. Such species are managed by international agreements with concerned countries..."

On June 7, 1983, Theodore G. Kronmiller, Deputy Assistant Secretary of State for Oceans and Fisheries Affairs, before the U.S. Senate Committee on Foreign Relations, submitted a statement entitled "Exclusive Economic Zone of the United States, The Question of Sovereign Rights Relative to Tuna." In this Statement, Mr. Kronmiller explains the long-standing law, policy and practice of the United States regarding tuna:

"The rationale behind the United States approach is straightforward. Tuna are not a resident resource of the EEZ. They are only found within any EEZ temporarily and may migrate far out into the ocean waters beyond. Therefore, the coastal State does not have the ability to manage and conserve tuna, nor does it have a paramount interest in their development. Although many coastal States claim jurisdiction over tuna within 200 nautical miles, none exercise conservation and management authority through purely domestic

measures. Only through international agreements have States actually managed effectively the highly migratory tuna stocks...Accordingly, customary international law precludes the coastal State from establishing sovereign rights over tuna. In the U.S. view, this is evidenced by Article 64 of the LOS Convention, which requires cooperation between coastal States and distant water fishing nations to manage tuna, both within and outside the EEZ, on a regional basis, through an international organization. It is the view of the United States that Article 64 precludes the coastal State from establishing sovereign rights over tuna.

Therefore, the President's Proclamation of March 10, 1983, accompanying Statement and the U.S. Ocean Policy Statement demonstrates that the United States does not assert sovereign rights over tuna, and does not recognize any claim to sovereign rights over tuna by any other nation."

Clearly, President Reagan's Proclamation on the Exclusive Economic Zone has resulted in a reaffirmation of this country's policies, laws, and treaties regarding the tuna fishery. Concerns that adverse changes affecting tuna in the Fisherman's Protective Act of 1967, as amended, and in the Magnuson Fishery Conservation and Management Act of 1976, as amended, would result from such Proclamation appear totally unfounded. Necessarily, there exists reason to believe that the development of the U.S. Tuna Fishery in the Central and Western Pacific will continue in a positive and expanding manner.

## **TUNA TREATIES**

### ***Eastern Pacific Ocean Tuna Fishing Agreement***

On March 15, 1983, at San Jose, Costa Rica, representatives of the governments from Costa Rica, Panama and the United States signed a treaty entitled "Eastern Pacific Ocean Tuna Fishing Agreement." The purpose of such agreement is "to establish an interim regime for the management of fishing activities of tuna vessels in the eastern Pacific Ocean, based on a scheme for granting licenses in the region." The Agreement area involves about 4.8 million square nautical miles, of which about 40.4 percent is included within claims of 200 mile fishery or other jurisdictional zones. There are thirteen (13) coastal States that border the agreement area, namely: Chile, Peru, Ecuador, Colombia, Panama, Costa Rica, Nicaragua, El Salvador, Honduras, Guatemala, Mexico, France (Clipperton Island) and the United States. Areas within 12 miles of the coasts

and islands are excluded as well as areas within 200 miles of the baselines of coastal States not signatory to the agreement.

The Treaty will enter into force when signed and ratified by five (5) coastal States in the Region. Upon entry into force, a Council composed of the contracting parties shall implement the agreement by issuing international fishing licenses to fish tuna in the agreement area.

With respect to fees, if five (5) contracting parties are involved, the fee for the annual license is sixty dollars (\$60.00) per net registered ton (NRT) of the vessel applicant. The maximum fee is one hundred dollars (\$100.00). Vessels of less than 200 NRT may obtain a semiannual license. No licenses are required of vessels of less than 200 NRT which fish exclusively within the waters of their country. License fees are to be disbursed among the parties to the agreement in proportion to the catches of tuna within their respective 200 mile zones, less administration costs. All catch and effort data collected by the licensed vessels are to be held confidential and not to be used for any purpose except as provided in the agreement or the attached protocol.

With respect to conservation actions by the council, it was agreed that when an "urgent necessity to conserve tuna resources" is required, a duty to consult arises in the contracting parties. After the "duty to consult" arises, and if the council includes all States that fish tuna in the area on the meaningful scale in relation to conservation requirements, then the council can recommend interim conservation measures. The agreement provides that such recommendations must be "consistent with and not supersede" the treaty obligations of any contracting party. It was understood that conservation recommendations of the council would be based on studies and investigations made by the scientific staff of the Inter-American Tropical Tuna Commission (IATTC). Such Commission would be eventually replaced, along with the Eastern Pacific Ocean Tuna Fishing Agreement, when a new comprehensive Tuna Convention is eventually concluded for the eastern Pacific tuna fishery.

On June 7, 1983, Deputy Assistant Secretary of State For Oceans and Fisheries Affairs, Theodore G. Kronmiller, advised the U.S. Senate Committee on Foreign Relations in a written Statement, as follows:

"Mr. Chairman, the Agreement does not compromise the formal juridical positions of the parties. It represents an equitable balance between the interests of coastal States and distant water fishing nations. Thus, the Agreement can serve as a model for regional tuna

licensing agreements in other areas of the world. For those nations parties to it, the new Agreement will end the cycle of seizures of U.S. flag tunaboats and consequent imposition of retaliatory U.S. embargoes mandated by the Magnuson Fishery Conservation and Management Act (MFCMA)..."

In the Pacific Basin, two movements are clearly defined: (1) the private sector, identified by the agreements negotiated by the ATA with certain Pacific Island countries, moves in the direction of establishing annual fishing licenses arrangements on a regional basis, and (2) the government sector, identified by the Treaty negotiated by representatives of the governments of Costa Rica, Panama and the United States, moves in the direction of establishing a system of international licenses to fish tuna in an ocean region. It is my opinion, that the ATA and the United States Government are acting in a consistent and complementary manner and that such policies will bring about production stability at sea for the tuna fishermen, regardless of nationality, and market stability for the processors and consumers of tuna products of all nations.

### ***Other Treaties***

The United Nations Law of the Sea Convention must be involved in any discussion about the U.S. Tuna Fishery of the Pacific Basin. In the view of the United States, Article 64 of such Convention requires cooperation and participation by the coastal States and States fishing tuna in a region to conserve and manage such resource through an international organization. Thus, the United States has declared "that Article 64 precludes the coastal State from establishing sovereign rights over tuna."<sup>23</sup> Nevertheless, the debate and controversy about the meaning of Article 64 is of continuing interest.<sup>24</sup>

The ATA takes the following position on Article 64: That it is the basic provision governing the conservation and management of tuna and other highly migratory species both within and beyond the exclusive economic zone. As such, it qualifies the other articles dealing with living resources in general. That this conclusion is supported by (1) recognized principles of textual interpretation; (2) the necessity for a special approach in order to realize the convention's underlying objectives of sound conservation and management; (3) a review of the history of negotiations concerning such article, noting the events about the deliberate transfer of the cross reference to the other fisheries articles from the first to the second

paragraph of Article 64; and (4) the uncontroverted record that special treatment for tuna was, for certain specially affected States, a condition for agreement on fisheries issues in general. Of significance further, is the "legislative history" concerning Annex I to the convention. Thus, ATA takes the position that a coastal State may not rely on its general powers in the exclusive economic zone to regulate tuna fishing without regard to its obligations under Article 64. With respect to regions where tuna fishing is conducted by the coastal States and other States, "they shall cooperate directly or through appropriate international organizations with a view to ensuring conservation and promoting the objective of optimum utilization of such species throughout the region." Such duty clearly includes the active participation of such countries in the work of such organization. This obligation is expressly declared by Article 64 in the case of regions where no appropriate international organization exists, when it provides that "the coastal State and other State whose nationals harvest these species in the region shall cooperate to establish such an organization and participate in its work." We further take the position that under recognized principles of good faith set forth in Article 300, these obligations necessarily include the duty to seek in good faith to manage tuna in accordance with the objectives of Article 64 in cooperation with other States concerned pending the establishment of a regional organization as required by Article 64.

Other treaties of importance to the U.S. tuna fishery in the world oceans include the International Convention for the Conservation of Atlantic Tunas, May 14, 1966;<sup>25</sup> the Convention for the Establishment of an Inter-American Tropical Tuna Commission with Exchange of Notes of March 3, 1950; May 31, 1949; and the treaty between the Government of the United States of America and the Government of Canada on Pacific Coast Albacore Tuna Vessels and Port Privileges.<sup>26</sup> In May, 1983, the United States Senate consented to, and advised President Reagan to ratify the Treaties of Friendship with the Republic of Kiribati and Tuvalu, the treaty with New Zealand on the Delimitation of the Maritime Boundary between Tokelau and the United States, and the treaty between the United States and the Cook Islands of Friendship and Delimitation of the Maritime Boundary between the United States and the Cook Islands.<sup>27</sup>

## CONCLUSION

Access of tuna resources in the Pacific Basin is not just a problem for U.S. tuna fishermen, it is a difficulty facing all tuna fishermen regardless of nationality. Economic harvesting and processing of tuna products must exist to maintain consumer interest and preference, because too many other protein products exist as effective competitors. These two factors, plus the highly migratory and other biological characteristics of tuna, force logical and objective minds to accept the regional approach in solving the challenges inherent in the development, management and conservation of the tuna resources of the Pacific Basin. To reject acceptance of such an approach is to invite blind obedience to a legal jungle of competing national interpretations of sovereignty in the oceans and to stimulate conflicts between sovereigns and their citizens. Such a future is contrary to the expectancy and promise of the Pacific way.

## NOTES

- \* **SPECIAL NOTE:** During the 14th Regional Technical Meeting on Fisheries, South Pacific Commission, held at Noumea, New Caledonia, 2-6 August 1982, it was reported that the standing stock of skipjack in one area of the South Pacific was 3.1 million tons. In 1981, the World's commercial catch of tuna was estimated as 2 million tons, of which 1.3 million tons was used for canned tuna. A Skipjack Survey and Assessment Program conducted by the South Pacific Commission released more than 140,000 tagged skipjack during the period October 1977 and August 1980. Attached are copies of Commission Charts indicating the movement of tagged skipjack from the point of release to the point of recapture. See: Skipjack Survey and Assessment Programme Technical Report No. 6, South Pacific Commission, Noumea, New Caledonia, July 1981.
- 1. Senate Joint Resolution No. 211, adopted by the Senate and House of Delegates, First Olbiil. Era Kelulau, Tenth Regular Session, 1983 (Palau National Congress, Republic of Palau).
- 2. Letter from Anote Tong, Secretary for National Resource Development to the American Tunaboat Association dated 29 March 1983.
- 3. On 5 September 1980, the Agreement was initialed by representatives of the Palau Maritime Authority and the Micronesian

- Maritime Authority and signed by the President of the ATA. Ratification of the Agreement by the legislature of Palau occurred on 5 December 1980, and by the Congress of the Federated States of Micronesia on 29 October 1980. The Agreement was signed by a representative of the Marshall Islands Maritime Authority on 24 February 1981. In September 1981, the term of the Agreement was extended by the parties another six months, beginning 1 July 1982 and ending 31 December 1982.
4. See: GAO Report, "The Challenge of Enhancing Micronesian Self-Sufficiency," GAO/ID-83-1, 25 January 1983.
  5. According to a study by the Geographer, Department of State, a 200 Nautical Mile Limit allocation to all independent coastal States in the World would come to 24,632,400 square Nautical Miles (SNM). The average allocation to a coastal State would be 208,100 SNM, and the mean allocation would be 61,900 SNM. International Boundary Study, Series A, Limits in the Seas No. 46 "Theoretical Aerial Allocations of Seabed to Coastal States Based on Certain U.S. Seabeds Committee Proposals," The Geographer, Department of State. 12 August 1972.
  6. A separate Agreement entitled "An Agreement Among Coastal States Regarding a Fishery Access Agreement with the American Tunaboat Association" was executed by the three country parties on 24 February 1983. This Agreement sets forth details on how the three countries are to administer and distribute the funds received under the Agreement with the ATA.
  7. 22 U.S.C. 1971, *et seq.*
  8. 16 U.S.C. 1801, *et seq.*
  9. 46 U.S.C. 251, *et seq.*
  10. 46 U.S.C. 13, 289, 316, 808, 877, 833, 883-1, 883a, 1156, 1175(a) and 1223(a); 48 U.S.C. 1664; 48 U.S.C. 1681.
  11. 19 U.S.C. 1466.
  12. Federal Register, January 17, 1977 (42 FR 3160). Also see: 19 U.S.C. 66, 1466, 1624, 46 U.S.C. 310. "When a fishing vessel departs from the United States and there is an intent to stop at a foreign port (1) to lade vessel equipment which was pre-ordered, (2) to purchase and lade vessel equipment, or (3) to purchase and lade vessel equipment to replace existing vessel equipment, the Master permit to touch and trade, whether or not the vessel will engage in fishing on that voyage. Purchases of such equipment, whether intended at the time of departure or not, are subject to declaration, entry and payment of duty pursuant to section 466 of the Tariff Act of 1930, as amended (19



U.S.C. 1466). The duty may be remitted if it is established that the purchases resulted from stress of weather or other casualty."

13. 8 U.S.C. 1101(a)(15)(D); 8 U.S.C. 1281-1287.
14. 46 U.S.C. 672a, 690. See also: 46 U.S.C. 1221, which provides that a vessel cannot have the status of a "vessel of the United States" unless (a) "it is commanded by a citizen of the United States," and (b) all the officers (chief engineer and each assistant engineer) in charge of a watch are U.S. citizens. Such fact is critical in a claim under the Fishermen's Protective Act of 1967, as amended. Also see: 10 U.S.C. 6019; 46 U.S.C. 1132. With respect to manning laws applicable to fishing laws over 200 gross tons, see 46 U.S.C. 224A.
15. 16 U.S.C. 1361-1407. Also see: Federal Register, Vol. 45, No. 213, Friday, 31 October 1980.
16. Federal Register, Vol. 45, No. 237, Monday, 8 December 1980.
17. 1 UST 230; TIAS 2044; 16 U.S.C. 951, *et seq.*
18. 16 U.S.C. 758e.
19. 15 U.S.C. 713c-2, *et seq.*
20. 47 U.S.C. 151, *et seq.*
21. 33 U.S.C. 1251, *et seq.*
22. 33 U.S.C. 1001, *et seq.*
23. Statement of Theodore G. Kronmiller, 7 June 1983, U.S. Senate Committee on Foreign Relations.
24. Van Dyke and Heftel, *Tuna Management in the Pacific: An Analysis of the South Pacific Forum Fisheries Agency*, 3 University of Hawaii Law Review 1 (1981); Phillips, *The Economic Resources Zone and the Southwest Pacific*, 16 The International Lawyer 265 (1982).
25. 20 UST 2887; TIAS 6767, See: Atlantic Tunas Convention Act of 1975, 16 U.S.C. 971, *et seq.*
26. TIAS 10057, Entry into force, 29 July 1981.
27. Congressional Record, 21 June 1983, S8797-8814.



## PART FIVE

# Exploiting the Non-Living Resources of the Exclusive Economic Zone

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This session focuses on non-living resources. Needless to say, substantial oil and gas production currently takes place within the Exclusive Economic Zone (EEZ). With anticipated increases in technology, we can expect to see considerably more oil and gas production from the EEZ and notably more activity in deeper waters and harsher environments, such as off Alaska and particularly in the Arctic, unless oil prices collapse.

Although oil and gas production in federal waters has a long history and a clear future, no hard minerals are being exploited within the EEZ at the present time, with the possible exception of sand and gravel in a couple of areas. However, the President's Proclamation has refocused interest on the feasibility of developing hard minerals within the EEZ. Associated with any attempt to gain an appreciation of the potential for hard minerals is the need to understand the geology — what is out there, where is it? — and the technology — are we technologically capable of exploiting identified hard mineral ocean deposits? Obviously economic factors are an additional key consideration since if ocean mining does not pay, industry will not do it, and if industry is not interested, the question arises: Is it worth talking about very much?

Overlying all of the above factors are a variety of policy issues. In the event that we proceed with hard minerals exploitation, what kinds of environmental issues can be expected to arise, and how can any environmental problems best be managed? What kinds of other marine resource conflicts could arise? How and under what terms would hard minerals be leased? These issues and others will be addressed in this session.

Thomas Grigalunas  
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## CHAPTER 19

# An Overview of Prospective Geological Resources of the Exclusive Economic Zone

**ROBERT W. ROWLAND**

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Reston, Virginia*

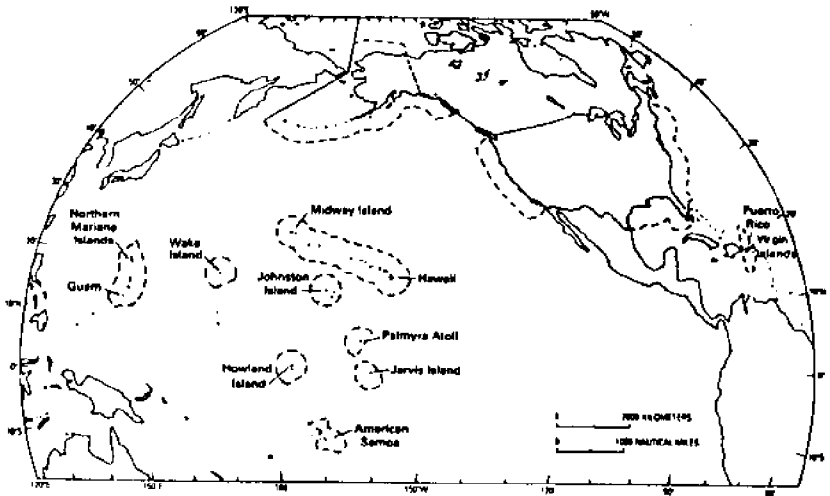
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### THE U.S. EEZ

Figure 1 is a map of the United State's exclusive economic zone (EEZ). There are more than 3.0 billion acres, since the Department of Interior still thinks in acres, in the shaded areas. This is an equal area map. Though it is a little distorted, nonetheless the EEZ is a large area especially when we remember that the dry land parts of the United States are approximately 2.3 billion acres.

In terms of resources and use conflicts (the purpose of this symposium), it is clear that there could be conflicts with other users whether those users be the military, fisheries, or transportation interests. There is another set of conflicts and that is within one interest group — those who are interested in minerals. In addition there may be bureaucratic turf fights, and no doubt conflicts will arise between government and industry in terms of the regulatory framework that is developed while working in the Outer Continental Shelf (OCS). This could be particularly true of the area where

we are looking for minerals and we do not have a fixed code or a fixed set of OCS orders as we do for ongoing oil and gas development.



**Figure 1. Exclusive Economic Zone of the United States, Commonwealth of Puerto Rico, Commonwealth of the Northern Mariana Islands, and United States overseas territories and possessions (outlines of map are approximate). Acreage now deemed within the U.S. EEZ includes: United States proper, 2.787 billion acres; Commonwealth of Northern Mariana Islands, 0.299 billion acres; territories and possessions, 0.839 billion acres.**

## **RESOURCES OF THE LOWER 48**

The map in Figure 2 shows where the potential offshore oil and gas basins are located around the contiguous United States. Depending on how one would interpret some sections of the Law of the Sea Treaty, there are areas that the United States might be

able to claim beyond 200 miles. Those are purely speculative, right now we are focusing on the 200-mile zone, but at times it is good to have a bit of vision and see what might be our options if we look a little further.

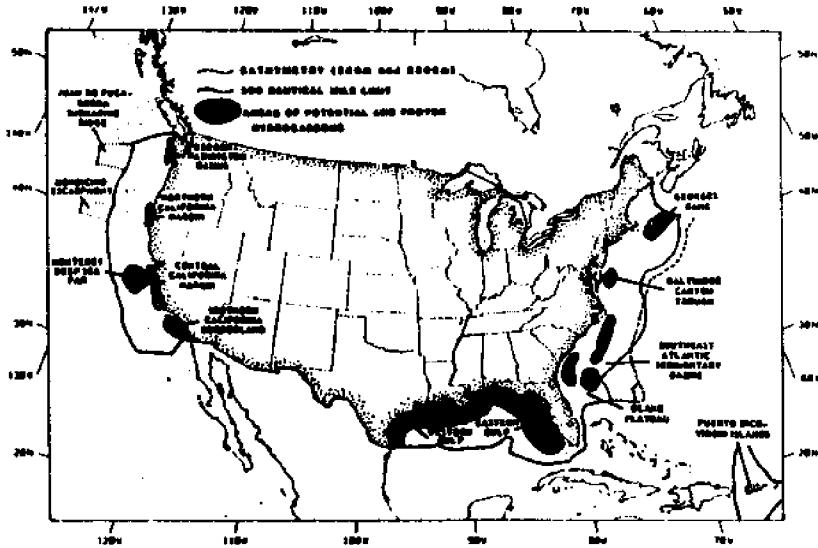


Figure 2. Location of basins with oil and gas potential within the EEZ.

The locations of identified or known hard mineral resources are in Figure 3. The main statement to make about this map is that these are only occurrences and locations. They are not presently economic, they are locations that could be of potential interest depending on the prices of minerals or sand/gravel.

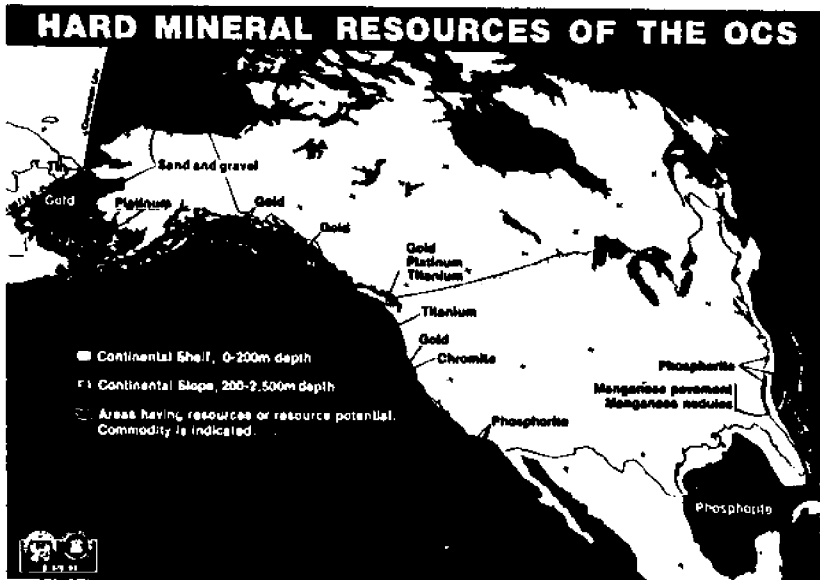


Figure 3. Hard-mineral resources contained within the U.S. EEZ include manganese, phosphorite, gold, platinum, and titanium. Many of these minerals are found in sand and gravel deposits on the continental shelf. (From Manheim and Hess, 1981.)

Another speaker, Mike Cruickshank, will talk more in detail about the Gorda Ridge off northern California and southern Oregon. But, the general scheme of things for the Gorda Ridge (Figure 4) is that there is a large heat source below and as the heat rises, seawater is sucked into adjacent areas of the sea floor and then comes up in the trough of the ridge. To find out more, the U.S. Geological Survey (USGS) and Minerals Management Service (MMS) contracted with the University of Hawaii to use their Seabeam Seafloor mapping system. The first thing we need in any research or exploration program is decent maps. Presently the data are being processed — partly in Hawaii and partly at the USGS facility in Flagstaff where they have done a lot of work from satellite data and images.



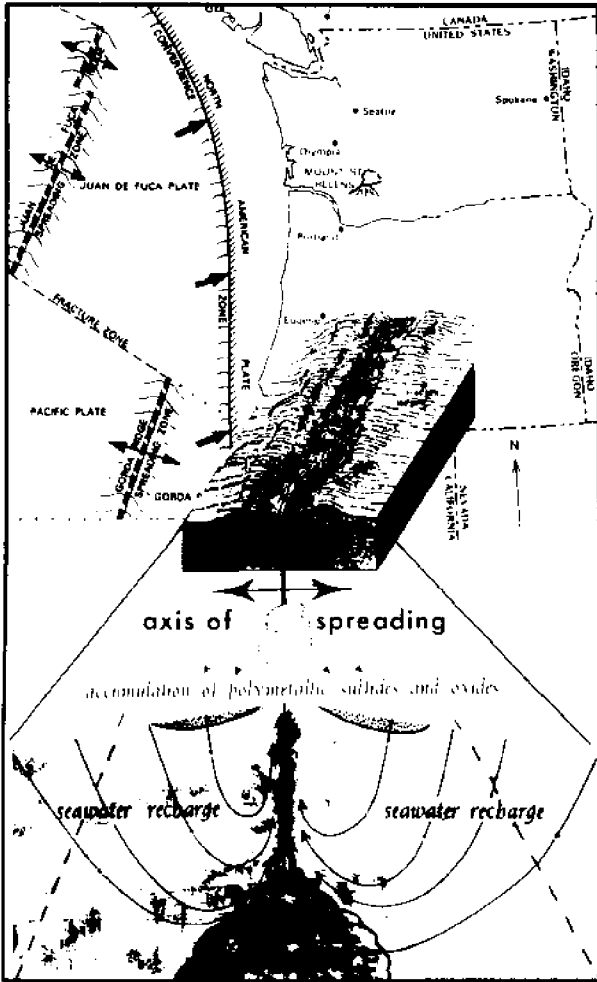
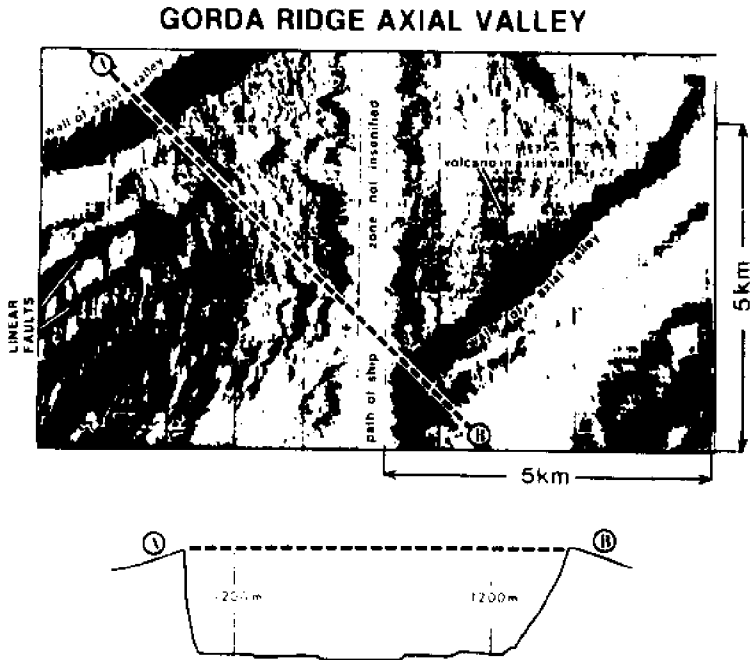


Figure 4. Polymetallic sulfide deposits form at vents along the axis of a spreading ridge (see text for explanation).

This is an unprocessed record (Figure 5), working directly below the ship, from A to B which is from one wall to the other wall. We are essentially driving down the axial valley of the Gorda Ridge.



**Figure 5. Photograph of Sea MARC II sidescan sonograph of the axial valley of the Gorda Ridge. Total width of sonograph is 10 km. Valley walls are located at upper left and lower right of photograph. A volcano is present within the axial valley.**

We are starting to learn what the sea floor looks like in this area and we have been taking surface samples. What we do not know yet, is what the deposits look like in 3-dimensions. How deep are they? Are they solid? Do they have a lot of holes and avenues by which water travels through? We tried to find that out during the summer of '83 by working with the Canadian Geological Survey using one of their seafloor drills, but we lost the under water T.V. function on the drill frame so we could not precisely place the drill on the sea floor. When we did drill we found out that there were numerous cavities within the near surface deposits.

## ALASKA PROSPECTS

Turning to Alaska, the offshore oil and gas basins are shown in Figure 6. There was some discussion earlier about the 1867 Treaty line with the USSR. It is becoming important lately because the Navarin Basin is coming up for a lease sale. From a geologic point of view, the major concern is that the basin gets thicker as you go toward the Russian line which could indicate a greater potential for hydrocarbons. So, naturally we would like to maintain as much as possible of the basin as you go in a northwesterly direction.

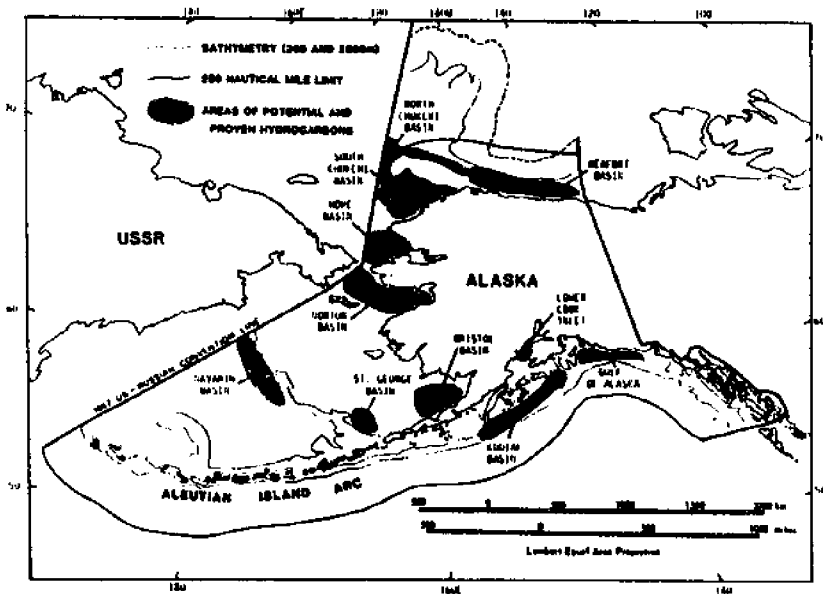


Figure 6. Location of basins with oil and gas potential within the EEZ.

## THE PACIFIC POTENTIAL

So far I have discussed the EEZ around the United States, the South 48 and Alaska. What we should not forget is that of the U.S. EEZ a portion is in the South Pacific. Let me just discuss, very quickly, some mineral appearances that are around Hawaii (Figure 7).

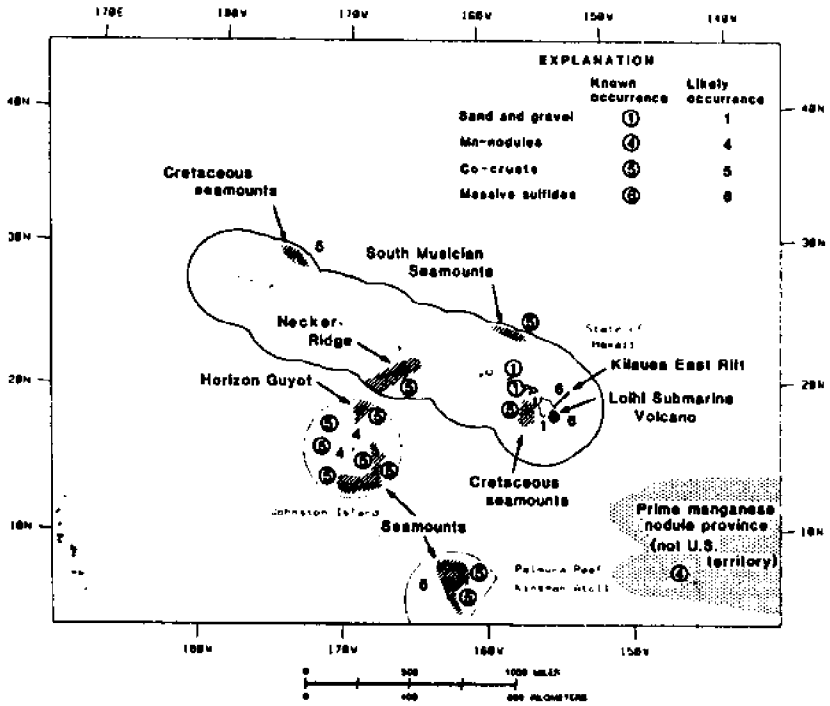


Figure 7. Mineral appearances around Hawaii.

On a trip last November to Horizon guyot we found some cobalt crusts that were in the range of 1 percent. There was a problem, however, in that the slopes were much steeper than we expected from existing maps. This is certainly a factor that must be considered when evaluating the economic aspects of any mineral find. We also worked in the area surrounding Palmyra reef and Kingman atoll. In this region we found cobalt crusts which registered 2. percent, which is well above the values that are currently being mined on land. The problem with these particular crusts — they are very thin, only in the range of a few millimeters thick.

There are other areas in the South Pacific also under consideration. Shown in Figure 1 for example, there may be cobalt within the EEZ of American Samoa but we do not have any samples at present. We have not yet done any work on Howland and Baker Islands. If there is any place in the United States submerged lands in the Western Pacific that may have a small possibility of oil and gas, there are some areas around Guam that may have thick enough sediments. To have some potential for oil and gas there should be

more than 2 or 3 kilometers of sediments. But the main interest in Guam and the Northern Mariannas is searching for massive sulfide deposits. Some of that work will probably be done in the near future in part by the Geological Survey and in part by people within the oceanographic institutes.

## **INTERIOR EEZ SYMPOSIUM**

In closing, last October the Department of Interior decided to have a symposium on the Exclusive Economic Zone's geologic resources. The symposium was attended by about 240 people. There were about 58 percent government representatives, 25 percent industry people and 17 percent academics present. The symposium lasted for three days with perspectives from leading individuals within each of these three groups. The symposium was broken down into workshops on oil and gas, or minerals. Then within each of those two areas there were three subsets. One sub-group looked at scientific research needs and resource evaluation, another group looked at technology, and the third group looked at leasing and management. Out of this came a series of recommendations:

### **A. OIL AND GAS**

#### **Panel 1A: Science-Resource Evaluation**

Recommendation 1: That within 90 days the Director of the U.S. Geological Survey form a committee composed of representatives of government, industry, and academia to evaluate the feasibility of a joint program for subsurface and evaluation of potential for resources in the EEZ.

Recommendation 2: That regional geological syntheses be undertaken by the U.S. Geological Survey and academia with the collaboration of industry in principal EEZ basins. These syntheses should include, but not be restricted to: state-of-the-art seismic-reflection data; tectonic and depositional environmental studies; geochemical studies; two-ship, wide-angle reflection studies; and high precision aeromagnetic and gravity surveys where required.

Recommendation 3: That detailed Seabeam bathymetric surveys be undertaken in selected EEZ areas.

Recommendation 4: That existing sources of data be investigated before collecting additional data. These sources include industry files, geophysical contractor files, and other agency program files.

#### **Panel 2A: Engineering-Technology Assessment**

Recommendation 1: That the Federal Government's responsibility, with assistance from academia, should be in assisting with the procurement of basic environmental data that could be provided by

unique government laboratories, satellites, data collection and processing facilities, and technical personnel.

Recommendation 2: That data be developed to better characterize in quantitative terms the baseline oceanographic and meteorological data along with Arctic data — especially in new frontier areas.

Recommendation 3: Establish focal points in government and industry with adequate levels of technical expertise to ensure a responsible and optimum information exchange.

Recommendation 4: That government commit to long-range planning by an established and dedicated government focal point that will have long-term predictability in the development of a successful, cost-effective cooperative effort with industry in the area of technical information development and exchange.

Recommendation 5: That "widely recognized" barriers to the above recommendations be removed by correcting the fragmentation of government efforts and responsibilities through a variety of competing agencies and organizations.

### **Panel 3A: Legal-Leasing**

Recommendation 1: Relative to leasing in frontier areas: (1) minimum bid should be reviewed for leases because of the large economic risks; (2) royalty rate be reviewed with consideration being given under existing regulation to defer royalty payments to enhance the economic advantage of exploration and development in high risk areas; (3) re-examine the size of lease tracts with the view towards expanding the size of leased tracts; (4) review the primary term of the lease, to extend beyond 10 years.

Recommendation 2: That MMS continue active consultation with the States in order to minimize any delays that might occur from this activity.

Recommendation 3: That the topic of confidential data be reviewed. In frontier areas, the confidentiality of data should be maintained and perhaps extended.

Recommendation 4: That the Federal Government continue to perform regional geological and environmental studies, to continue to improve our knowledge of the marine environment.

Recommendation 5: That the 5-year leasing schedule of oil and gas activities in the EEZ be maintained.

Recommendation 6: That efforts continue to communicate with the Congress concerning the adverse consequences of ad hoc leasing prohibition.

Recommendation 7: Continue area leasing on a basin-wide basis.

Recommendation 8: Continue to pursue vigorously the efforts toward regulatory reform.

Recommendation 9: Insure that the application of the best available and safest technology for drilling and completing wells in the EEZ be utilized.

## **B. HARD MINERALS**

### **Panel 1B: Science-Resource Evaluation**

Recommendation 1: That the Federal Government establish a national program to investigate the occurrence of hard minerals within the EEZ.

Recommendation 2: That topographic and geologic maps be generated of the EEZ through inventorying of existing data bases as well as carrying out reconnaissance surveys.

Recommendation 3: Conduct studies to identify areas of high probability of finding mineral deposits and carry out detailed studies.

Recommendation 4: That the MMS insure the leasing of tracks in the future which will not preclude parallel scientific investigations in the same areas.

Recommendation 5: That the MMS consider establishing a legal framework similar to the framework now governing exploration in Canadian waters to insure the timely release of data to the public sectors without insuring the companies priority investment.

Recommendation 6: That MMS review ongoing deliberations which inhibit the extraction of known deposits within the EEZ, and clarify the long-term legal framework.

### **Panel 2B: Engineering-Technology Assessment**

Recommendation 1: Assess the state-of-the-art of methods for resource definition and characterization of both unconsolidated and consolidated deposits.

Recommendation 2: Identify specific areas of weakness of technology (e.g., lack of coring tools for determining the 3-dimensional characteristics of hard-mineral deposits).

Recommendation 3: Design, build, test, and refine prototype tools necessary to define the resource potential of unconsolidated and consolidated deposits.

Recommendation 4: Conduct a phased study of the ocean floor: (1) conduct a regional reconnaissance study, (2) followed by a detailed study of promising sites that includes (3) characterization work designed to lower the uncertainty level associated with mining and materials handling.

Recommendation 5: Complete the program to develop new tools while continuing ongoing work using existing tools (e.g., Seabeam and Sea MARC systems) within 3 to 5 years.

Recommendation 6: That upon completion of the program to develop new tools, use the new tools to characterize sea-floor deposits in 5-10 years.

Recommendation 7: Take immediate measures to form a task force, led by the USGS but consisting of representatives from industry, academia, and government, to detail an action plan to accomplish recommendations by this panel.

**Panel 3B: Legal-Leasing**

Recommendation 1: That the MMS review the terms and conditions of leasing; (1) especially the possibility of changing the upfront bonus-bid approach to a preference-right approach or modifying the bonus-bid approach; (2) that the leases not be assignable except through merger.

Recommendation 2: That lease terms be for 20 years or more as long as the lease holder is exploring or producing.

Recommendation 3: That instead of a rigid regulatory structure, a more flexible approach be instigated in which lease terms and conditions be tailored uniquely to each offering.

Recommendation 4: That conflicting or competing uses be identified and addressed when developing the terms and conditions of leasing.

Recommendation 5: That a process be identified by which environmental issues can be sorted out in advance through participation by all interested parties and contained in the draft and final environmental impact statements.

What we are in the process of doing then within the Department of the Interior is evaluating all of the recommendations that have been obtained. Some as you can read will not require additional dollars and will not really involve any new programs. They largely are directed toward better cooperation between government agencies or the government and industry. Some of the recommendations that were provided will take a great deal of new money to accomplish. So we are working to evaluate the recommendations and assess which ones could be done with our present budget and which ones will require new money and cooperative programs. There is a symposium on the EEZ at Oceans '84 in September in Washington, D.C., and by that time all the recommendations should be synthesized.



## CHAPTER 20

# Economics of the Non-fuel Minerals

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First of all, I am going to make the point that non-fuel marine minerals actually are produced offshore and do make a contribution to the world's economy. They are not entirely a speculative resource. A necessary second point is that, relatively speaking, this economic contribution of offshore non-fuel minerals production is not very important compared to the more conventional onshore sources of the same commodities.

The next part of my presentation will be a quick run through of what I see as the major policy issues associated with offshore minerals in general and, more specifically, with the recently-discovered marine polymetallic sulfides. Then I will move to a general overview of some of the major economic factors that drive the exploitation, or the potential exploitation, of offshore mineral resources and focus next on specific features of the economics of the polymetallic sulfide potential resource. Finally, I will draw some personal conclusions and conjecture a bit about incipient conflicts in this area.

### **OFFSHORE MINERALS IN PERSPECTIVE**

As everybody knows, the contribution of offshore hydrocarbons to the world's energy economy is quite important. Total world offshore production of crude oil accounts for about a quarter of total world production, having nearly doubled its share from 16 percent in 1970. Offshore natural gas output is over 20 percent in the world total. Altogether, offshore hydrocarbons production accounts for over \$150 billion of annual revenues. That is just to provide the scale in which we are going to be working as we look at the other offshore minerals, the non-fuel minerals.

As seen in Table 1, about 40 percent of the offshore value of non-fuel mineral production comes from sand and gravel. This amounts to something over \$10 million in the United States annually and roughly \$200 million on a global basis. That is less than one percent of the estimated sand and gravel market on the worldwide basis. Holland, Great Britain and Japan are big users of offshore sand and gravel resources. Calcium carbonate represents about a fifth of the total value of offshore non-fuel mineral production. The United States output is on the order \$70 million annually. Globally, offshore production is closer to \$10 million, and this represents less than one percent of the world's total yearly calcium carbonate output.

Table 1. Relative Contribution of Offshore Non-Fuel Minerals Production.

Commodity	(Millions of US Dollars)					
	Approx US Sales	Approx US Offshore	% US Sales Offshore	Approx World Sales	Approx World Offshore	% World Sales Offshore
Sand and Gravel <sup>1/</sup>	2000	10	0.5	>20,000	200	<1.0
Shell/Calcium Carbonate	n	70	n	>10,000	100	<1.0
Sulfur <sup>2/</sup>	>500	90	<18.0	3,000	90	3.0
Tin	n	0	0	500	100	20.0
Phosphate Rock	950	0	0	3,500	0	0.0
OFFSHORE PROSPECTS						
Phosphorites	-	0	-	-	0	-
Manganese Nodules	-	0	-	-	0	-
"Cobalt" Crusts	-	0	-	-	0	-
Polymetallic Sulfides	-	0	-	-	0	-
		Total US Offshore = 170		Total US Offshore = 490		

n = Figure not calculated, not relevant or not available.

<sup>1/</sup> Data for 1978. Total sand and gravel sales fell 34% 1978-82.

<sup>2/</sup> Data for 1977. Offshore Frasch production has fallen steeply since.

Source: Adapted from Glasby, 1979. "Minerals from the Sea". *Endeavor* n.s. 3.

Placer deposits are another important depositional setting for offshore mineral occurrences. Tin is the most important offshore placer resource that is currently being exploited. On a global basis the tin market is about \$1 billion to \$2 billion, and \$100 million of that or more is produced offshore with dredges. Thus, offshore resources of tin account for anywhere from ten to twenty percent of total world tin production. Gold is another offshore placer target. Over half of the gold production in South America's leading gold producing country, Colombia, comes from alluvial sources, which sometimes are the beginning of offshore placer deposits. There are also prospects for economic gold placers in the Alaskan EEZ.

Another offshore mineral target is the phosphorite deposits, a source of phosphate. Phosphate rock is a nearly billion dollar industry in the U.S. and nearly three billion dollar industry globally. Promising phosphorite deposits are extensive on the Blake Plateau in the U.S. Atlantic EEZ, offshore California in the EEZ, and on the Chatham Rise offshore New Zealand. Like the highly publicized deepsea manganese deposits, the phosphorites occur as nodules or as pavements and are nowhere produced commercially. You are all familiar with manganese nodules. Again there is no offshore production of any of these commodities. Although the manganese nodules are probably reasonably considered a real resource, they certainly do not constitute a "reserve."

Recent interest has been directed to the ferromanganese oxide "cobalt" crusts found on the flanks of Pacific seamounts, some in the U.S. EEZ. Cobalt is the smallest market for any offshore prospect. In the U.S. it is about \$120 million per year. Globally it is less than a billion dollars per year; and, again, there is no production from offshore sources.

Finally, the recent exciting stars on the offshore minerals scene are the marine polymetallic sulfides which grow up around the hot smoker vents. In them the minerals of most interest are zinc, copper, perhaps lead (which in onshore experience is often a co-product with zinc), and perhaps silver. Again, there is zero output and zero dollar value in current production from these speculative sulfide sources.

Taken all together we have an annual revenue produced offshore from these various non-fuel mineral sources of roughly 450 to 500 million dollars, call it a half a billion dollars. Compared to the annual value of offshore oil and gas production this represents approximately one third of one percent.

To gain additional perspective, consider some recent Internal Revenue Service (IRS) estimates of unreported economic activity in this country. The IRS estimates that, in the U.S. alone, private tutoring and lessons account for \$900 million of economic activity per year, or roughly twice the worldwide sales of non-fuel minerals. The IRS estimates that private, off-the-record sewing services account for approximately \$400 million of annual revenue, or roughly equivalent to the total worldwide production of offshore non-fuel minerals. Finally, the IRS estimates that U.S. flea markets represent \$1.7 billion dollars of sales per year, or roughly 4 times the global annual revenues associated with offshore minerals. So that gives a little economic perspective on the general area of interest which we are discussing.

## THE CASE OF MARINE POLYMETALLIC SULFIDES

Figure 1 shows the location of the polymetallic sulfide deposits that have been found along the Pacific Rise. The northernmost is on the Juan de Fuca Ridge, north of the Gorda Ridge where deposits are presumed to exist in the U.S. EEZ. Table 2 shows the metal content that has been estimated in samples from the various sites. Zinc is the most interesting: up to 54 percent at the Juan de Fuca site, 30 percent along the Guaymas Basin, up to almost 42 percent at 21° North, but scarcely more than a tenth of a percent at the strange Galapagos Rift deposit. Notice the sulfur content is very high at 50 percent to 40 percent. Copper is one percent at the Guaymas Basin and nearly 5 percent at the Galapagos Rift. Those are the kinds of grades that we are talking about. They are comparable to many onshore deposits. In the case of zinc, they are generally much higher than onshore ores. In the case of copper, the five percent grade is higher than many producing onshore properties by a factor of 10. Let me now just briefly run through the major topics of policy interest in these marine sulfide deposits.

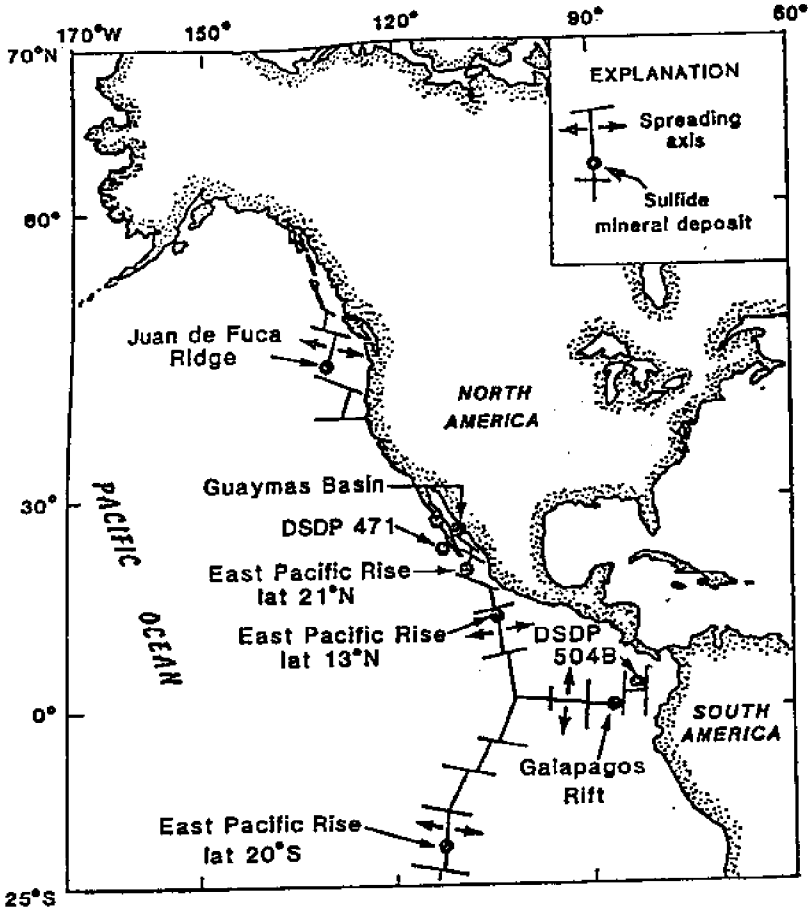


Figure 1. Location of polymetallic sulfide deposits along the Pacific Rise.

Source: Bischoff, J.L., et al. "Geochemistry and Economic Potential of Massive Sulfide Deposits from the Eastern Pacific Ocean." U.S. Geological Survey, Open File Report 83-324. 1983.

**Table 2. Metal concentrations from selected marine polymetallic sulfide sites.**

Area	Zn%	S%	Fe%	Cu%	Pb%	ag(ppm)	Cd(ppm)
Juan de Fuca *	.83- 54.0	n.a.	1.8- 50.5	0.0003- 0.32	0.06- 0.25	3- 290	0- 490
Guaymas Basin *	30	n.a.	n.a.	1.0	.10	300	n.a.
21° N EPR *	0.12- 41.8	0.74- 39.7	0.61- 26.2	0.13- 1.3	0.04- 0.61	1.6- 241	20- 890
13° N EPR	No compatible data is as yet available						
Galapagos Rift *	0.14	52.2	44.1	4.98	0.07	10	31

\* Source: Blechoff, J.L., et al. "Geochemistry and Economic Potential of Massive Sulfide Deposits from the Eastern Pacific Ocean." U.S. Geological Survey, Open File Report 83-324, 1983.

\* Apparent average concentrations based on limited existing samples. Source: Cruickshank, M.J. "The Case for Accelerated Ocean Mining." *Ocean Industry*, p. 26. March, 1982.

## POLICY ISSUES

First of all, there is the scale and direction of public investment. What do we do? We have got these prospects out there, they look interesting, they might someday be a source of useful materials. How do we decide what to spend on them and how to spend it?

Second, there is a question of agency responsibility or jurisdiction. Many of you are already familiar with the friendly rivalry or areas of ambiguity that exist between the Commerce Department and the Department of the Interior. I will discuss that more presently.

Next is the question of access provisions. There is, presumably, some expectation that it should be managed in some way. How do we manage access to the study or the possible development of these prospects? Through leasing, licensing, or through other kinds of arrangements? This is related to the question of agency assignments.

A related question is the national research strategy. This can be described along the several dimensions illustrated in Figure 2. One would be, do we pursue the research as pure science for its own sake, or are we talking about commercial research and development activities? They may involve different tasks, and they may involve different questions. Second, is such research a governmental responsibility or is it something you leave to free enterprise and the private market to do? Third, do we focus somewhere locally, do we go to the Gorda Ridge and concentrate all our efforts there because it is in our turf? Or do we try to have a global scope to our research activities? And, in the time dimension, do we concentrate our efforts in a crash program or do we try to take things

incrementally and plan as we go? Should the program be centrally directed or should it be open for diffuse variety of proposals and approaches? Finally, do we construe research on these things as a nationalistic rush to surpass other nations in the race to develop these resources, or do we approach them as an international cooperative venture?

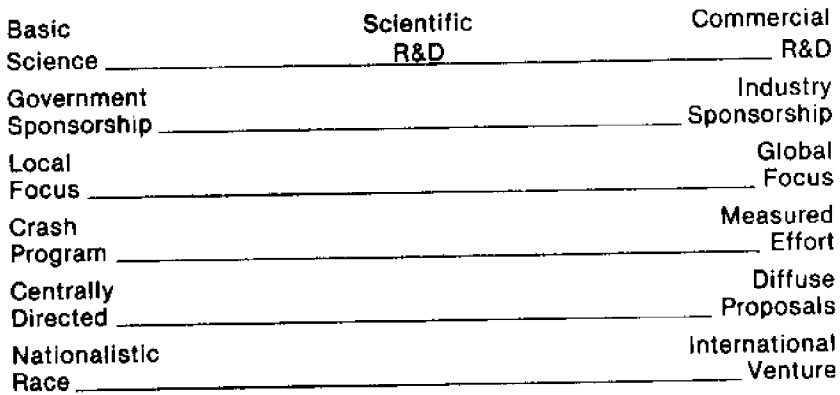


Figure 2. Dimensions of a U.S. MPS Research Strategy.

On the question of agency jurisdiction and appropriate access provisions, Figure 3 shows the originally-proposed lease site off the coast of California and Oregon, which is now being reduced by at least a factor of 10 by a special federal-state task force. The diagram in Figure 4 portrays the jurisdictional ambiguity that might exist with respect to management of offshore non-fuel minerals such as the polymetallic sulfides. The Deep Seabed Hard Minerals Act gives NOAA authority to license exploration and development activities for certain class of minerals beyond the limits of national jurisdiction. The Outer Continental Shelf Lands Act gives Interior the authority and the responsibility to lease manage mineral resources on the continental shelf. This zone is not very ambiguous. But what about when the continental shelf does not come all the way to the limits of national jurisdiction? It may be a kind of no man's land there. There is at least some ambiguity about which agency is responsible for that. It can be seen clearly in Figure 3 that the proposed Gorda Ridge lease sale area falls into exactly that ambiguous category.

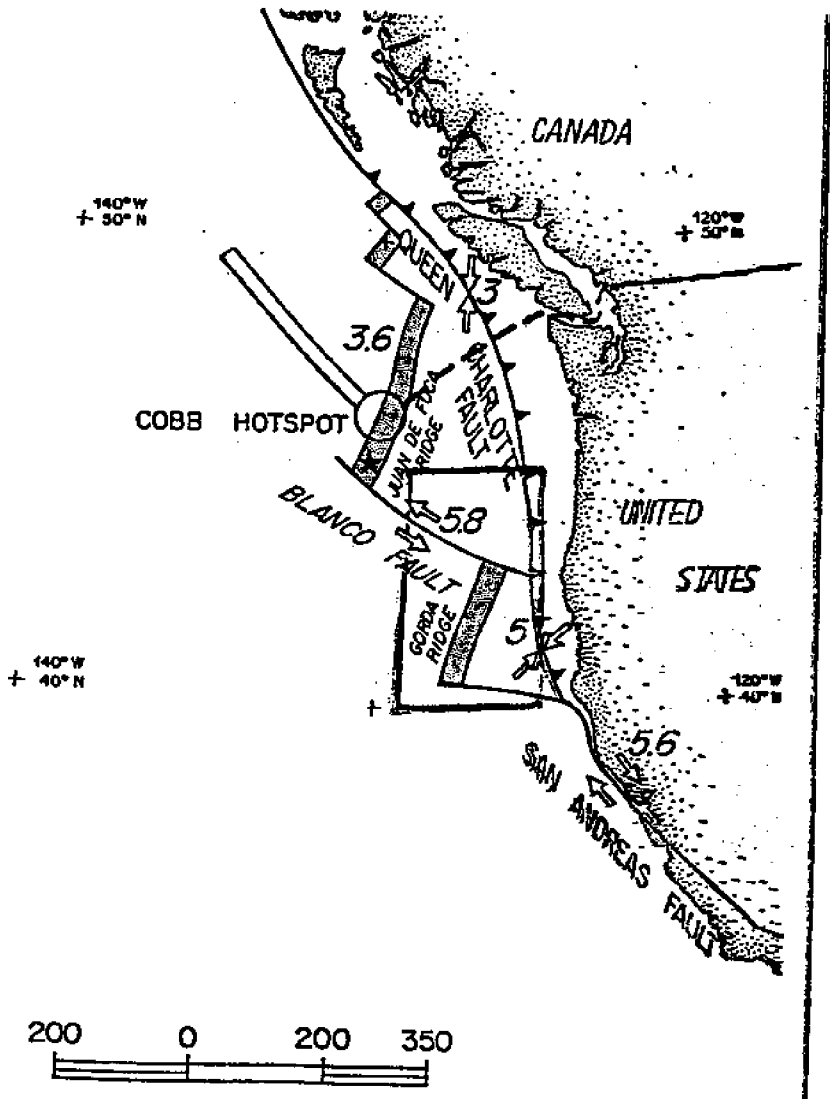


Figure 3. Location of Juan de Fuca Deposits.



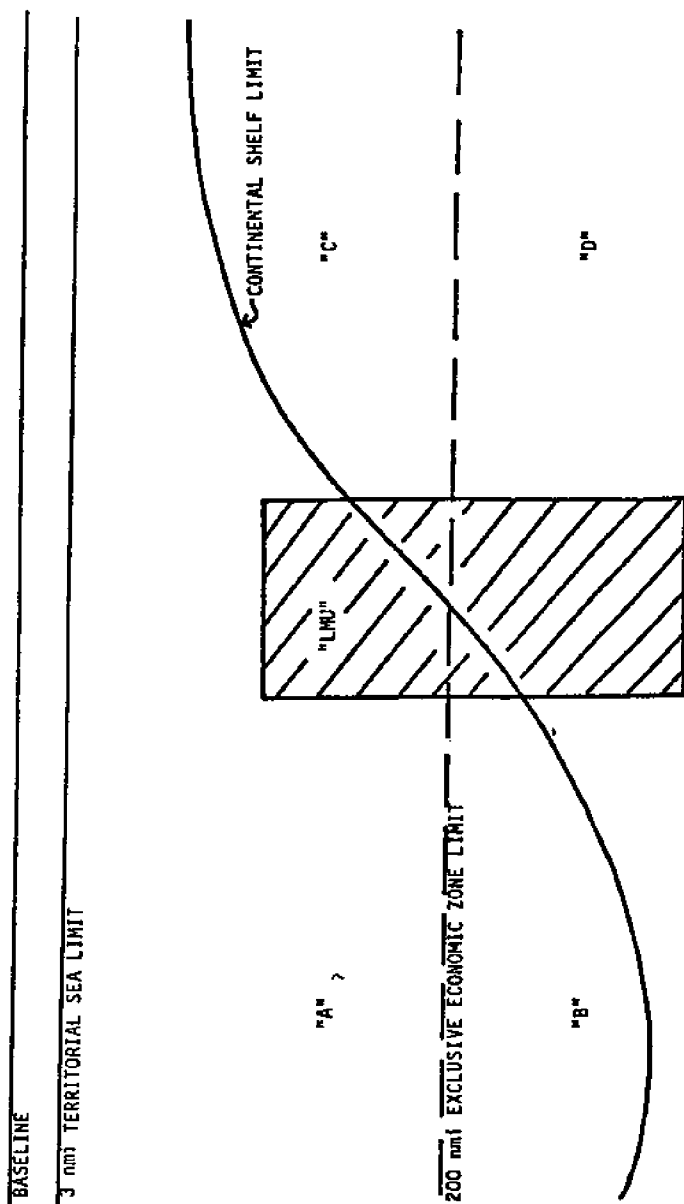


Figure 4. Jurisdiction over areas of potential marine hard mineral resources.

## ECONOMIC FACTORS

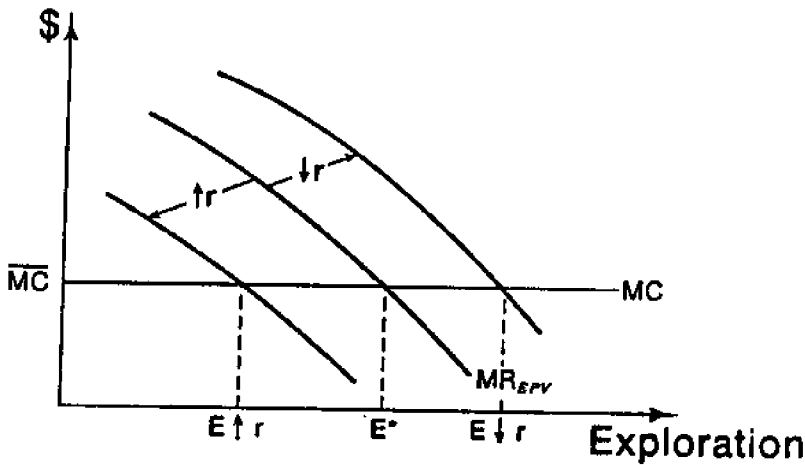
The resolution or outcome of these policy issues will be significantly affected by the economic importance of the potential resources. The forces of supply and demand, as represented through the working of markets like the London Metals Exchange, will have a lot to say about how important each of these various offshore targets might be.

In economic theory, the price of a depletable mineral resource is expected to rise as easier-to-get deposits are worked out, forcing production to higher cost sources. If there is a higher cost resource available for extraction, at some point the scarcity rents that are forcing up the price of the original resource will cause it to be costly enough that it becomes profitable to switch to what was the higher cost resource. If we make technological investments that alter the relative extraction cost or costs of using the alternative resources, we can move the time at which that switch would likely take place. If such technological developments take place in the higher cost resources and it becomes less costly to exploit them, the switch would occur earlier, other things being equal. On the other hand, however, if the incumbent resource becomes less costly to produce, and there is always technological developments in traditional sources as well as in unconventional, then the switch point will be delayed. So it is not clear that we are moving inexorably toward a near-term encounter with the switch point in most of these prospects.

Whatever the future potential value of one of these resources is, the present value is going to be less. This is because of the necessity of accounting for the opportunity cost of time. We give up uses of certain resources as time goes by when we commit those resource to investments waiting to produce future payoffs. We account for that by discounting future values. If we were promised a \$4 billion value that we could only receive 50 years from now, and if we discount it at a 5 percent rate of interest as our discount value, that future \$4 billion is going to be worth only \$350 million in the present, considerably less than the \$4 billion. If we discount at a 10 percent rate of interest, then the \$4 billion future value collapses to just \$35 million in the present. This is just to give a feel for the fact that very large future values can translate into relatively small present values when they are properly discounted in terms of the opportunity cost of time.

Conditions outside the markets for the target commodities can affect the level of activity in development of unconventional sources

for the commodities. What Figure 5 shows is that exploration for new sources will be pursued to the point where the marginal costs of exploring, of investing now in the form of exploration, just equals the present discounted value of the expected future return from that exploration. That present discounted value, as we have just seen, is going to be sensitive to the interest rate, something that is determined outside the market for each of these commodities. If the interest rate goes up, then the discounted value of some expected future return to exploration will be smaller, and there will tend to be less exploration activity. If the interest rate goes down, there will be more exploration activity. In general, these are the kind of tendencies we expect to see. This is offset in the commodity markets, though, by the fact that, as the interest rate goes higher, there is more of a tendency for resource owners, including governments, to want to produce more in the near term to liquidate those assets.



MC = Marginal Cost =  $\overline{MC}$   
 (units of current \$ spent)  
 (if drilling feet instead of # of holes, MC ↑)

MR = Expected Present Value of Marginal  
 Return in Future  $= \frac{1}{(1+r)^t} E(MR_r)$ .

Figure 5. Effect of  $r$  on investment in exploration.

What about the polymetallic sulfides case? What can we say specifically about the current economic importance of this potential resource? Consider a McKelvey Box, as shown in Figure 6. This is just a classification scheme developed at the Interior Department to give a feel for different economic and uncertainty characteristics of resources estimates for given commodities. As we move south in the box, we are getting less and less economic in terms of such things as grade recovery costs. As we move to the east, we are getting less and less certain about what is there. Actually, polymetallic sulfides are properly placed in the box's SE extremity in the undiscovered-speculative category of "other occurrences." If the relative relationship between prospective resources as they are rated here stays the same as they move northwestward toward more certainty and more economic value (as better deposits are depleted), then everything in this box will be considered for exploitation before we move to the polymetallic sulfides. That may be an extreme characterization that abstracts from a number of complexities in the resource development process, but it is not altogether an unreasonable thing to assert as a first approximation.

Of course, nobody knows for sure just how quickly all those resources to the northwest of the marine polymetallic sulfides in the McKelvey Box will be depleted. Perhaps the most pessimistic, but still credible, economic simulations are the sophisticated input-output models of the world economy by Wassily Leontief and his co-workers. They show a complete depletion of identified zinc resources and of identified economic and paramarginal lead resources by the year 2010. Roughly speaking, that is about one quarter to one half the area of the zinc and lead McKelvey Box and much less than a quarter of their total resources. Note that this happens in a very deterministic, very inflexible simulation model of world consumption of these commodities. That is not counting the prospects for recycling. That is not counting the snuffing off of demand by higher prices. It is not counting conservation by technological advances. So using Leontief's simulations as a guide, it looks like at least 2010, if we were just moving through these resources, before we could begin to expect to see use of the marine polymetallic sulfides. Personally, I do not think it would be nearly that soon.

A reasonable summary indicator of relative economic scarcity, as opposed to mere physical scarcity, is price. Price captures a lot of information about what is happening in the market. Time series of price are very problematic, but they are not to be ignored. If we look at the 100 year deflated price series on copper and zinc

[A part of reserves or any resource category may be restricted from extraction by laws or regulations (see text)]

AREA: (mine, district, field, State, etc.) UNITS: (tons, barrels, ounces, etc.)

Cumulative Production	IDENTIFIED RESOURCES			UNDISCOVERED RESOURCES	
	Demonstrated		Inferred	Probability Range	
	Measured	Indicated		Hypothetical	(or) Speculative
ECONOMIC	Reserves		Inferred Reserves		
MARGINALLY ECONOMIC	Marginal Reserves		Inferred Marginal Reserves		+
SUB-ECONOMIC	Demonstrated Subeconomic Resources		Inferred Subeconomic Resources		+

Other Occurrences	Includes nonconventional and low-grade materials	APPARENT BEST Y PLACEMENT OF MPS
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RESOURCES OF (commodity name)

[A part of reserves or any resource category may be restricted from extraction by laws or regulations (see text)]

AREA: (mine, district, field, State, etc.) UNITS: (tons, barrels, ounces, etc.)

Cumulative Production	IDENTIFIED RESOURCES			UNDISCOVERED RESOURCES	
	Demonstrated		Inferred	Probability Range	
	Measured	Indicated		Hypothetical	(or) Speculative
ECONOMIC	Reserve		Inferred		
MARGINALLY ECONOMIC	Base		Reserve		+
SUB-ECONOMIC			Base		+

Other Occurrences	Includes nonconventional and low-grade materials	Y X MPS
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Figure 6. McKelvey Box. Major elements of mineral resource classification showing placement of MPS.

Source: USGS (1980) Circular 831.

and take a linear estimate, as done by Margaret Slade in 1982, we see that the trends are downwardly sloping. The real prices of copper and zinc seem to have been declining. Copper and zinc show signs of becoming, in an economic sense as measured by real price, less scarce. Using Slade's quadratic estimates, we find that the prices might be following a curvilinear trend. They may be starting to show a gradual increase in relative scarcity of copper and zinc; but, it is not clear at all that the market, through price, is signaling a great run up in demand or in scarcity of these commodities.

Another way to get a handle of the economic importance of the marine polymetallic sulfide potential resource is to play a little simulation game. We need to know something about costs. We know very little about the possible cost of getting these things into production. But we know a lot about the cost of recovering minerals from conventional onshore deposits. So I asked the Minerals Availability Systems of the Bureau of Mines to run through their mine finance simulation models of an onshore deposit of three different sizes with specified copper and zinc grade characteristics and to tell me what they are worth in present dollar terms at both 15 percent and 30 percent discount rates. The results shown in Table 3 suggest that only one set of mines would make money in the 30 percent discount rate case. I want to use that case because this is the same 30 percent rate of return that was typically employed in evaluation of deep seabed mining to account for the risk of operating in this vastly new environment. The only set that makes money is the one with 10 percent copper. I remind you that the highest copper grade we have seen so far in this potential resource is just approaching 5 percent, and that deposit appears to be an anomaly on the Galapagos Rift.

Finally, for the sulfides case, scientists at Woods Hole, who make models of the processes that create these deposits, give me estimates of maximum size deposits that would be created and the grades that would be associated with those deposits realistically assuming a 2 percent depositional efficiency, with a tenth of the ridge system assumed to contain these kinds of deposits. When we do that, we figure the amount that is therein contained in zinc and we compare it to 1980 world resources, we see that it represents one half of 1 percent of 1980 world resources of zinc. And if we do the same thing for copper we see that, with 2 percent depositional efficiency on a tenth of the ridge, the contained copper would represent 2 tenths of 1 percent of world resources. With a more optimistic assumption about depositional efficiency and the extensiveness of the phenomenon on the ridge system you can get to

Table 3. Net present value determination (1983 dollars) for a copper price of \$0.788/lb and a zinc price of \$0.386/lb.

Production (mtpd)	Ore Grade (ppt)		Determined DCFROR	Net Present Value	
	Cu	Zn		15 pct Discount Rate	30 pct Discount Rate
1450	1.0	30.0	0.00	-18,359,235	-16,768,855
5000	1.0	30.0	14.54	-1,153,868	-20,571,794
9000	1.0	30.0	19.92	+22,495,124	-22,206,326
1450	10.0	1.0	32.95	+24,949,821	+2,236,573
5000	10.0	1.0	47.07	+133,610,209	+36,133,482
9000	10.0	1.0	43.52	+226,007,982	+48,315,363
5000	0.1	1.0	0.00	-177,917,185	-80,584,557
5000	1.0	1.0	0.00	-149,239,153	-79,693,429
5000	1.0	10.0	0.00	-100,873,443	-60,772,962
1450M <sup>1</sup>	2.51	3.35	1.93	-10,684,434	-13,164,444
9000K <sup>2</sup>	2.25	6.84	31.43	+96,657,682	+3,948,964

<sup>1</sup> - Millenbach type, also contains 40 gm/metric ton silver (\$12.40/tr. oz)  
0.8 gm/metric ton gold (\$479.89/tr. oz)

<sup>2</sup> - Kidd Creek type, also contains 51 gm/metric ton silver

Source: Minerals Availability Fields Office (MAFO). Mine and Mill Models for Woods Hole Oceanographic Institute Marine Polymetallic Sulfides Study. Unpublished Monograph (July). U.S. Bureau of Mines, Minerals Availability System. Denver, Colorado. 1983.

very large increments over known resources. The more conservative estimates, however, appear to be not an unrealistic representation of the relative contribution that can be expected to world resources.

## CONCLUSIONS

The marine polymetallic sulfide deposits appear to be an extremely interesting scientific phenomenon and are said by the scientists concerned with this phenomenon to offer a tremendous opportunity for productive scientific research. Giant clams around the vents live on sugars produced by bacteria through chemosynthesis. Giant tubeworms live around the vents with those bacteria incorporated into their bodies. So one of my conclusions is that, based on what evidence we can pull together about the economic prospects of these things, fragmentary though that may be, it would appear national investment decisions for marine polymetallic sulfides would be better made according to scientific selection criteria than according to commercial investment criteria.

Of research strategies, I would argue, again on the basis of what we can say about the economic prospects, that we are definitely on the scientific end of the scale in terms of science vs. commercial R&D. Traditionally that kind of basic scientific investigation has been a governmental responsibility, and we could also tell other

stories about why the government has a responsibility in this area. We probably would lose a great deal of information with a local rather than a global focus. There is currently so much uncertainty that I think it is wise to try to learn as you go before you commit huge resources to a crash research program. And I would, for the same reason, suggest a research effort with diffuse input allowing a variety of approaches. We could spread some of the exposure to the uncertainty of payoff and loss of investments and share knowledge, through international ventures rather than nationalistic races.

There are, in terms of the question of conflict, questions of external effects. We really do not know enough about this at this point to say much about those external costs; one type would be differential subsidies or preferences that might favor one industry in its race in competing with another industry and cause it to spend real resources to stay up. Another would be interference or congestion that would again lead to the use of real resources to cope. Another would be factor market effects where the presence of sea bed miners in an area would drive up the cost of land or labor and which would impose what are so called pecuniary externalities on other people doing business there. You can run through the gamut of possible conflicts.

I do not find that very interesting. I think a more interesting question has to do with the external benefits of these kinds of activities. All of these various industries, the fishermen, the shippers, the oil producers and the prospective offshore miners, have a common interest in more knowledge and more operating capability in the ocean environment. The development of knowledge about these things is exciting and desirable. It is a kind of consumption in its own right. I think it is an interesting question to ask "How much do we get from these kind of external benefits or shared positive spillover effects and how do they all fit together?" We do not know very much about them at this point.



## CHAPTER 21

# Minerals Management Service View of Offshore Mineral Exploration

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### INTRODUCTION

The whole subject of marine minerals is more complex than oil and gas even though the industry is much smaller, and much newer; I thought it useful, therefore, to include some background and not just talk about the Gorda Ridge. What drives this whole effort in the first place, of course, is the need for minerals.

I remember some 35 years ago when I was a brand new student in Mining 101 at the Camborne School of Mines and the principal came in to give us our first lecture on mining. He was a big man, about 6'6" and about as much around — an old fashioned man wearing moleskin trousers with metal buttons and suspenders. "Well," he said "where do you suppose we'd be if there was no mining?" Of course we know it was a rhetorical question, so we didn't try to respond. "I will tell you what would happen" he said, "your trousers would fall down!"

That thought stayed with me for many years; the fact that there is a lot more to mining than just profits. I saw an analogy to this on a bumper sticker which read, "Oil — you can't leave home without it." In the same way, one could say, "minerals — you couldn't have a home without them." If you look around this room and you take away the lumber and the fabrics, what remains is mined materials. The projector, the display, all the window fittings, the door fittings, the concrete, the reinforcement, what have you. Mined materials are a very essential part of our existence. We do not live in caves anymore, we need all these materials for our daily living, our transportation, our industries, and our national security.

So much for the strategic and critical minerals needs. It is a continuing problem with supply and demand exacerbated by international conflicts and largely controlled by international prices.

## GOVERNMENT ACTIONS

Congress has continually acknowledged the international dependency aspect of materials supply and our legislation has reflected this awareness over the years. First of all, the Outer Continental Shelf Lands Act (OCSLA) of 1953 authorized the Secretary of the Interior to lease oil and gas primarily, but also other minerals on the Outer Continental Shelf (OCS). In 1976, the Mining and Minerals Policy Act stressed that government agencies should encourage the development of a domestic mining industry and encourage the development of minerals in new area. This was not enough apparently, as not much happened during the following years. In 1980, the Minerals and Materials Research and Development Policy Act was passed. That changed the wording from "encourage" to "promote." Thus, it was mandated by Congress that Government Agencies involved with the development of minerals *promote* their development. In 1980, the Deep Seabed Hard Minerals Act allowed the U.S. Government to authorize U.S. nationals to explore for and, if possible, produce manganese nodules. In addition, for the last ten years or so, we have had the National Environmental Policy Act (NEPA) which has controlled the way in which we promote, develop, or encourage, the leasing or licensing of minerals. So the problems that we hear about, of conflicting needs, conservation, shortages, and pollution are not just the result of unilateral decisions by Government Agencies, they are the result of decisions made by all of us here, by the Congress representing the people of the United States, and by legislation, directing administration policies.

Government actions concerning minerals on the OCS have not just sprung up in the last couple of years. The earliest lease for hard minerals was for phosphate offshore San Diego, California in 1963. The fact that the lease was not ever consummated, and that the company found unexploded ordnance in the area is beside the point. The fact is that as long ago as 1963, the industry was interested in looking for minerals, and other sources of commercial materials offshore. In 1964, the Marine Minerals Technology Center was set up in Tiburon, California, to research the engineering and some of the resource requirements for developing minerals

on the OCS. The center was initiated by the U.S. Bureau of Mines and when NOAA was formed in 1969, the whole organization was transferred to NOAA, but the same people remained there until it was closed down for budgetary reasons in 1973.

Starting in 1968, the United States Geological Survey (USGS) through its Conservation Division, (the Agency with the authority to lease the minerals on the OCS) worked for about six years on the preparation of draft regulations for leasing and mining of minerals other than oil and gas. Largely because of the Santa Barbara oil spill, NEPA and the general furor that was generated by any activities on the OCS, there was not the pressure to advance OCS mining at that time. I think that had much to do with the hiatus in the development of OCS minerals during the late 60s and early 70s. In 1974, a draft environmental impact statement (EIS) on deep seabed mining was prepared by the Department of the Interior and the State Department jointly to back up the efforts in the Law of the Sea on deep seabed mining. In 1977-79, the Department of the Interior prepared an OCS mining policy study encompassing all the minerals on the OCS (which ones were prime, which ones were of interest to industry, which ones were of interest nationally) and made recommendations made to go ahead with a development program. No urgency was expressed, however it was essential to start soon and go slowly forward in developing or at least making these minerals available to industry as needed.

In 1980, the Deep Seabed Hard Mineral Resources Act was passed. The National Oceanic and Atmospheric Administration (NOAA) initiated their management process in offering licenses to involved U.S. consortia and that process is still going on. The act authorized licenses for exploration and permits for mining on the deep seabed outside of the jurisdictional area of the United States for manganese nodules only.

In 1982, Secretary Watt, following the recommendations of the OCS mining policy study which were prepared during 1979, decided to implement the recommendations to develop a program for mining development in the OCS. Following from that decision, a proposal was made to offer leases for exploration and possible mining on the Gorda Ridge. This incidentally was a somewhat visible action because of the high interest in marine hydrothermal sulfide deposits which were first discovered in 1978 on the East Pacific Rise. Since that time (1978-1982), there have been a number of other exciting discoveries of sulfides in various parts of the world. There were indications of copper, for example, in one deposit in the Galapagos area of up to ten percent, and zinc up to 56 percent in

the Juan de Fuca Ridge. There were indications of potential for other metals in these deposits. Out of about 15 attempts at finding these deposits six had been positive — which is a tremendously high ratio of success for exploration. The normal exploration to discovery ratio is about a couple of hundred to one for minerals in unexplored areas such as northern Canada or the Amazon Basin. In those places you do not just go out and locate minerals deposits. There is a long process in the selection of target areas following regional surveys and then exploring the target areas in detail to find an actual deposit. They are about as difficult to find as needles in haystacks and this discovery ratio was really exceptional. This led, I believe to the idea of, "let's do something that maybe would bring on a lot of enthusiasm to support the program one way or another." One of the positive aspects of the decision to go after this area of the Gorda Ridge is that it was the only area where we knew there might be sulfides within U.S. jurisdiction. The U.S. by that time was clearly not a party to the Law of the Sea Convention and the first claim of jurisdiction was made prior to the EEZ Proclamation based on the 1958 Convention on the continental shelf which states that the minerals on the continental shelf were exploitable as far as they could be developed or exploited.

Prior to that there had been a quick look at the manganese crust in the Blake Plateau in the Atlantic initiated because one of the industrial companies had asked us to offer that area. Although actions were begun to prepare for leasing, the company withdrew their request and the project was shelved. Another new discovery was made in the late 70s of high-cobalt crust in the Pacific area around the Hawaiian Islands. The Exclusive Economic Zone (EEZ) Proclamation extended the authority of the OCSLA to include the area around the Hawaiian Islands. We had already had requests from industry to have a look at these deposits in more detail and they asked us how they could lease these areas for exploration. That led then to the formation of a joint Hawaii/Department of the Interior Task Force to examine the possibility of leasing on the submerged islands and sea mounts off Hawaii within the EEZ. The intent to prepare an EIS on the leasing proposal was made public at this time. The responses to the scoping of the EIS were largely negative and asking, "Is this all we know? Shouldn't we know more?"

At any rate, following the successful joint task force organized with the State of Hawaii, a similar task force was organized in February 1984 with the State of Oregon. California was also invited to join.\* The purpose of the task forces is to examine all the

aspects of development of these areas off the States within the EEZ and make recommendations as to how best to proceed to every good advantage. The Federal Government in doing this work is acting as steward of the Nation's resources and has to be responsive to everyone involved whether it is the Department of Defense (DOD), whether it is local officials, the man who runs the drugstore down the street, or whomever. The concerns of each have to be fitted into the decision-making process. That, of course, is what the EIS does. Among the best things that ever happened in my opinion, was the requirement of NEPA that an EIS be written for major actions. Although it took many years to get a workable format, the concept of analysing outside factors which might influence the outcome of the action before major decisions are made is very, very important and useful not only to the public but to the persons putting up the money, and to the involved industry itself.

## **A VARIETY OF COMMODITIES**

I would like to stress that, when we are talking about minerals "other than oil and gas and sulfur," we are talking about something like 80 different commodities. We have classified these into five separate groups, each of which has different requirements for their development and mining. These groups are construction materials, placer deposits, phosphorites, metalliferous oxides and metalliferous sulfides.

Construction materials are generally though not necessarily shallow water deposits of high bulk, and of low value, like sand and gravel, aragonite, or oyster shells. For the most part they are worked close inshore.

Placer deposits are generally worked for low bulk, high value minerals such as those of tin, titanium, chromium and precious metals. Something like 30 percent of the world's tin comes from the offshore deposits in southeast Asia. The minerals occur in unconsolidated material, are often highly concentrated, and usually constitute a few percent only of the deposit. They are heavy and generally found in shallow water, concentrated by alluvial or wave action, and they can be mined by dredging. They are often mined onland and the transition to offshore is not a great technical problem.

The third group is phosphorites. We see the end of our payable reserves in the northwest states and Florida, not only because the

deposits themselves are lower in grade, but because the environmental cost of mining them is getting higher and higher. We are finding that there are very large deposits of phosphorites indicated off the California coast in water that is about 100 to 400 feet deep, and there are enormous deposits, into the billions of tons, indicated off the Carolinas and Georgia off the east coast from shore to a distance of 20 to 30 miles. These latter have scarcely been looked at. They've been indicated by drilling and although there have been some fairly intensive studies, they have been limited in a real extent. So these are target areas which are of great interest to industry in terms of leasing.

The other two groups of commodities are on the deep seabed; the metalliferous oxides and the metalliferous sulfides. The oxides are the manganese nodules and the crusts which others have already talked about and the sulfides are potential ores of a wide variety of metals including lead, zinc and silver.

## INDUSTRY INTEREST

At the request of Jack Flipse who was unable to attend, I will address very briefly our perceptions of industry interest. Of the five commodities I talked about, *construction materials* serve sub-regional markets. Production is not something that depends on the world's need for sand and gravel or anything else. There is a great deal of interest in certain offshore areas where environmental problems have caused the production of sand and gravel and other construction materials on land to be very costly or very difficult or complex. There are areas where they are very large deposits of sand and gravel and other materials existing offshore which can be exploited. If in certain cases these are offered for lease, there would be many takers or at least sufficient number of takers to make leasing worthwhile.

*Placer deposits* include titanium minerals, gold, platinum, chromite, and tin. Their economic are based on world prices, so we are looking at a situation where there are already set prices and the cost of the operation can be evaluated; however, placer operations are also usually small and leasing may involved a lot of small business people just like the fishing industry. There are independent dredge owners or people who would like to be independent dredge owners who would like to have the chance to work offshore. Some of the deposits sound exciting. Gold, for example, always sends thrills through the veins of mine owners and there

are many people in Alaska and a lot more on the east and west coasts who, given the opportunity to go after some of these deposits, would do so. This is what our perception is of the interest of industry in placers. With *phosphorites*, we are getting two very different viewpoints expressed. A lot of people say, "no need, we have 40 years ahead of us in phosphorites." Others whom I think are a bit more perceptive are saying, "we see the end of the economic on-land phosphorites. We need to go offshore; it looks like there are deposits there large enough, to justify an offshore operation or at least to justify a closer look. If we had the lease, we would go out and look and see what was there and at least we would know what the risks were." Up until now we know very, very little about what is out there and the risks involved.

People who are involved in the *manganese nodules* consortia have gotten their fingers a little scorched. They are not really ready to jump back in as soon as something new appears. This is our perception. We have often heard Connie Welling speak very fluently and authoritatively on the operations that Lockheed has pursued and the fact that the five deep seabed mining consortia have spent at least \$150 million dollars on exploration and technology development to date. Now there is a stalemate, metal prices are low and the problems with the law of the sea continue. Even though we have a U.S. law, how protective is it in fact? There are uncertainties which make the manganese nodules at the present time somewhat of a high-risk and high-cost pursuit. From that point of view, the industry interest is not as great as it was a few years ago. With regard to *high-cobalt crusts*, we are dealing with different players. We have some who say, "Well we'll trade. I think we can look at these crusts and perhaps see if there is a possibility of profit and we do see a strategic metals need."

As for the *sulfides*, there is a greater variety of metals that may come from them; the major ones are lead, zinc, copper and silver, but there are about 15 different metals that could be in the sulfides and again there is a different set of players; the ones who work on nodules are not so eager to get into this high-cost new technology. The depth of waters we are looking at is close to 10,000 feet which still does not make for easy operation and is quite a jump from the coastal areas where water depths may be less than a hundred feet deep. There is tremendous technical development requirement but we do find that there are people who are representing companies that are showing a great deal of interest. When the initial reports about sulfides were released representatives of some 26 companies inquired about further exploration or leasing of the deposits.

Throughout the year or so that we have been involved in looking at the possibility of leasing we have had indications that there are companies that would be willing to put out the money at least to go and explore the area provided they had the rights of discovery. Under the present laws, such rights can only be secured by leasing.

### NOTES

\* California joined June 21, 1984.



## CHAPTER 22

# Hydrocarbon Economics

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### INTRODUCTION

The crude oil and natural gas resources of the Exclusive Economic Zone (EEZ) constitute one of the nation's most valuable publicly-held assets. Through 1983 the federal government received a total of over \$58 billion in cash bonus, royalties and rentals on leased OCS lands (U.S. Department of Interior, 1983, P. 64). The hydrocarbon resources of the EEZ also comprise an important potential source of future domestic energy supplies. Recent estimates suggest that 40 percent of the recoverable oil and one third of the recoverable natural gas as yet undiscovered may be found in federally controlled offshore waters (U.S. Dept. of Interior, Geological Survey, 1981, P. 2).

The President's EEZ Proclamation does not change existing policies governing the exploitation of oil and gas resources in federal waters. Hence, the Outer Continental Shelf Lands Act Amendments of 1978 (OCSLA) provide the present framework within which hydrocarbons in the EEZ are to be managed.

It is worth recalling that the OCSLA was enacted in a period when achieving a secure energy supply was a paramount consideration, as it remains today (although perhaps to a smaller degree). Thus, a principle purpose of the OCSLA is to expedite exploration and development. At the same time, however, the OCSLA has a number of other purposes, including: balancing energy development with protection of the environment; preserving and maintaining industry competition; insuring that the public receives a fair and equitable return; and accommodating the concerns of affected coastal states through participation in the leasing process.

It is not surprising that the actual implementation of the OCSLA has been highly controversial. The OCSLA establishes several objectives, and groups with different interests emphasize the pursuit of objectives of direct concern to them, while downplaying other goals. Moreover, the objectives of the OCSLA are, at best, vague and at times potentially in conflict. (What is "the" correct schedule to expedite exploration and development? What tradeoff between energy activities and the environment provides a proper balancing of interests? At what point can affected coastal state's interests be regarded as adequately provided for vs. national interests?) Because the goals of the OCSLA are so vague, and because considerable administrative discretion is provided in implementing the OCSLA, different administrations can, indeed have, adopted vastly different policies regarding oil and natural gas leasing — all within the same framework provided by the OCSLA.

Regardless of the title used to describe the geographic area of the ocean under federal control, and irrespective of who administers the exploitation of the resources in this area, fundamental economic issues will continue to have to be addressed. As we deliberate how oil and natural gas resources might be managed under the new banner of the EEZ, it is instructive to review some lessons from our recent experience under the OCSLA. Attention is focused on three issues as examples of the kinds of questions that will continue to arise in discussions concerning the management of the oil and natural gas resources of the EEZ.

## **ECONOMIC ISSUES IN MANAGING THE EEZ: SOME EXAMPLES**

### ***Avoiding Oil Spills: Regulation vs. Economic Incentives***

In response to concerns about possible damages from oil spills, the OCSLA requires that firms use the best available and safest technology, when economically feasible. In addition, operators responsible for OCS-related oil spills are held strictly liable for removal costs and for any damages. An industry-financed offshore oil pollution fund has been established to compensate for damages in the event that the polluter cannot be identified or does not pay promptly.

Congress' intent in establishing liability for oil spill damages clearly was to compensate those suffering losses. However, as a side effect, the financial incentives provided by strict liability for

damages may be an effective way to encourage oil spill avoidance behavior by firms. By placing the full costs of an oil spill in the hands of the party responsible, strict liability encourages operators to use any and all means of reducing environmental risks, some of which are not addressed by technological requirements. For example, operator error which may not be responsible for most spills, is not directly controlled by technology-based regulations. Also, technological requirements may not discourage development in areas of particular sensitivity, while strict liability may discourage development since companies could be liable for especially large damages, should an oil spill occur.

To date public debate has focused on the regulatory approach for controlling oil spills on the OCS, and little attention has been given to the effectiveness of economic incentives in encouraging firms to avoid oil spills. The central question is: Do firms respond to the financial incentives inherent in strict liability for oil spill damages?

In order to assess the effect of strict liability on company behavior, we have recently examined company cash bonus bidding, using the December, 1979, Georges Bank lease sale #42 as a case study (Opaluch and Grigalunas, 1984). If firms respond to environmental risk by additional investment in oil spill avoidance equipment or worker training, by reducing production rates or by other means, we would expect their bids to be less, after allowing for the influence of other factors such as the expected value of the resources, exploitation costs, etc.

Using a statistical analysis of data for the Georges Bank sale, we found that firms did respond to environmental risk. For individual tracts, high bids were estimated to be \$1.7 to \$4.3 million less for the most as compared with the least environmentally risky tracts, other things being equal. In the aggregate, industry bids were estimated to be \$237 million less (20 percent lower) because of company concerns with environmental risk.

What do our results mean for EEZ oil and gas policy and for environmental policy in general? First, our results suggest that strict liability is a potentially promising tool for controlling oil spills from OCS operations; firms apparently do respond to their potential liability for damages from spills. We do not advocate with our current knowledge, that all the various regulations concerning controlling OCS oil spills be scrapped in favor of total reliance on strict liability. However, our results support the position that the financial incentives provided by strict liability should be considered,

along with other approaches, in public debates on environmental policy.

Because companies do appear to respond to liability for damages when deciding whether and how much to bid for certain tracts, it follows that those who will determine economic damages under the fund established by the OCSLA have a heavy responsibility. On the one hand, if administratively determined settlements systematically underestimate damages, then strict liability may fall short of providing the incentives necessary to control spills (although unfavorable publicity and other penalties following oil spills provide additional incentives for companies to avoid spills). On the other, the determination of damages far in excess of reasonable estimates of true losses could cause inefficient overinvestment in spill avoidance or may artificially cause companies to avoid bidding for tracts in high risk areas altogether. In this case, we would expect company bids — and therefore public revenues — to decline.

### ***Social Tradeoffs of Alternative Leasing Systems***

Under the traditional cash bonus system for leasing tracts, the company submitting the highest sealed bid is awarded the right to explore and develop a tract, provided that the bonus exceeds the government's minimum acceptable price. Any production is taxed at a 16 $\frac{2}{3}$  percent rate.

The OCSLA established alternative systems for leasing tracts. The Secretary of Interior was required to use the alternative systems for between 20 to 60 percent of the tracts leased each year over a five-year experimental period following enactment of the OCSLA.

It is interesting to look at the alternative leasing systems used to ask whether they seem to support or conflict with the goals of the OCSLA. Because of time constraints, two systems will be focused on here, the higher fixed royalty and the sliding scale royalty.

For tracts carrying a higher fixed royalty, the operator of the field pays a specified share of the value of production — 30 percent has been used — over the economic life of the field. The rate is specified before the lease sale, and the cash bonus is the bid variable used at a sale to decide which company wins the lease.

In contrast with the high fixed royalty, under the sliding scale royalty system the royalty *rate* varies with the value of production per quarter. A minimum rate 16 $\frac{2}{3}$  percent applies to initial production. Beyond the initial specified value of output, the royalty rate increases until a maximum rate is reached — rates as high as

50 and 65 percent have been employed — when the value of production reaches a pre-designated level. Again, the royalty rate formula is established before the sale, and the cash bonus is the bid variable used at the sale to award leases.

The two royalty leasing system alternatives have their advantages when compared to the traditional cash bonus system. For a given field, the cash bonus needed to win the lease under either of the royalty systems should be less because of the higher royalty payments to be made by the operator over the life of the field. Consequently, the financial risk facing firms is less: if no commercial find is made, the operator will lose a cash bonus that will be relatively small compared to that forthcoming with the traditional cash bonus system, other things being the same. Since the initial bonus payment is less, one would expect greater competition (more bids) for leases with the royalty systems.

Available evidence supports the argument that the two alternative systems are at least as effective as the traditional approach in promoting more bids (U.S. General Accounting Office, 1983). However, both royalty systems appear to conflict with the goals of the OCSLA in several respects. The sliding scale royalty causes firms to extend production over a longer period than the cash bonus system because firms will want to avoid the increase in royalty rates associated with higher levels of production. With a maximum royalty rate of 50 or 65 percent, the "production delay effect" could be substantial. Clearly, this is not consistent with the goal of expediting energy production from offshore federal lands.

The higher fixed royalty system creates other problems. One problem is that of early shutdown. If the royalty rate is 30 percent and the price of oil is \$30 per barrel, an offshore operator must pay a \$9 tax on every barrel lifted. Clearly, more oil would be produced from a field if the royalty was \$5 instead of \$9; still more would be forthcoming if the royalty rate was lower. A second problem with high fixed royalty rates is that they increase the minimum size field that is economic to develop relative to lower royalty rates. This occurs because higher royalty rates raise firm's costs of operation. Hence, a marginal field that would be developed with the one-sixth royalty rate may not be developed when the royalty rate is 50 percent or even 30 percent.

What one would ideally like to see under all systems is a royalty rate that approaches zero at the end of the life of a field when operating costs increase (12½ percent is the present legal minimum royalty rate set by the OCSLA). One can only speculate about the magnitude of the social cost incurred because of the otherwise

recoverable oil and gas and economic rent left in the ground as a result of the royalty on production. And the higher the royalty rate the larger the social costs involved.

### **Rate of Leasing**

Since the early 1970s, attempts by the Interior Department to accelerate OCS leasing have been met with considerable resistance by environmentalists, representatives of coastal states and others. Critics of the current approach to accelerate OCS oil and gas leasing argue that area-wide lease sales reduce the ability of coastal states to plan for impacts, exacerbate boom-bust problems onshore and may lead to the government receiving less than fair market value for the tracts sold.

The dramatic recent increase in the rate of leasing is evident in Table 1. From 1970 to 1980, 499 tracts were offered for sale, on average, per year. In contrast, from 1981 to 1983 inclusive, an average of 4976 tracts were put up for sale annually. In 1983 alone, 12,122 tracts were offered — an amount equivalent to over 50 percent of all of the tracts put forward for sale in the history of the OCS oil and gas leasing program, before 1983.

**Table 1. Selected Annual Statistics for OCS Oil and Natural Gas Sales, 1970-1984.**

Year	No. of Sales <sup>a</sup>	No. of Tracts Offered <sup>a</sup>	No. of Bids Per Tract Bid On <sup>a</sup>	Accepted Bonus Per Leased Tract (\$million)	
				Current Dollars <sup>b</sup>	Constant 1983 Dollars <sup>c</sup>
1970	2	161	7.38	6.85	16.16
1971	1	18	2.54	8.75	19.86
1972	2	210	5.25	12.65	27.26
1973	2	276	4.79	15.95	32.55
1974	4	1,006	2.70	14.11	26.47
1975	4	1,374	2.07	3.39	5.82
1976	4	356	3.14	9.12	14.88
1977	2	358	2.73	7.43	11.47
1978	4	586	2.80	7.10	10.20
1979	6	686	2.66	14.47	19.17
1980	3	483	3.24	19.29	23.29
1981	7	1,398	2.57	15.54	17.17
1982	5	1,410	1.98	11.17	11.65
1983	8	12,122	1.53	5.11	5.11
1984 <sup>d</sup>		8,666	1.45	1.98	1.98 <sup>e</sup>

**Sources:**

<sup>a</sup> U.S. Department of Interior, Minerals Management Service, Gulf of Mexico Region, "Outer Continental Shelf Lease Offering Statistics," prepared by Eileen B. Swiler, Feb., 1984 (xerox copy).

<sup>b</sup> Current values converted to 1983 constant dollars using the implicit price deflator for gross national product in the *Survey of Current Business* (1982-84 issues) and the *Economic Report of the President* (1982).

<sup>c</sup> Includes only the January 5, 1984 lease sale #79.

<sup>d</sup> In 1984 dollars.

Within limits, rapid leasing offers the advantages of allowing the best tracts to be developed sooner and permitting the development of more resources earlier than the prior, small-area leasing approach. Also, production should be expedited and the receipt of economic rent for society as a whole may be increased with rapid leasing.

However, critics have claimed that rapid leasing may reduce the share of economic rent received by the government. The recent decline in the average number of bids per tract and in the average bonus paid per tract leased (Table 1) have been cited by critics as evidence that the government is not receiving the fair market value of the tract.

It is far beyond the scope and purpose of this paper to attempt to assess whether company high bids in recent year approximate the fair market value of the tracts sold. Nonetheless, economic theory can be used to refine the debate.

Economic theory suggests that the high bid for a tract depends upon three considerations: 1) the number of bidders; 2) uncertainty surrounding the value of a tract; and 3) the tract's expected economic rent. Given the expected economic rent of a tract, government's share of rent will 1) increase the greater the number of bidders; and 2) fall the more the uncertainty there is about the value of a tract. On this score, the evidence — the superficial evidence, at least — can be viewed as suggesting that government's share of economic rent may have declined as critics of accelerated leasing have charged. The average number of bidders per tract sold has decreased considerably in recent years (Table 1). Also, the uncertainty facing firms surely is greater with area-wide leasing than when industry pre-lease sale exploration can be focused on smaller areas, despite previous drilling experience in some sections of areas sold.

Hence, if only recent trends in the average number of bidders per tract and in uncertainty are considered, one would be inclined to conclude that government's share of economic rent may have fallen compared with prior periods. However, several important factors affecting economic rent need to be considered in any attempt to assess recent company bidding behavior. These factors — often neglected in popular discussions of the issue — include the following:

1. The price of oil has declined considerably in recent years and nominal and real interest rates have been at historic highs. To the extent companies projected lower oil prices and high interest rates at the time of the recent lease sales, cash bonus bids would have

- been expected to decline for reasons having nothing to do with accelerated leasing.
2. As noted earlier, 20 to 60 percent of the tracts leased since enactment of the OCSLA have used alternative leasing systems. The alternative systems, such as the sliding scale royalty and higher fixed royalty, are intended to lower cash bonus bids. Again, the bonus paid per acre or per tract would have been expected to decrease for reasons having nothing to do with accelerated leasing.
  3. Finally, the focus in public debate on the trend in the average number of bids per tract sold — aggregated for an entire lease sale — obscures important information. The overall average number of bids could be low per tract offered or sold, but bidding for the most promising tracts could be intense. Since most of domestic production and economic rent comes from relatively few very large fields, intense bidding for the most promising prospects could mean that the lion's share of the total rent is being captured, even if government's share of the rent on smaller or marginal tracts may have declined.

A post-lease sale screening process is used by the Interior Department to help determine whether or not company bids reflect fair value. Eventually, it would be possible to estimate the *ex post* rate of return earned by companies on tracts sold at area-wide sales, along the lines of an earlier study by Mead and Sorensen (1980). Beyond the above qualitative remarks, it is not possible to draw any concrete conclusions concerning the effect of area-wide leasing on the share of economic rent occurring to the government. Area-wide leasing has been a controversial issue and likely will remain so under the label of the EEZ. Whether recent efforts to modify the lease sale process, while continuing to adhere to the area-wide concept, will allay the concerns of coastal states remains to be seen and to be debated in future forums.

## CONCLUSION

The President's EEZ Proclamation does not appear to raise any fundamentally new management issues for oil and gas exploitation in federal waters (although as other speakers have noted, the precise definition of ocean boundaries has become more critical). Nonetheless, the economic importance of the hydrocarbon resources in federal waters, the variety of diverging interests concerned with their development, and the movement of exploitation toward deeper waters and harsher environments assure that the management of oil and gas in the EEZ will remain a topic of considerable significance and public debate.



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## Discussion

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**Burroughs:** Bob Hunt and I were talking earlier today about that deep water tract question and one interpretation is that if the price of developing those tracts is very high and the government wishes to retain its revenue prerogatives as they are today, would you postpone leasing them until the market justifies the additional cost involved?

**Hunt:** Let me clear up something, that was not one of my proposals.

**Burroughs:** No, it was my proposal, I'm afraid. His statement was that it is very hard to make money on deep water tracts.

**Hunt:** What I said was that considering a constant price of oil, greatly accelerating costs including business in deeper water that there is no question but that we are going to reach a point where you cannot do it anymore.

**Shkor:** Can you give us an idea of what it costs to produce a barrel offshore, either in the Gulf or in the North Sea or comparative examples?

**Hunt:** Producing costs?

**Shkor:** Yes, your costs of production.

**Hunt:** I do not think that is a meaningful question. The costs of doing business offshore start when you begin your assignment. You do the seismic, you bid on the acreage — if you are lucky you get it — then you drill a well — and if you are lucky you find something. Because, three times out of four you're not going to find anything. Now, that's just for openers.

**Shkor:** I didn't mean just to pump it out of the ground, I mean your total costs.

**Hunt:** So you've got, say three dry holes and one producer — I'm keeping it simple, ratio isn't always that good. It is obvious that to make money offshore that one producer had better pay for those three dry holes or you are going out of business. Now, the problem we have with running analyses on things like this is that you can add all sorts of figures. Last week I was in a seminar for the Energy Bureau, as an economist from New York City was running all these numbers for us and the cost of finding oil and the proper crude

oil operations and he came out with 13 percent. What he was doing was only taking the successes. He would take the cost of a successful field and he said, "Well I can get 13 percent." Well that's nothing outstanding to start with, but what he was ignoring was the three dry holes, or the four, or the six, or the eight, whatever the ratio may be in that particular area. And, that's what the bottom line is to us — we have to make enough to stay in business considering all of our investments, not just the successes, but the successes and the dry holes both. So, when you say — how much does it cost? Well, I don't know what you mean — one barrel coming out of the ground or what? I know it is a hell of a cost in business — I know that and as soon as you get offshore the costs keep going up drastically and when the water gets deeper they go up even more so. The two great costs of producing offshore are steel and time. And, when you start delaying your operation you are talking about slowing down production, you are killing your rate of return when you do that. You are stretching out the time it takes to get your money back.

**Grigalunas:** That's right. But, it may make sense if the extra tax that you pay more than offset.

**Hunt:** Yes, but when you get into that kind of a situation, I mean you are in a pretty wobbly situation to start with. The problem with sliding scale royalty and all of that is that you are getting the government in the oil business to the extent that they are beginning to take the same risks we are. If they are saying, "We'll delay our return back here until you make it" well then there we got half of a return for beginning. So, they're taking risks along with us. And, I don't think the American people want to do that. I don't think the Federal Government wants to do that because right now the bonus" that we are worried about — or we're talking about here — are of the same high income for the Federal Government today. And, I don't think you want to do that.

**Alexander:** Would your offshore operations as a total have to be at least profitable for you to stay in the offshore business?

**Hunt:** Yes.

**Alexander:** And you take that as opposed to onshore? You wouldn't be making money in offshore total?

**Hunt:** The same thing applies to onshore. You have the same problem. You are drilling wells all over the place, you make a few discoveries, you have a couple of oil wells which you found. With your return on your investments you have to cover all of them.

You have to cover them all onshore, you have to cover for all of them offshore. You can say "Well, you let your onshore carry you." Well, you can do that, but that's not going to last very long and that's their business.

**Alexander:** And then you get out of offshore.

**Hunt:** Yes, if the money isn't there, you going to eventually have to get out of it.

**Grigalunas:** I'm not sure I disagree, Bob, the government collects royalties now, slide scale royalties is just another way of collecting royalties, it is true it is different...

**Hunt:** And the bonus, that you well know, when we sit down and make a bid on a tract of acres offshore we run every cost we can forecast in that thing. We do not, however, run forecasts of environmental damage. When you go to the *Amoco Cadiz* you are talking about transportation. We are not worried about that. When we come up with a bid we worry about a spill that might be caused by accidents in production and the latest study on that shows that 0.05 percent of the oil in the oceans today comes from exploration production and 20 percent comes from transportation and most of it comes from urban disposal. So, the big problem patterns on environmental damage from oil comes from transportation, not from exploration.

**Grigalunas:** I may not have been clear, maybe it was my fault, I mentioned *Amoco Cadiz* only to discuss the difficulties in the legal system. There's no comparison between what happened in that case and offshore oil.

**Hunt:** You see when we talk about making bids on the Georges Bank we don't worry about the *Amoco Cadiz*. We're not even thinking in that term.

**Broadus:** Do you worry about the strict liability?

**Hunt:** We've always had the liability. How can you operate?

**Broadus:** So, you calculate that into your bid?

**Hunt:** No. We don't calculate a big liability into our bid. We assume we are going to be able to operate safely and the record is in our favor. That's the way it is.

**Grigalunas:** Well, there's no question oil spills are rare and large spills are very rare.

**Ashe:** Just a couple of remarks, I'd say to Bob that he is correct, their record is very good offshore. I think a preponderance of the unsettled environmental questions are the ones that relate to the

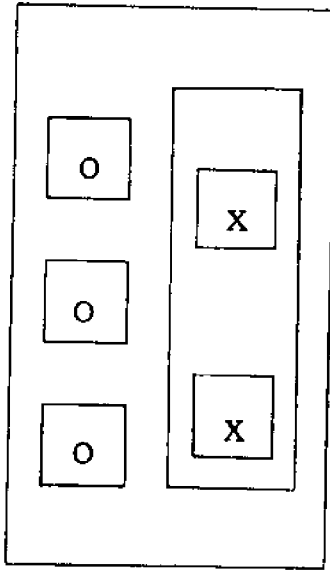
onshore. I think what happens does so once the activity moves into the onshore. Although there still are some unanswered questions about the offshore activity. The alternative bidding that you have talked about has an important part of the OCSLA the alternative bidding provisions of the OCSLA either have lapsed or are about to lapse and the Secretary of the Interior will no longer be required to experiment with alternative biddings. The general accounting office has recommended that that provision be extended, and to date nothing has been done about that and I do think that is important.

The other — I guess this is a question — the figures up there and I think they are interesting and I realize there is a lot of background noise and the situation is hard to figure out exactly what is going on, but I think the general standards serve — there has been a general rather marked reduction in the bids-per-acre, there has been a rather marked reduction in competition and I think the question has to be asked in lieu of the area-wide leasing proposal and the competition and other effects that you may have in lieu of the poor world markets and the slack in the world market, in view of some of the environmental questions that remain outstanding, is it a good idea? Is area-wide leasing a good idea from the standpoint of stewardship of the resources?

**Hunt:** Let me remark on that. I want to get into that anyhow, to clear up a big mystery of why we are in favor of area-wide leasing. The chart you put up there — first thing you didn't put on there is a number of tracts that were bid on. You put the number of tracts offered. Because, what it should have shown is the amount of acreage leased in the first year of area-wide concept was 7 million acres and the year before it was about three to four. You were worried about the cost or the average bonus per tract? If that's the Federal government's goal I can tell you right now how to do it. Just go back to the Gulf of Mexico, forget all the frontiers, just go back there to the Gulf of Mexico and the cost for the bonus per tract is going to go back up again. Very simple — there's oil there. We know there's oil there. It's a little different going out in the Chuckchi Sea than going down there. We are not going to pay for a chance in the Chuckchi Sea the same that we would for a pretty good well down in the Gulf of Mexico. And, so the average cost or the average dollar value per bid would go up.

Now, please let me do something else — this really gets me — lets talk about area-wide leasing. Here's an area, now, we go to the area-wide leasing, okay. We may go in and decide to go over this area and we will find structures scattered around — like these

X's and O's: (This is the way the geologists see it.) We can look at this and say, "Well, there are possibilities in all of these." Under



the old system what the BLM would do is say "Well, let's offer for lease this area — the intersquare marked with X's — and they put that up for lease. So, this is all we had to look at. We know that these are out here — the areas marked with "O" in squares — but they are not on the schedule. So, you don't have an opportunity to look at it. And, the X's are all we had to focus on. Now, if we are trying to make a success of this offshore business, we — in the industry — might get a chance to look at the X's and the O's. But, these might both be dry. Maybe this is the best thing in the world right there in a particular spot not on the schedule — but we don't know and we won't find out until the BLM puts up that area which may be three years later. So, area-wide leasing looks like this (the whole box) and BLM says "look, we are going to let you take a look at this whole area and you tell us where it is you want to bid." So, the industry comes back and says lets put the same areas here where the X's are and some where the O's are. And, of course, the numbers you always see are the numbers that cover the entire box and it seems like "God they're giving away the world." But, that is not the intent. The intent of the whole system is to allow us to identify where the prospects are and get a kick out of them now, instead of four years from now. And, that's the intent of area-wide leasing. And, that's why we are in favor of it.

**Ashe:** I think one of the problems, though Bob, is that at least between Secretary Watt at the Department of Interior, if someone had a concern about the upper right hand corner of that area and wanted some stipulations or a deletion he could say forget it, we are offering the whole area. I don't think there is a lot of concern — question about the idea of industry nominations.

**Hunt:** The problem here is you are offered this whole thing. Now, granted, we can talk all day about the conflict resolution package with the Department of Interior, explored in the last three years. But, that's not what I'm working on. I'm working on why area-wide leasing is good for us and is good for the country.

**Ashe:** But, I think there is a difference between area-wide leasing and leasing areas that are determined by industry interests and I don't have any problem with leasing the areas that you guys are interested in or most interested in. But, it's the concept of throwing 35 million acres up for lease.

**Hunt:** No, they are throwing 35 million acres up for us to select where we would like to be. Now, don't forget, if the state says — look, you better not put an acreage up in there. Well then if that's what it takes to run the sale, mark it down, and gives us the rest of them.

**Ashe:** That has not been the practice though.

**Grigalunas:** I think to some extent what we might be talking about is sort of history. I unfortunately missed the fellow from the Interior Department but I understand there is a movement sort of back that way. But, Bob, I do confess you are right I should have had another column in that table and in fact I have had similar discussions on the issues you have raised and I guess on behalf of accelerated leasing and larger area leasing — whatever we call it — is to the advantage you pointed out that is — you want to go to the best prospects first and if a larger area leasing does not, however, exactly you do it, whether its area-wide or some other better way maybe, that is where we want to head because the individual company wants to develop the best tracts first. That makes economics sense and other things equal, society wants to also.

**Hunt:** Keep in mind, when the notice for sale comes out it is not all the acreage in the planning area that is up. By that time they have selected the areas — knocked out the areas of great environmental concern — and those areas which we identified are in the sale and that's it. And, that makes sense.





**RESOURCE USE AND USE CONFLICTS  
IN THE EXCLUSIVE ECONOMIC ZONE**

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