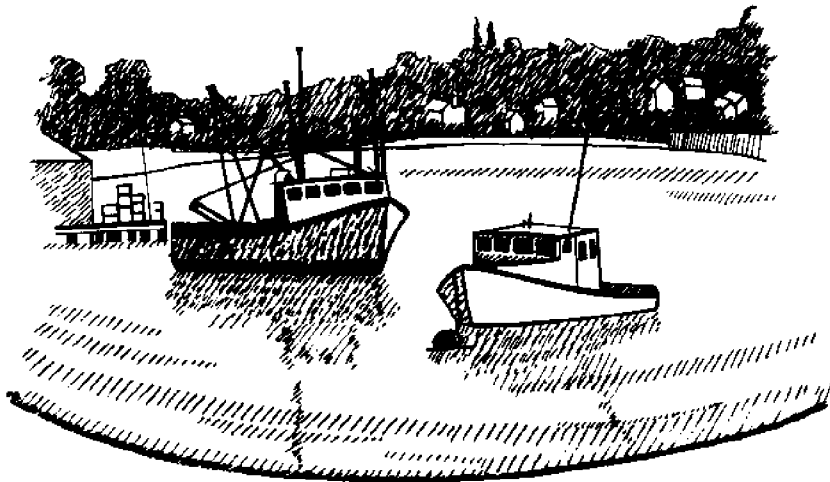


**LOAN COPY ONLY**

# **Fishing in the 80s: A New England Industry in Transition**

**Nancy L. Penrose**

**CIRCULATING COPY**



**NOAA/Sea Grant  
University of Rhode Island  
Marine Memorandum 67**

FISHING IN THE 80S:  
A NEW ENGLAND INDUSTRY IN TRANSITION

Report on the December 9, 1980, conference  
sponsored by the member organizations of  
the New England Marine Advisory Service.

Nancy L. Penrose

Coastal Information  
and  
New England Marine Advisory Service  
1981

FOREWORD

This report is intended as a background document on the New England fishing industry for reporters, educators, and others new to fisheries to help them gain a better understanding of the character and problems of the industry. This publication incorporates, but is not limited to, information discussed at the Fishing in the 80s Conference, held December 9, 1980, in Sandwich, Massachusetts.

The New England Marine Advisory Service (NEMAS) is an association of Sea Grant and other marine advisory, extension, and educational programs in the Northeast established to share professional resources and work cooperatively on projects of regional scope. Current NEMAS members are the Sea Grant Advisory Programs at the Universities of Connecticut, Rhode Island, Massachusetts, Maine, and New Hampshire, the Massachusetts Institute of Technology, State University of New York/Cornell, as well as Southern Maine Vocational Technical Institute, New England Center for Continuing Education, New England Aquarium, Massachusetts Division of Marine Fisheries, Maine Department of Marine Resources, the National Marine Fisheries Service, and Massachusetts Maritime Academy.

Mary Cerullo  
Conference Coordinator

This publication is sponsored in part by a grant from four components of the National Oceanic and Atmospheric Administration (Office of Coastal Zone Management, Environmental Data and Information Service, National Marine Fisheries Service, and Office of Sea Grant) and by the member organizations of the New England Marine Advisory Service.

Additional copies of this publication are available from URI, Marine Advisory Service, Publications Unit, Bay Campus, Narragansett, RI 02882.

P910 5/81 750

FISHING IN THE 80S:  
A NEW ENGLAND INDUSTRY IN TRANSITION  
December 9, 1980

AGENDA

The Business of Fishing: The Economic Realities  
Developments in fishing technology, processing, and marketing are necessary to respond to a changing economy.

Moderator: John K. Hutchinson, Director,  
New England Marine Advisory Service  
Jacob Dykstra, President, Point Judith Fishermen's  
Co-operative Association  
"Economic Structure of the New England  
Fishing Industry"  
Lee Weddig, Executive Vice President, National Fisheries  
Institute  
"Trends in Seafood Marketing and Processing"

Fishery Management: The Political Realities  
A new management framework, the New England Regional Fishery Management Council, is testing traditional and innovative approaches to regulation.

Moderator: Charles Sheldon, Fisheries Consultant,  
The Marine Group, East Orleans, Massachusetts  
Robert Hanks, Industry Liaison, National Marine Fisheries  
Service  
"The Management Framework"  
Robin Peters, Publisher, Commercial Fisheries News  
"New Strategies to Meet Old Challenges"  
Daniel Arnold, Executive Director, Massachusetts  
Inshore Draggermen's Association (MIDA)  
"Effect of Management on the Fisherman's  
Lifestyle"

U.S. - Canadian Fishing Treaty  
The treaty is an attempt by friendly neighbors to resolve differences over fishing rights and maritime boundaries. Opinions are divided about its benefits for American fishermen.

Moderator: Michael Hastings, Aide to Senator George  
Mitchell, Maine  
David Crestin, Chief, International and Oceanic Fisheries  
Branch, National Marine Fisheries Service  
"In Favor of Ratifying the U.S. - Canadian  
Agreement"  
Edward Bradley, Director, Maine Fishermen's Co-operative  
Association  
"Opposing the U.S. - Canadian Agreement"

Georges Bank: Fuel and Fish

With drilling on Georges Bank assured, the question now is how the oil and fishing industries will work out compromises on access to fishing grounds, oil spills, debris from the rigs, and disposal of drilling muds.

Moderator: Patricia Hughes, Outer Continental Shelf  
Coordinator, Massachusetts Office of  
Coastal Zone Management  
"Overview of Georges Bank"  
Jay Lanzillo, Industry Adviser to Chatham Seafood  
Co-operative  
"Concerns of the Fishing Industry"  
William Berry, Environmental Specialist, Shell Oil  
Company  
"The Search for Safeguards"  
Robert Ayers, Environmental Scientist, Exxon Production  
Research Company  
"Drilling Muds on Georges Bank"

TABLE OF CONTENTS

Foreword	iii
Agenda	iv
Background	1
History of the New England Fishing Industry	2
Profile of the Industry Today	3
Marketing and Processing: The Economic Realities	6
Marketing Methods	6
The Fresh Fish Industry	6
The Frozen Fish Market	7
Future of the New England Fishing Industry	8
Fishery Management: Evaluating the Fishery Conservation and Management Act	11
Impact of the FCMA	12
Management Structure	13
Regulation: Is It Working?	15
Future of Fishery Management in New England	15
Resource Conflicts	18
Georges Bank	18
U.S. - Canadian Treaty	20
Conclusions	21
Speakers and Moderators	22
Conference Planning Committee	24

## BACKGROUND

"After spending nearly five years in the U.S. Army in World War II, my outlook on life changed greatly. The regimentation of Army life has convinced me that I must spend the rest of my life in a free and independent setting. When my enlistment was up, I bought an old fishing boat and, ten years later, a new boat. Between 1950 and 1977, the freedom and independence that attracted me to fishing changed very little. I could have cared less, really, during those years about what was happening just a few miles away. There were few regulations, and success was keyed to business management and the local availability of fish. Then along came the FCMA [Fishery Conservation and Management Act of 1976] and the imposition, as the fishermen see it, of the federal regime. Now the independence so important to us has vanished," stated Dan Arnold, executive director of the Massachusetts Inshore Draggermen's Association, during the Fishing in the 80s Conference.

The fishing industry has changed dramatically in the last few years, due primarily to the passage of the Magnuson Fishery Conservation and Management Act. The law relieved foreign fishing pressure on traditional American fisheries, encouraged optimism and growth in the industry, and attracted the interest and investments of financiers from outside the industry.

At present, the fishing industry is reaping a greater harvest from the sea than it has for many years. However, this newfound prosperity is being offset by inflation, government regulations, and increased competition for limited resources. With the additional growth and complexity of the industry, its activities have expanded into the arenas of business, politics, and advocacy.

The purpose of the conference on December 9, 1980, was to provide an opportunity for industry leaders and news analysts to meet and explore current issues affecting the fishing industry and the entire coastal region. It is hoped that as events continue to reshape the fishing industry during this decade, readers of this conference report will be able to use the information provided to follow and interpret changes in the industry as they occur.

## History of the New England Fishing Industry

The waters of the north Atlantic off the New England coast have historically provided significant economic benefits to the region and to foreign interests. As early as the sixteenth century, the French and Portuguese came to fish near Grand Bank off Newfoundland. By the early seventeenth century, the New England colonists were fishing heavily for cod and preserving it by splitting, salting, and drying. Salt cod was the first American export, and it was a staple on both sides of the Atlantic.

By 1830, improvements in gear, boats, and fish preservation techniques expanded the harvesting to include mackerel, herring, hake, menhaden, and halibut. After the transition to diesel, improved ice-making techniques permitted larger catches of fish and faster delivery to the dock.

Shortly after World War I, the public's taste was successfully changed from salted to fresh fish, when quick freezing processes introduced fresh, frozen fillets to the market. Fish such as haddock, which did not salt and dry well, now became marketable.

Innovations in underwater technology developed for submarines and ships in World War II introduced Loran navigation systems and electronic fish finders to the New England fishing industry. The new technology allowed fishermen to locate, and return to, prime fishing grounds, and provided increased safety for exploration of new fishing areas.

The New England fishing industry continued to expand slowly up to 1976. During this time, foreign fishing in waters off New England's coast increased dramatically. Factory-freezer trawlers from countries such as the U.S.S.R., East Germany, Poland, Japan, and Korea seriously depleted the traditional American stocks of fish. In response to this, U.S. fishermen worked for legislation that would limit foreign fishing. The result was passage of the FCMA in 1976, a law that was designed to limit foreign fishing in U.S. waters and to conserve and manage fish stocks that might be threatened by overfishing.

American fishermen strongly supported the passage of the FCMA as a remedy to the problem of overfishing. However, although foreign fishing was subsequently limited, and the stocks of fish somewhat replenished, the fishermen found themselves subject to increased government regulation and, since 1976, have continued their activity in the political arena that affects the New England fishing industry in the eighties.

## Profile of the Industry Today

Today, as always, the fishing industry in New England is tied to the highly seasonal factors of weather and availability of fish. Fishermen participate in one or more of the many New England fisheries, depending on how long they want to spend at sea, how often they want to fish, and how much income they wish to derive from fishing. The diversity of fisheries is reflected in the variety of boats and gear that can be found in New England ports.

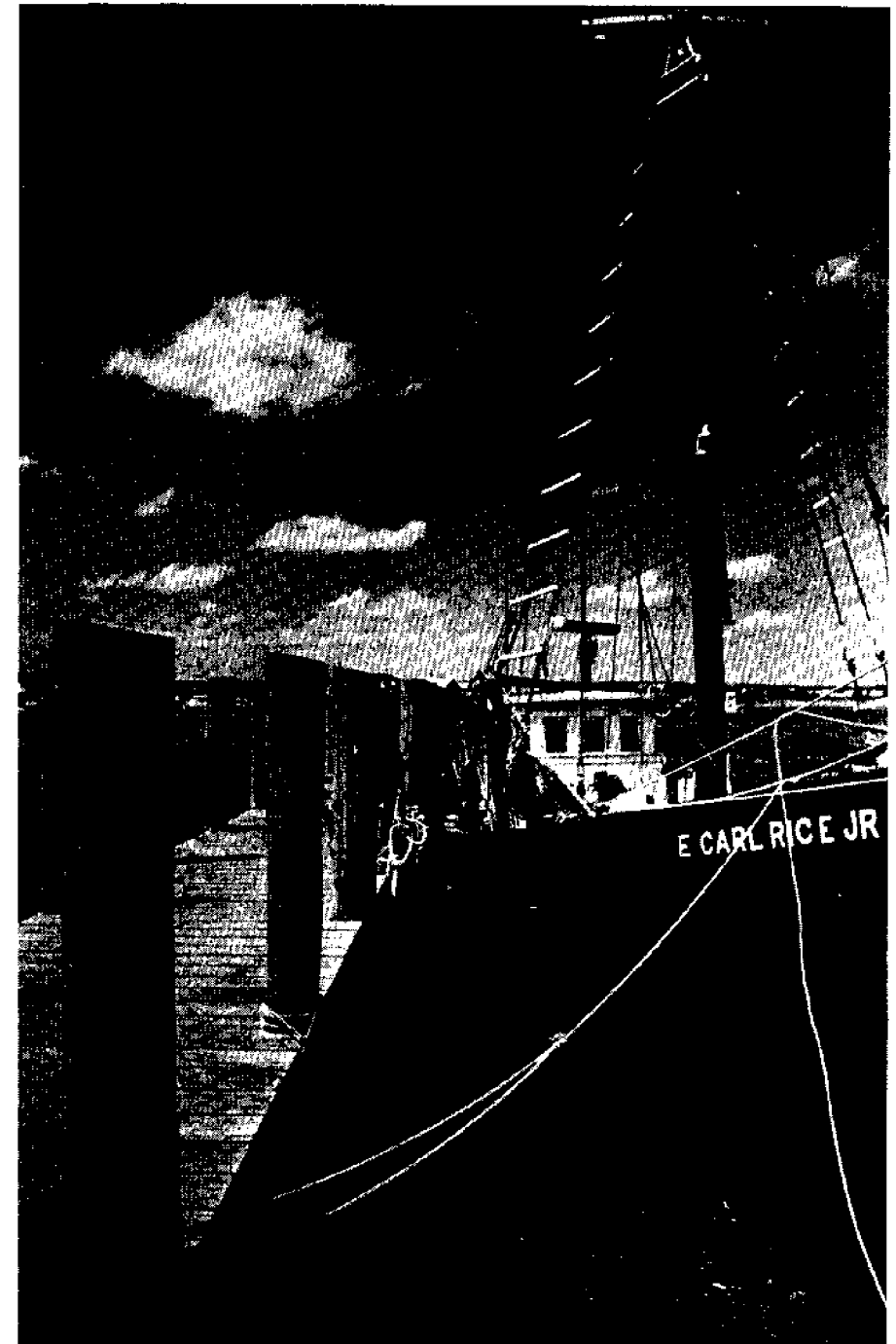
Docked in a typical medium-sized port, such as Point Judith, Rhode Island, are lobster boats that fish in the inshore waters (within three to six miles offshore) and larger, offshore lobster boats that set their pots out on the edge of the continental shelf. A visitor to the port might also see trawlers, or "draggers," docked at the piers. Trawlers, which may be 85 to 95 feet in length overall, tow a net at or near the bottom to capture many of the traditional groundfish species such as cod, haddock, and flounder. They work off Nantucket or in Long Island Sound, and are trip boats that stay out for up to six days at a time, whereas smaller draggers are usually day boats. Alongside the trawlers, one might also see a swordfishing vessel with the "pulpit" on the bow for harpooning.

A big New England port, such as New Bedford, Massachusetts, is characterized by a fleet of large (95 to 110 feet in length overall) draggers that go after yellowtail flounder and by scallopers. The vessels work Georges Bank and may stay out for 10 to 14 days on a single trip. Intermingled with the New England fleet may be carrier vessels from Norway and Iceland bringing imported frozen fish to the fish processors.

More fuel-efficient alternatives to traditional New England fishing methods, such as longlining and gill netting, are becoming more widely used as fuel prices continue to rise. However, increased use of these methods may also create increased conflicts between mobile and fixed-gear fishermen. Fixed-gear fishermen set their pots, nets, or lines in specific areas, and a trawler fishing in the same area may come along and drag them up. Potential solutions include setting aside certain fixed-gear lanes, as has been done on the West Coast, banning certain fixed-gear methods, as in Florida, or setting stricter marking requirements for fixed gear.

The New England fishing industry is not only seeking alternative fishing methods, but is actively working to meet the other challenges of the eighties. Industry representatives are lobbying for changes in existing regulations and increased government aid; marine architects are designing more fuel-efficient vessels; researchers are studying methods to improve fish preservation technology.

Overcoming these challenges depends on successful management of New England's rich, yet fragile fishery resource, for without a healthy resource the other changes and innovations are meaningless.





## MARKETING AND PROCESSING: THE ECONOMIC REALITIES

"I bet that there isn't a major city in the country where you can't have a fresh New England scrod, flounder, or scallop dinner at some restaurant or club," asserted Lee Weddig, executive vice president of the National Fisheries Institute.

New England fresh fish is well known throughout most of the United States, yet there are still many domestic and foreign markets to be opened up. Future expansion of the industry may depend on increased distribution of both fresh and frozen fish and improvement of quality from harvesting to marketing. Lee Weddig and Jake Dykstra, the first two speakers at the conference, described the path of harvested fish from the boat to the consumer, the various routes of fish marketing, and the improvements that need to be made in the supply system to foster increased growth and demand.

### Marketing Methods

New England fishermen employ a variety of methods to market their catches. Auctions predominate in Boston and New Bedford, where fishermen sell their catches to the highest bidder either by species or by the entire trip load. In most ports, however, the catch is sold directly to fish-cutting houses or by prior arrangement.

Fishermen's co-operatives provide an alternative method of marketing. The co-op is a collective of fishermen with appointed officers and employed managerial staff. At the Point Judith Fishermen's Co-operative, which was formed in 1947 and is one of New England's most sophisticated co-ops, the salesmen work for the fishermen, trying to spread the fish out among buyers to get the highest prices possible. Other co-ops exist in more than 30 New England ports.

### The Fresh Fish Industry

"There really are two separate industries in the fish business: fresh fish and further processed fish. Here in New England, these two separate industries share a common market," explained Lee Weddig. The fresh fish market depends primarily on geographical range; that is "how far you can truck the fish in a day," according to Weddig.

Jake Dykstra added that "most fresh fish caught along the East Coast is also marketed on the East Coast." Secondary marketing areas include cities such as Los Angeles and Denver. He noted that one of the changes in the industry in the past ten years has been the increase in the ability to move fresh fish products between the two coasts.

Prices that fishermen receive for their fresh fish are very much controlled by the forces of supply and demand. They are often lowest in the summer, when good weather increases the number of days spent fishing and the supply of fish goes up. Winter prices are usually higher, as bad weather curtails fishing effort. These price fluctuations may not be very evident to the consumer, however, because processors and retailers try to maintain even prices by spreading the variations out over the year.

Other factors influencing ex-vessel prices include cost of fuel, popularity of the product with the consumer, current quotas for species as set under the FCMA, and prices of competing products such as meat, poultry, and foreign fish.

Weddig pointed out that there is no single path for fresh fish to the consumer. "It is probably as confused as anything in the food industry, and yet we are a part of this gigantic food business in the United States," he noted. "In many cases, a lot of hands touch the product before it gets to the consumer." The fish typically goes from the fishermen to the processor (there may be an intermediary in between), to the retail store or a large restaurant or chain. It may go from the processor to a primary wholesaler and then to a secondary wholesaler inland or perhaps directly to the stores.

### The Frozen Fish Market

The frozen fish market is concentrated in Boston and Gloucester, where processors deal in large quantities of fish, usually imported from foreign sources. The processors convert the blocks of imported fish into finished portions such as fish sticks or breaded fillets before they are moved in large quantities to chain warehouses and then redistributed to individual stores and restaurants.

"There is very little fish frozen on the East Coast for the American market," according to Dykstra. "Other producers in other countries, such as Canada, Norway, and Iceland, can actually produce that fish and ship it here cheaper than we can do it ourselves."

Foreign fish producers are able to keep their prices low because their industries are often supported by substantial government subsidies. The producers are bound on a contract basis with some New England processors and must maintain a fixed price for their fish. American processors find the large blocks of frozen imported fish to be a more consistent and cheaper source than domestic fish. One effect of the imports is reflected in the fact that at least 50 percent of all fish consumed in the United States is from foreign sources.

Subsidies to U.S. fishermen from the federal government would be one method of equalizing the competition with foreign producers. Jake Dykstra is against such government assistance, however. "We are not looking for subsidies. We look at the farmers in the country, and we see a loss of control and freedom over their own destinies, and a lot of complicated problems that we don't want. We would like to see a climate in which we would be able to prosper. That is, any kind of tax assistance or help that we could get that goes across the board and would favor not just the guy who is struggling to stay in business, but that would help the fishing industry as a whole by a better climate, such as less regulation, and, in cases where competition from overseas is due to government assistance, some sort of quotas, tariffs, or countervailing duties that make us somewhat equal to them."

#### Future of the New England Fishing Industry

A major factor in the industry's growth in recent years has been an increase in the meals eaten away from home by consumers, since restaurants are an important outlet for fish products. According to Weddig, "Sixty-five percent of all seafood in the country is consumed in restaurants and other mass-feeding institutions." He expects this consumption to continue to grow as the American public develops a greater awareness of the healthfulness of certain foods. "The tremendous number of attributes of our product will affect its ability to grow in the future," he stated.

He believes that the industry needs changes, primarily innovations to reduce the cost of production, processing, and handling. "In the future, the people who process the product will be buying it from domestic production if the production is there to buy." Increasing this domestic production may depend on becoming more efficient throughout the chain, from harvesting to marketing, he continued.

Jake Dykstra thinks future growth will depend on changes in the profile of the New England fleet. "I don't think that the fleet in New England is particularly the fleet that we should have. Everybody says we've got too many vessels now, and that we should limit entry into the industry." He doesn't believe there are too many fishermen but rather that "there is too much pressure on the traditional species of fish (cod, haddock, and flounder), and the nontraditional species (scup, butterfish, squid) have too little pressure. We should try to solve that problem by changing the profile of the fleet."

"I would like to see vessels 70 to 90 feet long, equipped with holds that are specialized for refrigerated sea water or containerization -- whatever it takes to get good quality -- and specialized in a number of ways so that they use as little personnel as possible. I believe that this is the size of the vessel of the future."

The future of the industry appears to depend on finding a successful blend of improved preservation technology, or more fuel-efficient vessels and fishing methods, expansion into new markets, and relief from foreign competition. Given the right combination, the industry should continue expanding in the eighties.

FISHERY MANAGEMENT: EVALUATING THE FISHERY CONSERVATION AND MANAGEMENT ACT

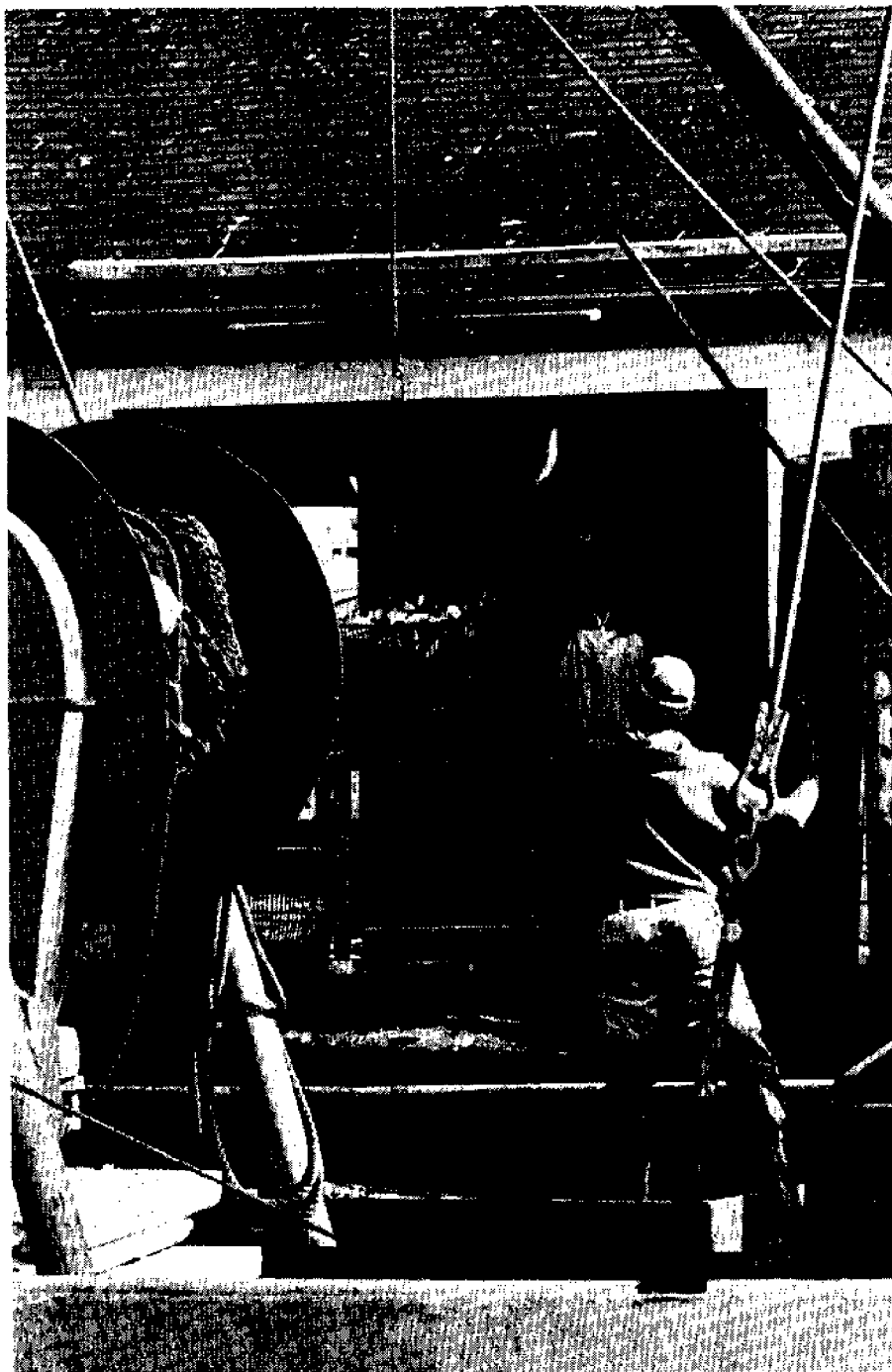
A hundred years ago, the British biologist Thomas Henry Huxley wrote, "Probably all the great sea fisheries are inexhaustible, that is to say, that nothing we do seriously affects the number of fish." In 1980, another biologist, Robert Hanks of the National Marine Fisheries Service, stated at the Fishing in the 80s Conference, "We have been living under the longtime myth of the cornucopia of the sea. It's just not true; it never was true."

The Magnuson Fishery Conservation and Management Act (FCMA), a federal law passed in 1976, was an acknowledgment that U.S. fishery resources were not inexhaustible and needed some form of protection. The act, often called the 200-mile limit law, established a fishery conservation zone out to 200 miles, covering 2.2 million square miles of ocean territory. Individual states are responsible for the territory falling within their jurisdiction, which for all the New England states is from land to three miles offshore, termed the territorial sea.

The FCMA protects all finfish and shellfish, except tuna, within the 200-mile limit. Tuna, a highly migratory species is often pursued by U.S. fishermen within 200 miles of the coasts of other nations. All anadromous fish, such as salmon, that spawn in U.S. streams and rivers, are considered to be U.S. fishery resources until they enter another country's fishing zone.

Prior to the FCMA, the U.S. participated in the International Commission on North Atlantic Fisheries (ICNAF), composed of nations fishing in the northwest Atlantic. Hanks explained that ICNAF was handicapped by attempting to manage an already overharvested resource. Quotas were established based solely on scientific factors, which were enforced unevenly by each member nation against itself.

The original initiative for the Fishery Conservation and Management Act came from the fishermen themselves. In the late 1960s and early 1970s, while ICNAF was still functioning, American fishermen watched highly mechanized foreign fishing fleets seriously deplete fish stocks in the American coastal waters. Large factory ships from countries such as Poland, West Germany, and the U.S.S.R. were sometimes so numerous that American fishermen were literally pushed off their traditional fishing grounds. In 1965 alone, more than 200,000 metric tons of haddock were taken from Georges Bank, almost wiping out the fishery. The entire Atlantic groundfish resource off the New England coast is estimated to have declined 45 percent between 1963 and 1972.



U.S. fishermen banded together in an unusual display of unity, and demanded action by the federal government. The eventual result was the passage of the FCMA by Congress in 1976, with its implementation in 1977.

#### Impact of the FCMA

Robert Hanks discussed some of the progress in fishery management under the FCMA. "There is no doubt about the immediate impact of the FCMA. We had previously had between 400 to 500 foreign vessels fishing off our shores in New England at the peak fishing time of year. Within the first year of the FCMA, these foreign fleets were reduced to a peak level of around 50 to 60 vessels."

"It was a complex system that resulted," he admitted. "However, it achieved the effect that was required, and that was to reduce foreign fishing."

As a result of increased American effort and joint ventures between American fishermen and foreign processors, exports of edible fish products have more than doubled, from 244 million pounds in 1976 to 553 million pounds in 1979. Their value has almost tripled in that time to more than a billion dollars.

Fishermen, although recognizing the achievements of the FCMA, also have complaints about its development and impact. While it restricts foreign fishing, the law also places limits on the traditional freedom of the American fisherman.

Dan Arnold, executive director of the Massachusetts Inshore Draggermen's Association, commented on the fishermen's participation in the development of the FCMA. "Novices that we were, we did not realize the wily ways of bureaucrats. Late in the development of the act, the input from the bureaucracy forced inclusion of language that set the stage for the continued need for fishermen to remain active in the political arena. To this end, a few of us have totally given up fishing. There is little room in an active fisherman's life for political involvement."

Arnold was also critical of the overoptimism and overcapitalization that the FCMA helped to generate. A boom was predicted for the U.S. fishing industry. According to Arnold, "Pronouncements came fast and furious as to the golden future of the industry. Coupled with this was the eagerness displayed by government agencies to assist fishermen and others to cash in on the perceived bonanza. This set the stage for the too-rapid development of the fishing fleet both here and in many other parts of the country and for the inflated cost of fishing vessels, many of which turned out to have the U.S. government as unexpected partners.

#### Management Structure

The FCMA is based on the concept of regional fishery management councils. These councils are responsible for developing management plans for various fisheries, which must be approved by the Secretary of Commerce before implementation by the National Marine Fisheries Service. Hanks believes "That the councils are an important, new, unique institution, not only in the United States, but in the world."

There are eight regional councils in the United States. In addition to state and federal representatives, many council members are knowledgeable citizens selected from lists supplied by state governors to the Secretary of Commerce. These members may represent recreational and commercial fishermen, processors, consumers, conservationists, and academicians, in an effort to achieve a balanced council.

"The principal job of the council is to prepare the fishery management plan for stocks of interest," explained Hanks. The councils base these plans on the best available scientific data collected by the National Marine Fisheries Service and by state fisheries agencies. Their stock assessment programs estimate the health of various fish populations based on periodic sampling surveys.

The councils take these scientific data and apply them to the concept of "optimum yield." Optimum yield is defined as "the amount of fish which will provide the greatest overall benefit to the nation with particular reference to food production and recreational opportunities," as stated in the language of the act. Optimum yield weighs conservation of fish stocks with consideration for the social and economic needs of the nation.

Hanks candidly pointed out that "management plans must be based on the best possible information, and, frankly, the best possible information is none too good." He described optimum yield as "an area of limited light," and stated that "we have very, very little knowledge of the economics and the sociology of the industry compared to the biology."

Robin Peters, a member of the New England Fishery Management Council, from Maine, also acknowledged the problem of insufficient data. "Decision making is done with very incomplete knowledge about both natural and economic systems and about what the effects of any government action may be or, worst of all, about whether we will recognize and measure those effects when they come about. There are no technical 'solutions' that we can all look to, whether we are technocrats or the lay people who primarily make up the council."

The structure of the FCMA and the New England fishing industry results a "management environment of experimentation, some original thinking, and, inevitable, strife," stated Peters. "Fishing in New England is, first and foremost, a mixed trawl fishery. Fishermen catch many different types of fish at any given time, and in different seasons and in different years. The most difficult part of this, from the management point of view, is that when fishermen put a net in the water, it comes up almost unavoidably with many species of fish." This makes it difficult to manage each species separately from the others.

At the time of the conference, December 1980, the New England Fishery Management Council had two plans in effect: one for Atlantic groundfish (including cod, haddock, and yellowtail flounder) and one for Atlantic herring. More plans, such as for scallops and lobsters, are in preparation.

Once a management plan has been written, the NMFS drafts regulations which will implement the plan's provisions. The Secretary of Commerce in Washington must review and approve the plan. An Environmental Impact Statement (EIS) required by the National Environmental Protection Act (NEPA) and a regulatory analysis (required by an Executive Order) are also submitted to Washington at that time. The review process includes public comment periods, and takes a minimum of 270 days under ideal conditions. Although these requirements are an important part of the review process, they hinder swift adaptation of regulations in an industry that fluctuates on an almost daily basis.

Part of the council's responsibilities may include allocating a portion of the optimum yield that will not be taken by American fishermen to foreign nations with whom we have a "governing international fishing agreement" (GIFA). Many traditional American stocks such as cod, haddock, and yellowtail flounder, which had been heavily overfished, are closed to foreign fishing. However, foreigners may be allowed to take "nontraditional" species such as hake and squid, which lack a substantial U.S. market.

A traditional management technique has been to set quotas on the amount of fish that fishermen may take. Disputes over NMFS stock assessments and the resultant quotas have become the primary source of strife between New England fishermen and the government. The full effect of the quota system first made an impact on New England fishermen when the groundfish fishery was closed ten days before the end of 1977 after the annual quota was reached. The enforcers of the FCMA -- the NMFS and the U.S. Coast Guard -- prohibited any further harvesting of those species, which are the mainstay of the New England industry, until the start of the new fishing year, on January 1, 1978. American fishermen realized then that their industry had become regulated, just like banking and oil exploration.

### Regulation: Is It Working?

Conflicting and frequently changing regulations have created some problems from the fishermen's point of view. Dan Arnold lamented "the awkward position that most of us have found ourselves in, of being in violation of some regulation on an almost daily basis. For the relatively few of us who have been caught and penalized, this has meant serious economic loss, but due to the thinly deployed enforcement people and the eternally benevolent attitude of NMFS, the percentage of fishermen who have been caught is low."

He also noted that many fishermen have now been put in the position of breaking the law for doing something they did legally prior to implementation of the FCMA. Fishermen now sometimes ignore the regulation, such as mesh size and spawning-area closures, as well as the ridiculous ones such as throwing away good marketable fish because they are over the boat's trip limit.

"As a result," Arnold stated, "there has been wholesale smuggling of fish, and this come perilously close to smuggling other items."

Yet Arnold believes that "The FCMA is here, and here to stay. We have already achieved some of the goals -- the fleets have grown and foreign fishing is down. The FCMA has probably gone far beyond the hopes of many of the people who worked on the original law."

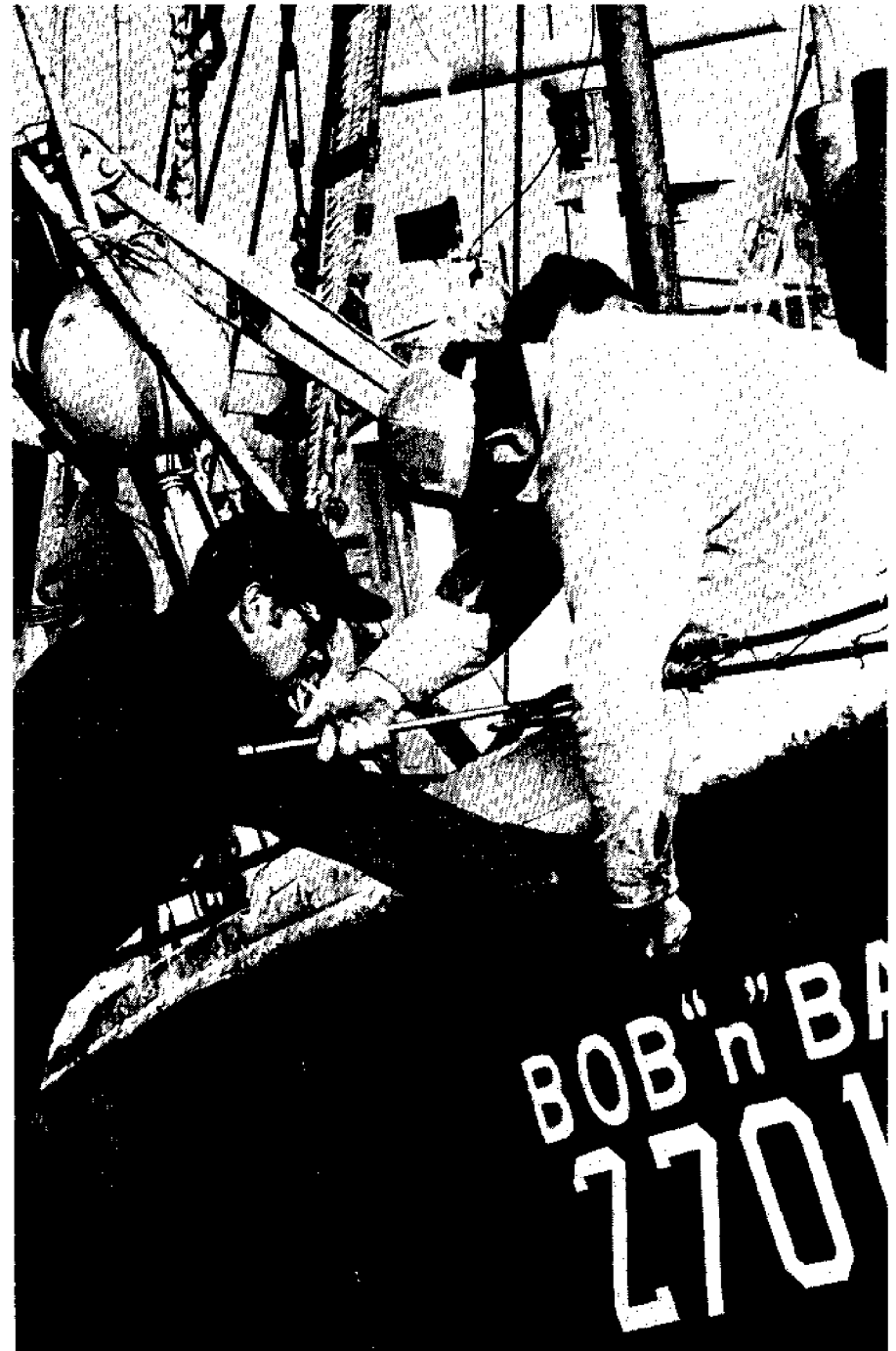
Jake Dykstra also believes that New England fishermen are better off now than they were before the FCMA. "A lot of new vessels have been built. On the whole, I think New England fishermen are in better shape financially than they were before 200 miles."

### Future of Fishery Management in New England

"What approaches can we find that are consistent with the level of knowledge that we have? We are trying to set modest objectives with basic caution built in. Can we come up with a plan that is adaptable, flexible, so we won't have to start the 270-day process all over again every time we want to make a change?" asked Robin Peters as she explained the proposed modifications to the groundfish plan currently in effect. The New England Council "has tried to come up with a groundfish plan that protects spawning areas and establishes a mesh size that regulates the size of the fish caught. Other than that, it doesn't try to limit entry or to establish quotas. This approach will hopefully be more consistent with the way the industry and the ecosystem work."

Hanks concurred, saying, "We're still a new institution," and pointed out that the New England Council has been on the forefront of the FCMA activity. "We had the first plan in the country. As to where we stand at the present time, my own perspectives are that the institution, after three years, is beginning to mature. The Council members have learned much about the science of management in addition to the practical part of the fisheries they represent."

Perhaps Charles Sheldon, fisheries consultant with The Marine Group in East Orleans, Massachusetts, and panel moderator, summed it up best: "Lest anyone forget, when you talk about fish management, you aren't talking about managing the fish, you're talking about managing the people who go after the fish."



## RESOURCE CONFLICTS

Who owns the oceans with their rich food and mineral reserves? Who has the right to manage, harvest, and mine them? As the world grows increasingly resource-hungry, coastal nations have sought solutions to these questions during attempts to resolve management and multiple-use conflicts.

Two such problems which affect the New England fishing industry were discussed at the conference. The resolution of conflicts over oil exploration on Georges Bank and the U.S. - Canadian fishing treaty have applications reaching far beyond New England's waters.

### Georges Bank

Georges Bank is one of the world's richest fishing grounds and has historically played a vital role in the New England fishing industry. Recent discoveries of oil and gas underlying Georges Bank have highlighted yet another important reserve in the area. Finding equitable ways to utilize both of these resources without damage to either industry or the environment has been the challenge faced by fishermen, environmentalists, and oil industry representatives.

Four conference speakers presented varying viewpoints of oil exploration on Georges Bank: Patricia Hughes, of the Massachusetts Office of Coastal Zone Management; Jay Lanzillo, industry adviser to the Chatham Seafood Co-operative; William Berry, environmental specialist with the Shell Oil Company; and Robert Ayers, environmental scientist with the Exxon Production Research Company.

William Berry spoke optimistically of fuel and fish sharing the riches of Georges Bank. "We believe the potential oil and gas resources underlying Georges Bank can be equally important to the area and the nation. Further, we believe that the two can coexist compatibly. We are confident the offshore oil and gas industry can conduct its activities in a responsible and safe manner, with minimal impact on the environment and the fishing industry." He went on to explain that "even in this technically sophisticated era, there is no way to find oil and gas other than by drilling exploratory wells."

Fishermen have several concerns about oil exploration. A primary one is the possible preemption of fishing grounds by drilling rigs, underwater pipelines and cables, and supply vessels associated with oil-related activity.

William Berry stated that "the area where the 63 leased tracts are located accounts for only about 7 percent of the average catch. Thus, the effect of exploratory drilling on access to fishing areas is expected to be minimal."

Jacob Dykstra, speaking from the audience, warned that exploration will preempt far more area than the actual area they [the oil industry] are talking about." Dykstra further explained that fishing is done only in certain areas where fish tend to congregate and where nets won't snag on the bottom. We stressed that the location of a drilling rig is as important as the total area that it preempts.

Trash that may fall overboard from drilling rigs and support vessels poses another potential problem for fishermen. Bottom draggers may net empty fuel oil drums or, as one North Sea fisherman found, a forklift truck. Oil industry representatives assure fishermen that such debris would not be a problem. As William Berry explained, "Not only is such dumping not a general practice, but it is prohibited by law." He agreed that "accidents can happen, though, and equipment is occasionally lost overboard in a storm, etc. Such losses must be located with a marker buoy, reported to the Coast Guard, and an effort made to salvage the debris."

Jay Lanzillo described the effects of debris on fishing in the North Sea, another area of the world where fish and fuel must share the same territory. He quoted a Norwegian scientist who had "quantitated a one-third reduction of catch in the North Sea sector as a result of debris. He wasn't saying that the fish stocks had been reduced by one-third, but what he was saying was that they couldn't get to the fish because of the debris on the bottom. They were tearing their nets up and losing them."

Although there is a provision in the Outer Continental Shelf Lands Act amendments for compensation for damaged gear, fishermen are skeptical about the reliability of the Gear Compensation Fund. Their experience so far has shown that the U.S. government is unresponsive to requests for such compensation. New England fishermen also fear that oil exploration activities may draw skilled labor away from fishing because of the higher salaries available in oil-related jobs.

The possibility of pollution from oil exploration activity concerns both the oil and fishing industries, as well as scientists and environmentalists. Oil spills are one possible threat of pollution, although the oil industry is confident that they are using the best available scientific technology in their operations to minimize the risk of any big spills. Fishermen, environmentalists, and recreationalists worry about even the smallest risk of such an accident. They are concerned about the short- and long-term effects of oil on the food chain in the marine environment and on the life cycle of marine life, as well as the possibility of spilled oil damaging New England beaches.

Drilling muds used during exploration are another possible threat to the Georges Bank environment. Although many of the muds have very low toxicities, some contain dangerous elements such as mercury. Because the Georges Bank possesses an unusual gyre type of circulation, pollutants would tend to be kept on the Bank and not dispersed into the surrounding ocean. This same circular and self-contained gyre effect causes nutrients and larvae to be concentrated in the Bank area, and contributed to the area's high biological productivity.

How to preserve and protect the Georges Bank ecosystem from damage while, at the same time, allowing oil exploration and fishing to exist compatibly is the problem currently facing New England. By taking what has been learned in other areas, such as in the North Sea, and by carefully structuring the solutions to the current conflicts on Georges Bank, the result may serve as a model for resolving similar multiple-use conflicts in the future.

#### U.S. - Canadian Treaty

Resource conflicts are not limited to competing industries. A problem currently affecting the New England fishing industry is the sharing of Georges Bank resources with Canada. The extension of jurisdiction to 200 miles brought claims for parts of Georges Bank from both countries. The United State and Canadian governments have worked to develop a treaty that would define management and harvesting rights for each country. The U.S. government was put in the position of representing the U.S. fishing industry, and fishermen were not always satisfied with the proposed solutions.

Two speakers at the conference, David Crestin of the National Marine Fisheries Service, and Edward Bradley, executive director of the Maine Fishermen's Co-operative Association, discussed the pros and cons of the proposed treaty as of December 1980.

Crestin explained that the U.S. government's motives for negotiation were to reach a level of stability for the U.S. fishing industry, and to obtain an agreement that would provide for conservation of the resource.

Bradley discussed the attitude of the American fisherman. "He is locked in morbid competition with the Canadian fisherman, who fishes stocks of infinitely greater size than those that are available to the U.S. fisherman. The Canadian fishes with the assistance of a government that subsidizes almost every aspect of that fishery. The American fisherman is faced every day with the injection of the fish from Canada into the same marketplace that he has to use."

Many American fishermen also claimed that there had been an unfair division of resources under the proposed treaty. U.S. scallop fishermen felt that too large a share of the scallop harvest was granted to the Canadians.

President Reagan has stated his intention to separate the two major parts of the treaty, which are the establishment of a joint marine boundary and the division of stocks. Just how this particular conflict will be resolved is very uncertain at this time even to the negotiators.

#### Conclusions

Similar resource conflict issues will continue to affect the New England fishing industry and other marine-related industries of all coastal states and nations. The current draft of the Law of the Sea treaty proposes establishment of a 200-mile jurisdictional extension for all coastal nations, thus formalizing what is already becoming a world order. This will undoubtedly bring increased conflicts over which countries have rights to harvesting and mining ocean resources. The Law of the Sea treaty is also concerned with achieving equitable distribution of ocean resources that occur both within and outside of the 200-mile limit. Although the future of the treaty is uncertain, the problems it proposes to solve will continue to exist, and these will have an impact on the future of the New England fishing industry.

Yet, in the face of many changes, the New England fishing industry still provides one of the few types of jobs available to Americans where long hours of hard work result directly in more pounds of fish, which translates into more dollars. A fisherman's success depends upon a willingness to work hard, an acceptance of the cyclical ups and downs that are an inherent part of the industry, and the skill to know when, where, and how to fish.

The future of the industry depends today, more than ever, on its adaptability to the many economic, natural, political, and technological influences that shape its direction and health.



SPEAKERS AND MODERATORS

DANIEL A. ARNOLD  
Executive Director  
Massachusetts Inshore  
Druggermen's Association  
460 Main Street  
Marshfield, MA 02050  
(617)837-5159

ROBERT A. AYERS, JR.  
Research Associate  
Exxon Production Research  
Company  
P.O. Box 2189  
Houston, TX 77001  
(713)956-4344

WILLIAM L. BERRY  
Senior Staff Environmental  
Specialist  
Shell Oil Company  
Box 60193  
New Orleans, LA 70160  
(504)588-4756

EDWARD F. BRADLEY, JR.  
Director, Maine Fishermen's  
Co-operative Association  
Attorney, Tupper, Bradley,  
and McDowell  
Canal Bank Building  
Long Wharf  
Portland, ME 04112  
(207)773-0788

DAVID S. CRESTIN  
Chief, International and  
Oceanic Fisheries Branch  
National Marine Fisheries  
Service  
14 Elm Street  
Gloucester, MA 01930  
(617)281-3600

JACOB J. DYKSTRA  
President  
Point Judith Fishermen's  
Co-operative Association  
Point Judith, RI 02882  
(401)783-3368

ROBERT W. HANKS  
Regional Liaison Officer  
U.S. Customs House  
Portland, ME 04101

MICHAEL HASTINGS  
Aide to Senator George  
J. Mitchell, Maine  
145 Russell Senate Office  
Building  
Washington, DC 20510  
(202)224-5344

PATRICIA E. HUGHES  
Outer Continental Shelf  
Coordinator  
Massachusetts Office of  
Coastal Zone Management  
100 Cambridge Street  
Boston, MA 02202  
(617)727-9530

JOHN K. HUTCHINSON  
Director  
New England Marine Advisory  
Service  
15 Garrison Avenue  
Durham, NH 03824  
(603)862-1970

JAY G. LANZILLO  
Industry Representative  
Chatham Seafood Co-operative  
and Old Harbor Fish Company  
P.O. Box 613  
Orleans, MA 02653  
(617)362-2511, x477

ROBIN ALDEN PETERS  
General Manager  
Commercial Fisheries News  
Box 37  
Stonington, ME 04681  
(207)367-5590

CHARLES SHELDON  
Fisheries Consultant  
The Marine Group  
P.O. Box 1029  
East Orleans, MA 02643  
(617)255-6401

LEE J. WEDDIG  
Executive Vice President  
National Fisheries Institute  
1101 Connecticut Avenue, N.W.  
Washington, DC 20036  
(202)857-1110

CONFERENCE PLANNING COMMITTEE

NICK COWENHOVEN  
University of New Hampshire  
Marine Program  
Marine Program Building  
Durham, NH 03824  
(603)862-1889

CHRISTINE DUERR  
University of Rhode Island  
Marine Advisory Service  
Bay Campus  
Narragansett, RI 02882  
(401)792-6211

ELIZABETH HARDING  
Massachusetts Institute of  
Technology Sea Grant  
Program  
Building E-38  
292 Main Street  
Cambridge MA 02139  
(617)253-3461

JOHN K. HUTCHINSON  
New England Marine Advisory  
Service  
15 Garrison Avenue  
Durham, NH 03824  
(603)862-1970

NANCY MCLAUGHLIN  
New England Marine Advisory  
Service  
15 Garrison Avenue  
Durham, NH 03824  
(603)862-1970

NANCY PENROSE  
University of Rhode Island  
Marine Advisory Service  
Bay Campus  
Narragansett, RI 02882  
(401)792-6211

RICHARD RUAIS  
New England Fishery  
Management Council  
Suntaug Office Park  
5 Broadway (Rte. 1)  
Saugus, MA 01906  
(617)231-0422

MARY CERULLO  
Conference Coordinator  
New England Marine Advisory  
Service  
45 Pleasant Street  
Portsmouth, NH 03801  
(603)431-5344

**National Sea Grant Depository**  
Pell Library Building - GSO  
University of Rhode Island  
Narragansett, RI 02882-1197USA