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REPORT OF THE WORKSHOP ON EXTENDED JURISDICTION

By

Susan B. Peterson

August 1976

TECHNICAL REPORT

Supported with funds from the Pew Memorial Trust and by the Department of Commerce, NOAA Office of Sea Grant under Grant #04-5-158-8, and was sponsored by Woods Hole Oceanographic Institution's Marine Policy and Ocean Management Program.

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EXTENDED JURISDICTION

May 10-11, 1976

Edited by
Susan B. PetersonWOODS HOLE OCEANOGRAPHIC INSTITUTION
Woods Hole, Massachusetts 02543

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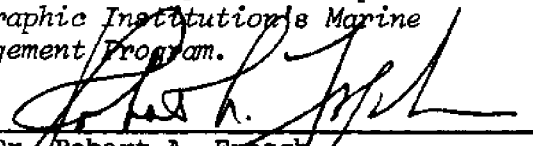

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INTRODUCTION

The passage of PL 94-265, the Fishery Conservation and Management Act of 1976 which extends U.S. jurisdiction over fisheries to 200 miles, has generated much discussion about the effects of the law on commercial and sport fishermen, fish processors and consumers. Late in March of 1976, in anticipation of the passage of the law, a meeting was scheduled at Woods Hole Oceanographic Institution for 10 and 11 May to bring together individuals from State and Federal Government, the New England fishing industry, recreational fishing groups, and academia to discuss the implications of extended jurisdiction, to share diverse points of view about the law and its effects, and to discuss the types of information which may be used to manage the fisheries off the U.S. coasts. Speakers were invited to give brief talks about a particular aspect of extended jurisdiction. Abstracts of their talks are included here. These are followed by a general list of points raised by the audience which cover some problem areas and suggestions made during the workshop. Finally, a list of the workshop participants is included.

The workshop was supported with funds from the Pew Memorial Trust and by the Department of Commerce, NOAA Office of Sea Grant under Grant #04-5-158-8, and was sponsored by the Institution's Marine Policy and Ocean Management Program. The National Marine Fisheries Service's Northeast Regional Office provided encouragement as well as support in planning the workshop.

Susan B. Peterson
June 1976
Woods Hole

"Controls for Recreational Fishing"

Henry Lyman, Publisher, Salt Water Sportsman

The best way to begin a discussion of controls for recreational fishing may be to define what I mean by the terms "recreational fishing" and "commercial fishing". The difference is quite simple. A commercial fisherman is anyone who sells his catch. On the other hand, a recreational fisherman is someone who fishes for pleasure, may eat or give away the catch, or may even hang it on the wall. As part of the management of recreational fishing, there are a number of support groups whose interests should also be considered. These include pier operators, charter and party boat operators, bait shops and even the coastal restaurants. By my usage, charter boats are those which usually take out fewer than four people, and the skipper of the boat usually sells the catch. Party boats take out larger numbers of people, and fish are kept by the people who caught them.

The new 200 mile fishing jurisdiction gives the authority to manage the stocks of fish to regional councils, and I would hope that at least one person sympathetic to the needs of recreational fishing will be appointed to each council. With this background in mind, I will go on to discuss several options for management of recreational fishing.

Option: Limited entry

While limited entry may be possible in the commercial fishery, the only limited entry for the thousands of sport fishermen is

birth control. The tourist industry would undoubtedly suffer if vacationers with grand hopes for landing a big one are denied the right to fish. A problem equally serious to the loss of revenue from the tourist industry is the problem of policing limited entry. How would one regulate small boys and old men fishing off piers and bridges, people out in rowboats, etc.?

Option: Boat ownership control

It would be possible to limit the number of boats in the party and charter boat categories; however, they are already self-limited by their economic situation. If tourism is down and costs are up, half of them may go out of business in one year. It is just like any other business. If the need is there the boat owner will prosper. Private boats would be very difficult to control, for contrary to many assumptions about recreational fishing, not all of the boats are great yachts. In fact, much of the sport fishing is done by surf fishing, from a row boat, off a pier or bridge.

Option: Gear Limitations

It seems it would be almost impossible to decimate a fishery with hooks and lines. The sport fisherman already limits his own gear. That is part of the sport. For example, many men try to fish for tuna with lighter and lighter gear just to see if they can do it.

Option: Overall quotas with fixed landing payments

This option is not the answer for sport fishing regulation.

Tourists from inland states would not be able to compete for a share of the quota as easily as coastal residents. Intense sport fishing early in the season might leave the fellow with the August vacation facing a closed fishery.

Option: Catch limits

Perhaps the best solution to the problem of controlling recreational fishing is to limit the catch by the size of individual fish and by the number of fish caught per day. This method is already used for the channel bass in Maryland, Virginia and North Carolina, and there is a size limit on striped bass here in Massachusetts. Unfortunately, there are as many laws as there are coastal states.

Conclusions

First, I would appeal to the bureaucrats not to be too bureaucratic in their management of the recreational fishery. They have a tendency to do this as can be illustrated by the current laws governing duck shooting. In order to hunt without fear of arrest, one must have a bird book, topographic map, chronometer, calendar and an attorney in the duck blind! There should be simple controls with simple instructions. Although licensing may be required, it is now opposed by most sport fishermen, partly because many people do not realize what needs to be done to conserve fish. Thus I would suggest publicity well in advance of any licensing program, publicity which would state the advantages to be gained from licensing. For example, with a

licensing system, we would know how many recreational fishermen there are. With that information, we could get some indication of the political clout they might have, and a measure of the amount of excise tax funds that should be appropriated from the Dingell-Johnson fund. Some of the money could be used to build artificial reefs that would enhance sport fishing. Other funds could be used to provide more beach access for sport fishermen.

In conclusion, I would like to say that I hope that biological management of the game fish also includes the management of the species upon which the game fish feed. Also, I would hope the low value commercial stocks of fish not be turned into fish meal when there is a high sport value attached to those species. An example of this would be marlin. Finally, the regional councils should be careful to view the overall picture, including the food value and the economic value of the fisheries to the coastal area.

Biological Information Needed Under Extended Jurisdiction

Richard C. Hennemuth
National Marine Fisheries Service, Woods Hole

The kinds of biological information needed under extended jurisdiction should not be much different than that needed in the past. However, the order of importance attached to the different biological aspects is going to be rather different. The goal of optimum sustainable yield is, for example, going to generate an emphasis on availability of the resource - high catch-per-unit effort for seasonal inshore concentrations. Thus, biological information related to stock composition, movement and environmental influences may be of prime importance.

The name of the game is allocation, and many factors, including the example above, affect it. Using a biological analogy, we can say that there are really two major types of allocation. One of them is voluntary allocation and the other is involuntary allocation. The ocean ecosystem is almost impossible to circumscribe with nice, neat little lines that fit what anybody wants to say or what the scientists would like to do. It just doesn't work that way and the same applies to the classification I am using, but certainly in the terms of the voluntary aspect there are going to be a lot of people who want to divide up the resources and assign them to certain segments of society. The recreational fishermen certainly want to do that to make sure that their desires are represented, the United States commercial fishermen want to do it, the public wants to do it and the foreign fishermen want to do it. It is a

world-wide problem.

What we need to have, in terms of voluntary allocations, is information which will predict the effect of what it is the people want to do. What we have to be careful of is that our advice, particularly biological advice, is not interpreted in such a way that some desired event is seemingly guaranteed to happen. When it does not happen and everybody is disappointed, the whole system of management may be adversely judged, and there may be a real negative impact on the fisheries. Also, if we have the information and we can predict effects of proposed actions, it is often not what people want to hear regarding allocation and resources.

The involuntary is really a matter of getting enough information so that we can, in fact, understand what the animals are doing themselves to allocate their resources. This is something in the open ocean that we can't do anything about. Man is still puny compared to the processes that go on out in the open ocean. Things are happening in the ocean in terms of energy transformation that we can't do anything about and we will have to live with it. These involuntary allocations we have to know about and we have to understand so that people who are making the decisions on voluntary allocations at least can be aware of the constraints and know something about how they are going to interact and affect what they are trying to do.

Now under both types there are obviously tradeoffs that can be gotten but in our ignorance we often try to make a choice that is not available to us. Perhaps the problem could be put down in two

prey-predator matrices. This is not going to be very detailed and it is not going to be mathematical. Matrix B (p.12) is the sort of system that is going on in the ocean and, if you will, the coefficient of each cell represents to some extent the flux of energy. If you put it this way you do, in fact, have a flow up through the predators but, on the other hand, you also have a competition among prey or predators that involves a flow of energies. Some people like to try to put this as in a bureaucracy where you have the higher order of predators and a lower order. The bluefish is mentioned as being a high-level predator but we have something called an euphausiid which is a little animal in the ocean that you catch in a plankton net but one has to realize it is a predator on fish larvae. This is a fairly complex kind of thing - as I said we are in no way able to understand all the action that is going on in this kind of a system. I am trying to make the point right now without going into any detail that if we don't gain understanding of what is going on a lot of things we are trying to do may be totally frustrated. It simply may not be possible to get 50,000 tons of cod and 50,000 tons of haddock. That may be a situation where once out of every 30 years may be a year which, in fact, 50,000 tons of each are produced. But all the rest of the years you have something less or more depending upon the relative state of the populations at the time and perhaps what is happening in the environment.

The A prey-predator matrix includes the predators as the fisheries and we have, in fact, what amounts to the voluntary aspect of

allocation. In each cell is a mortality induced by these fisheries on the population. Now it is very important in this case to look at the totals because this is the mortality that the stocks are subjected to. Depending on the objectives - and one of these objectives may be how much of this particular species we want in the ocean - we now tend to achieve them by adjusting the fishing mortality. We adjust the fishing mortality by defining a set of things which we call fisheries. The goal is to maximize options so you have as much flexibility in this as you can. The sociologist and the economist, the fishing industry, the states, and everybody is going to want some sort of hand in defining fisheries because that is what we will regulate. So you're controlling fisheries input to achieve some results which, in turn, involves a whole bunch of unintended input inputs (e.g. by-catch) and it has to sum up so that the total mortality is controlled. The overall total, of course, is what is happening to the total biomass of those animals involved and you can't look at the A Matrix by itself. What you have to do is try to put the B Matrix in as well as all the by-catch information, etc. in order not to exceed productivity. There is some overall total limits of productivity in the ocean and there is a lot of allocation of that productivity amongst all the animals out there.

There are, of course, a lot of ad hoc allocations in the system and if they are not realized some times the fishery will be very difficult to manage. For example, the offshore silver hake fishery was conducted primarily by the long-distance vessels. Of course, we had known through years of work that the species was mixed but we

simply were not able to partition the mortality - in terms of by-catch in the A Matrix - until late in the game. The by-catch of flounders essentially meant that the United States fishermen who preferred the directed fishery of flounders could not do this without imposing a greater mortality on the stock than could be withstood. The solution was to get the long-distance nets up off the bottom.

Another ad hoc allocation is often between small fish and large fish - there are certain species in which certain separate fisheries want small fish - Maine sardines are a typical example of this where small fish of about two years are sought - and as opposed to the adult herring which are fished primarily offshore. Here the possibility of direct allocation or voluntary allocation is there because of the essential nature of fisheries. So, this allocation is possible both in terms of value and how you harvest the resource.

What should we scientists really do in terms of acquiring data? One of the things we want to do is use more research vessels. We can put enough effort into the ocean with a reasonable amount of money to get good information on stocks status. This information would better serve the purpose of objective science as opposed catch/effort of fishing vessels, because the socio-economics make it very difficult to interpret such data.

We have, starting a few days ago and lasting until the middle of October, four foreign research vessels doing research that will be very closely coordinated with us and part of it will be more or less designed by people of the Northeast Fisheries Center. It would

be impossible, of course, at this time to substitute this effort with government research vessels - there are simply not enough U.S. Government research vessels to go around. It has been in the past, and probably should continue in the future, that we will get the equivalent of at least one full-time, large-size research vessel supplied through the efforts of the foreign countries.

The by-catch and discard information are difficult and probably we will have to have observers on vessels and it will have to be a cooperative venture to get good data. The observations are essential to combine with some good research programs to satisfy our needs.

There are two and one-half programs going on right now - one of them is ICNAF, another is the World Biological Program that came out of President Ford's and Breschnev's agreement and the half of one is the Bi-Lateral Joint Research with AtlantNIRO.

A.

Fisheries

		Species			
	Cod	Haddock		Squid	Total
Cod	F_{cc}	F_{ch}		-	F_e
Shake		F_{sh}		F_{ss}	F_s
Industrial	F_{ie}	F_{ih}		F_{is}	$F_{i.}$
			F_{ij}		$F_{i.}$
Total	F_c	F_h	$F_{.j}$	F_s	$F_{..}$

B.

Pred.

		Prey			
	Cod	Haddock	S. Hake		Shrimp
Cod	U_{cc}				
Haddock					
S. Hake			U_{ss}		
Mackerel		U_{uh}			
				U_{ij}	

"Some Functions and Responsibilities of the
NMFS Regional Offices under Extended Jurisdiction"

Jon Rittgers, Assistant to the Regional Director
for Planning, NMFS, Gloucester, MA

1. Regional offices will supply administrative support to the councils. This includes recruiting people for the executive staff and finding office space.
2. Letters have already been sent to the governors of each state represented on the council telling them of their responsibility for nominating people to the councils.
3. National Marine Fisheries Service, a federal agency, still has the same responsibilities it had before the creation of the regional councils. NMFS will:
 - a. continue many of the same programs directed to assist commercial fishing and be more responsive to sport fishing needs.
 - b. continue to provide technical aid to develop the fishing industry.
 - c. remain flexible to adapt to management plans developed by the council to implement such plans.
 - d. continue to work on problems of marketing both nationally and internationally.
 - e. continue to expand the role of the development programs along the lines of the New England Fisheries Development Program.
 - f. provide information for setting quotas/levels of foreign fishing.
 - g. provide technical support for diversification into other fisheries.

h. provide scientific (including biological, economic and other social science data) advice and evidence to the councils to help evaluate and monitor the effects of management plans and their implementation.

i. collect statistics, as in the past, as well as that information requested by the councils.

j. cooperate with the states in data collection.

k. develop the capability to collect economic data necessary to fisheries management (not to be considered broad brush approach to collection of all types of personal data).

"An Example of Social Data Collection
from a Fishing Community on the Gulf Coast of Florida"

J. Anthony Paredes
Department of Anthropology, Florida State University

The success of planned change in any human activity depends upon adequate understanding by those to be affected and, ideally, their involvement in the actual planning of a change, be it fisheries management or whatever. Moreover, a technological or social innovation, up to a point, must be consistent with existing patterns of behavior and the perceived needs of those in the affected population.

Recognizing the need for concrete information on the social patterns and world views of fishing people to support its Marine Advisory Program, the State University System of Florida Sea Grant Program sponsored our study of a small community on the gulf coast of Florida. From the outset, I must acknowledge that whatever we may have accomplished in the research over the past year, or so, has depended very heavily upon the good fortune of having an exceptionally able graduate student fieldworker for the project, Mr. Marcus J. Hepburn. Primarily the purpose of my remarks is to illustrate the utility of an anthropological approach to developing information useful for implementing programs of technical assistance and management in fisheries. Although it is risky to generalize from the results of one small community in Florida, it is hoped that our work might suggest approaches that would be workable in other areas.

There previously had been sociological and economic studies

done in the vicinity of our research site. Although these studies provide valuable comparative data, they have depended primarily upon the social survey approach and, thus, lack much of the "nitty gritty" detail which is important to understanding the workaday world of those involved in fishing industries. The two types of research should complement one another, but the more qualitative, yet often very detailed types of results typical of anthropological research are at least as important as the masses of quantifiable data with which economists and many sociologists work. The fact that our project was presented to local people and the county Extension Agent as not being a survey type study, but one which would emphasize what might be called the "grass roots" approach, had much to do with the initial success of the fieldworker. By the grass roots approach, specifically, we refer to the fact that Mr. Hepburn participated in the everyday life of the community as much as possible--going out on the fishing boats, working in processing houses, playing on a local softball team, attending community churches, helping to plan the first annual Blue Crab Festival, etc. Thus, we could learn through firsthand observation what the routine, everyday life of the people was like, while at the same time building the kind of rapport whereby local citizens came to present to Mr. Hepburn their candid views and attitudes on a variety of important issues--views, attitudes, and general information which would never be revealed in a "one

shot" survey questionnaire approach.

A second important feature that characterizes our study is the community perspective. One of the principal elements of the local economy of "Medicine Springs" (pseudonym) is fishing, particularly blue crab harvesting. Nonetheless, there are many other economic pursuits in the community and the "crabbing" industry cannot be fully understood apart from its context in the total community. So, while the majority of fieldwork has focused on the various fishing and fishing-related occupations of the community, considerable attention has been given to overall community patterns as well, including the collection of family genealogies, compiling a community census, developing an employment inventory, and observing local government and politics in operation.

Using the anthropological approach we have tentatively identified a number of general characteristics of the local fishing industry and community. What we have "discovered" may seem rather obvious, but the experience of applied anthropologists working around the world often has shown that it is precisely such "obvious" kinds of information which is of critical importance to planned change but easily overlooked by social planners. Very briefly, some of the kinds of things which we have begun to see as important features of the local situation include the following: Dependence on kinsmen and so-called "non-rational" economic behaviors are important mechanisms for flexibility in adjusting to changing economic circumstances. A local conceptual

distinction between those who "make their living off the bay" and those who "make their living off the hill" appears to be a fundamental principle underlying elements of the local social structure, such as the scope and shape of casual information networks. Determining just who is involved in local fisheries in other areas, conversely fishing-related workers in Medicine Springs (particularly in processing) come from a number of other small communities in the area, and a single individual may be involved in a variety of fishing activities such as beach seining, net fishing, and crab trapping at the same time, to say nothing of seasonal variations. Counting how many workers there are in the local fishing industry is hard; in one sense, almost everybody is a part-time worker. Finally, what we are beginning to learn from this research suggests that the image of the tradition-bound fisherman may not be entirely correct. Partly for economic reasons, partly for social reasons, Medicine Springs fishermen, after all, have accepted major innovations when introduced naturally into the community. For example, in recent months many crabbers in Medicine Springs have rapidly followed the lead of one of their fellows in equipping their boats with CB radios.

In recent decades one of the most important innovations in Medicine Springs has been the replacement of the trot line with wire mesh traps for harvesting blue crabs. Reconstructing the history of this one innovation has been most instructive in understanding the dynamics of community change and the impact on

the local economy of such a humble device as a simple crab trap. Prior to the introduction of traps in the winter of 1957-58, the official landings of blue crabs in the county averaged 125,000 pounds annually; immediately following the trap innovation the average annual landings were 3.75 million pounds. For the short run, at least, the introduction of traps has increased employment in the local fishery and opened crabbing as a source of income for some who might not have been attracted to the older and, in some ways, more difficult method of crabbing. Also, the traps have directly or indirectly brought about changes in boat design, daily routines, and informal organization of work. Whereas with the trot lines a man worked alone, with traps a helper is almost a necessity and the competition for crab boat helpers is an important factor in the local industry. With the greatly increased catch, competition for pickers in the crab houses has become keener. The need for bait (primarily various species of non-food fish) constitutes a continual problem which indirectly links the economic fortunes of the crabbers to other fisheries sometimes far away from Medicine Springs. Finally, with the increased economic importance of crabbing there has come a crystallization of kin-group control of the local industry and the heightening of the interfamily competition present in the community before the introduction of traps.

In the final stages of the research we have made use of some surveys and structured interviews. These methods were used,

though, only after almost a year of residence by field-worker Hepburn in the community. We are confident that the "grass roots" approach and the overall community perspective have served well in developing a body of information which can increase human understanding and enhance the effectiveness of the Marine Advisory Program, or other agencies, in communicating with local citizens and developing meaningful and workable programs of economic development.

"'Rights' to Fisheries Resources"

Michael K. Orbach
Department of Anthropology
University of California at San Diego

When we speak of formulating policy in order to manage a fishery, we are not only trying to understand and monitor the behavior of the fish but also that of the fishermen. Any management program must have as its effects both the proper management and conservation of the resource populations and an equitable and practical distribution of the costs and benefits of the fishing endeavor as an economic, social, and political enterprise. No management program, especially in the case of an international fishery or a fishery involved with a highly migratory species, can formulate such a policy without an extensive knowledge of the cultural communities, social conditions, economic incentives and constraints, and political perceptions of the fishermen themselves both here in the United States and in the foreign countries with whom we share a common fishing ground or species interest.

An example of this kind of knowledge is an awareness of the several different senses of the term "right to the resource" which may be implicit in a fisherman or manager's use of that term. One is 'right' in the sense of ability. This is the notion which implies that one who has expended time and energy developing a process or a fishery has earned the 'right' to a portion of the resource. This sense is evident in the reciprocity clauses of the United States' newly enacted extended jurisdiction legislation, but the knowledge of which fishermen have 'earned the rights' and in fact the decision parameters which

determine 'having earned' in this sense are lacking.

A second sense of 'right' is the sense of ownership or territorial jurisdiction. This is the primary substance of extended jurisdiction legislation and of the claims of several countries who have attempted to regulate the activities of foreign fishermen off their shores. We can learn much about the practical problems of fisheries management by looking closely at the history of these attempts to claim a 'right' in this sense.

There is also the sense of situational 'rights'. This sense is reflected in the unwritten rules of resource allocation in operation between fishermen and fishing vessels at sea. These may exist either in place of or as a supplement to more formal legal strictures concerning the resource. It is often more important to develop a clear understanding of these implicit rules than it is to understand a law as it appears on the books, for it is the former which guide much of the fishermen's behavior and consequently the fate of the resource.

A final sense of 'right' is the metasense of a responsibility to maintain resource levels over time. No one has a right, for example, to overfish a species population no matter whether they own or otherwise have 'earned' a claim on the resource. This sense is integral to any conservation-oriented management attempt, although it is often difficult to distinguish between those who are concerned with conservation and those who

are using the conservation concept to gain economic or political advantage.

When we deal with situations of potential fisheries management it is important to distinguish between various parties' perceptions of their 'rights' to the resource in these different senses. It is important because, as has often happened in the limited entry controversy, people on two sides of an issue will use the same terms but with completely different meanings, thus only further confusing the matter. It is important because the understandings which exist among the boats at sea and in the fishing communities ashore are often different from the understandings of those who formulate and administer policy. It is important because the fishermen, the governmental and scientific communities, and the general public will all benefit from a better understanding of the issues and viewpoints involved in fisheries management at all levels.

There are many other areas such as this one of the perception of resource rights in which we need to increase our knowledge of maritime occupations and the cultural, social, economic, and political systems with which the people in these occupations are involved. The tools and methods of the social sciences are means to this end.

"Changes in the Economic Climate as
they affect the New England Fishing Industry"

James Wilson
Department of Economics
University of Maine, Orono

As most everyone in the fishing industry is aware, passage of the 200 mile fishing zone legislation does not guarantee the economic health and well being of the U.S., particularly the New England fishing fleet. The legislation makes possible for the first time rational control of fish resources off our coast. Though very important and, in fact, a necessary condition for the health of the fleet, rational resource management is not sufficient. A favorable economic climate is also extremely important. My remarks here are directed mostly at those aspects of the existing and potential economic climate which are not directly affected by the 200 mile bill and which I feel will have a strong determining effect on the future development of the industry.

I suspect that solutions to the problems which I mention will have to be pursued primarily through political action (outside the regional fisheries councils) at the national level. Furthermore, this political action must be supported by a much more thorough documentation of the industry's status and circumstances than has been the case until now. In other words, the fishing industry will have to begin to imitate the more influential industries which know and carefully quantify their interests

and priorities.

1. Changes in world fish markets as a result of a general move to exclusive fisheries zones could have a short term but highly disruptive effect on the New England industry (harvesters and processors). Canada, Norway and Iceland stand to gain the most (at least in the North Atlantic) from the extension of jurisdiction. Over the long haul as the foreign fleets are phased out of the zones of these countries a dramatic readjustment and increase in the international trade of fisheries products will take place. Canada, Norway and Iceland will become even greater exporters than they are at present and the countries of central and eastern Europe especially will greatly increase their imports. It would be possible to greatly flesh out this picture of the long-term changes in world trade patterns, but for the moment this is not particularly necessary. What is necessary, however, is to take note of the fact that this major realignment is going to take place. We cannot expect it to be a smooth process. In the short run, it is highly likely that gluts will develop in parts of the world market, particularly in Canada, Norway and Iceland and these will be exported through already developed market channels, namely to the U.S. Depressed prices and profits would be the likely result. If such problems were to persist for as long as two or three years the results could be very serious.

If such a problem should arise, a reasonable solution would

be promoted by our recognition that in this particular instance the interests of the U.S. and other North Atlantic fishermen coincide (i.e. depressed prices for us are depressed prices for them). All will benefit greatly by any steps taken by any party which will hasten the realignment of trade patterns. Likewise the industry in each country, I suspect, will have to develop the means for predicting the occurrence of such gluts and the means, including political pressure from governments for arranging new trade (or other methods) of avoiding such gluts.

2. Renegotiation of fisheries treaties and negotiation of the boundary line with Canada could give rise to developments detrimental to the interests of the New England fleet. With regard to the negotiations for the Northeast Peak of Georges we can be sure that the Canadians will only satisfy our territorial preferences on the condition that they receive some concession in return. In general, I would suspect that the concessions they might be looking for are those which would give them greater access to the U.S. market and resource. This might include such things as landing rights, lower tariffs on processed fish and perhaps a preferential status among foreign nations with regard to access to our fish stocks.

Given the subsidized nature of the Canadian fleet, landing rights would pose a serious and unfair form of competition for the New England fleet in its own (especially fresh fish) market. Similarly a change in the tariff on processed fish would create a

situation in which U.S. processing capacity might be tempted to move to the Maritimes or might be put out of business by Maritime processors just at the time when the New England fleet needs that capacity to back up increased landings. On the other hand, preferential status for the Canadians among foreigners would appear to pose little threat to the New England fleet especially if reciprocal arrangements are made. Canadian competition arises because of the artificially lower costs enjoyed by their vessels and not, apparently, to any greater efficiency on their part. Consequently, if negotiations with the Canadians raise the spectre of greater or easier access to U.S. markets for the Canadians, these should be opposed as strongly as possible by the U.S. industry. Preferential access for the Canadians, on the other hand, might be a concession well worth making in order to retain Northeast Georges.

3. Another aspect of the economic climate which is strongly related to our ability to compete with the Canadians in our own markets concerns the impact of U.S. tariffs on the competitive position of the New England fleet. Tariffs can be a two-edged sword. On one hand, tariffs can protect an industry and make it more competitive in its own domestic markets. On the other hand, tariffs on inputs to the production process can raise the industry's costs of production and make it less competitive in its own domestic markets. The final competitive position of the industry is determined by the relative strengths of these two kinds of tariffs.

Recently we did a small study of U.S. purse seiners in order to determine how the overall effect of tariffs on their competitive position relative to Canadian purse seiners. What we found was that the net effect of tariffs on inputs and tariffs on product put the U.S. purse seiners at an 18-20% disadvantage--and this does not take into account the further advantage the Canadians get from their subsidy programs. Under these circumstances it is not surprising to see the large amounts of Canadian herring coming into Gloucester and being trucked down from New Brunswick. We are beginning a similar study for the entire New England ground fish fleet and expect similar results, though for a variety of reasons we don't expect the U.S. disadvantage to be quite as large. Nevertheless, the point is the same--the structure of U.S. tariffs alone places the New England fleet at a severe competitive disadvantage which is entirely artificial. Changes in this tariff structure could greatly benefit the U.S. fleet.

4. Another aspect of the economic climate which I feel needs to be changed is the role of government assistance. Even though foreign subsidies frequently place the U.S. industry at a competitive disadvantage I would not argue for increases in, or any for that matter, direct government subsidies. Subsidies have never been nor can they be expected to be as effective as a healthy economic climate in terms of stimulating an industry. As long as we have the means to create this healthy climate, as for example through careful realignment our currently detrimental tariff structure,

we need not allow other countries to force us into all the problems associated with subsidization.

Rather, it seems to me that the appropriate role of government assistance (excluding here its resource management role) ought to be limited to that kind of assistance which promotes the orderly functioning of the market. I include among such kinds of assistance the provision of the necessary public infrastructure (such as wharfage which is comparable to the network of rural roads required to get farm produce to market), distribution of reliable and up-to-date information on market prices and quantities, education of all sorts (training, encouraging the spread of new knowledge, etc.), research (with regard to the previous) and the creation and arbitration of market institutions necessary for a well-functioning market. With regard to this last point, what I especially have in mind is the fisheries equivalent of a commodities market or stock exchange. This would have to take the form of an impersonal daily auction in which sales were by the box rather than the trip so as to avoid the tying of boats and dealers. Though those ties are often mutually beneficial in the short run (for a variety of reasons) one cannot help but conclude that over the longer run they retard the vitality and development of the industry.

5. One final note on the economic climate concerns limited entry. Right now most fishermen in New England would say that there is 'no need for limited entry now'. In one sense this is

a statement with which there is no arguing. We do not have nearly the capacity relative to the resource potentially available to us to talk seriously about overcapitalization and a pressing need for limited entry. On the other hand, this very same statement seems to say that we should wait until there is an economic crisis in the industry caused by too many boats and too many men. Then and only then should we take action on limited entry.

Looked at from this point of view one is tempted to ask 'why wait for the crisis?'. Why not establish a ceiling now? Then we can avoid the crisis and will never be put in the situation of having to cut back on the number of men or boats in the fleet. 99% of the problems with limited entry, where it has been tried or talked about, concern the fact that the industry is in a crisis to start with and the fact that any move to a more efficient situation requires that some people (and not others) leave the industry. The New England offshore fleet can avoid these problems and assure itself of a relatively crisis-free future if it begins to move slowly now towards limited entry. There is still plenty of time to learn from the mistakes made in other parts of the world and to devise reasonably effective limited entry techniques appropriate to the kinds of fishing and the kinds of fishermen in New England.

"Some Comments on P.L. 94-265
and Northwest Limited Entry Experiences"

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The Fishery Conservation and Management Act of 1976 presents an opportunity, comparable to the National Environmental Policy Act, for fishermen to become involved in management decisions. The act is at present only words and concepts. Over the next few months fishermen can have an impact on how the act is put into practice.

What do the words mean? Compare the act's wording in Sec.2 (c)(4), which expresses the policy of permitting foreign fishing, with the wording of Sec.201 (f) which says, "Foreign fishing shall not be authorized for the vessels of any foreign nation unless...such nation extends substantially the same fishing privileges to fishing vessels of the United States." Can this section be used to exclude distant water fishing nations which do not extend fishing privileges to U.S. fishermen off their coasts?

The act addresses several management problems. In the past, the U.S. lacked geographic and regulatory scope in its management of fisheries. The Regional Councils are given the broadest management scope so far attempted in fisheries. Second, the act gives the potential for direct fishing industry participation in Council decision-making. Third, optimum yield is established as the management goal. The determination of optimum yield will require

biologists, economists, anthropologists, sociologists, political scientists, and others to work together. None have a very auspicious record of interdisciplinary cooperation. Fourth, limited entry is suggested as a solution to the problem of increased numbers of part-time fishermen competing with full-time, professional fishermen. Limited entry is a management approach fraught with complex practical and philosophical problems.

In the Pacific Northwest, British Columbia, Alaska, and Washington have salmon limited entry programs. These programs were started because time and gear restrictions reduced full-time fishing opportunities. For example, management reduced Columbia River fishing time from 272 days in 1938 to 49 days in 1974.

Rebuilding stocks is a major objective of the Act. If this occurs, management restrictions on gear and fishing time may be averted. Most fisheries at some time, however, succumb to the problem of too many fishers and too few fish.

An ideally constructed limited entry program can accomplish three goals -- improve fishermen's incomes, conserve the resource, and provide fish at a lower cost to the consumer. No operating fishery management program has sought to achieve all of these goals simultaneously.

Perhaps the biggest issue with limited entry is philosophic. Should the government be allowed to control who fishes? On one side of the issue, people say that government does it anyway

through conservation regulations, tariff rules, safety standards, pollution controls, subsidy programs, and like activities. On the other side, people say "Let the successful fish and the unsuccessful drop out." The problem is that any set of rules helps some and not others. For example, only 49 fishing days on the Columbia River makes gillnetting a good part-time occupation for longshoremen. Professional gillnetters, restricted from fishing in Alaska and Puget Sound, are forced to take part-time work to obtain adequate wages.

Limited entry reduces flexibility to move from fishery to fishery and industry to industry. This is one issue in the Alaska limited entry challenge. Fishermen who traditionally worked several fisheries are now restricted.

Should vessels or fishermen be limited? British Columbia and Washington limit vessels. Fishermen adapted by exchanging larger and more efficient vessels for smaller ones. Capital investment in British Columbia actually increased with limited entry (Mundt, p.49). In Alaska the number of fishermen are limited by a system of points based on past participation and economic dependence (ACFEC). Some processors who owned vessels felt that this was "highly unfair because processors have an investment and that investment is being confiscated without compensation" (Mundt, p.58).

On benefits from fishing the act says that "no particular individual, corporation, or other entity acquires an excessive

share" (Sec.301 (a) (4) (c). Chris Newton, an economist from British Columbia, says, "We really never considered the distribution of the income among fishermen or between fishermen and society" (Mundt, p.50).

With limited entry, the pressure on fishermen is to get big or get out and to substitute mechanized capital for human capital. In 1974 British Columbia vessel permits were worth \$5-6,000 per ton. According to Maury Houghton, "Today a person could have a big halibut schooner that is not capable of fishing salmon, but he may be reserving 40 tons of "A" license, which would be worth approximately \$200,000" (Mundt, p.53). Houghton noted, "It is impossible for a young person to get into the fishery today. It is really a rich man's game" (Mundt, p.30).

Successful fishermen are innovators. They are usually ahead of fishery managers. In British Columbia many used the buy-back programs to get free appraisals, trade a small vessel for a large one, and obtain vessel construction subsidies (Campbell).

Limited entry can affect other fisheries. Those excluded from one fishery look for another. In Alaska, "we perceive very clearly that many of the people denied permits for salmon fisheries will go out and acquire some snap-on halibut gear" (Mundt, p.16). In Washington the impending implementation of a license moratorium resulted in a substantial increase in license purchases. Oregon and California, without limited entry programs, also experienced impacts.

Entry programs increase management complexity. The Alaska permit application was compared to income tax forms. Martin Erickson from British Columbia said, "We did find out that the more complicated regulations we had the more violations we had" (Mundt, p.44).

British Columbia, which has had limited entry in salmon since 1969, shows no sign of abandoning its program. Alaska's program faces a referendum in November 1976. The Alaskan constitutional amendment to allow for limited entry passed 3 to 1 in 1970. Washington has had 5 limited entry programs. The first was begun about 1900. The salmon entry program started in 1975. Washington's management problems are compounded by the Federal Court decision allocating increased catches to Indians, and the fact that the fishery is shared with British Columbia.

All of the Pacific Northwest limited entry programs have been on a species basis. This is different from the more holistic biosystem approach used by ICNAF (International Commission for the Northwest Atlantic Fisheries) and reflected in the research of the Northeast Fisheries Center described by Hennemuth (page 11 of this report). A systems approach may be a better way to proceed.

What faces us is the future of fisheries. The Fishery Conservation and Management Act enables significant restructuring of fisheries management. In addition to getting on with the

pressing current problems, we need to think about what shape the future might have. Rules, laws, and procedures established now will be difficult to reverse if it turns out we did not look ahead.

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"Fisheries Regulation under Extended Jurisdiction:
Existing Research and New Directions"

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Before we get on with the discussion of extended jurisdiction, I would like to review the general approach to studying fisheries by biologists, economists and anthropologists. The studies of these academic researchers have had some influence on policy for fisheries management, but the fishing industry itself has shaped some of its own regulation through political pressures. Second, I shall discuss the possible application of a limited entry program to New England, in contrast to past experience with limited entry programs in other parts of the world.

Fisheries Research

Biologists generally have been asked to advise on managing a fishery only after that fishery is severely overexploited - when fish catch declines the fishing industry realizes the need to conserve the fish resource. To determine what is required to conserve stocks, biologists have collected data on migration patterns, life cycles, feeding habits, predator-prey relationships and so forth. With such data they have recommended various regulations, such as closed seasons or areas, gear restrictions, or other limitations, to attain conservation of the resource. Recently, the conservation goal has developed from the concept of maximum sustainable yield for single stocks of fish to the idea of managing the total biomass of the fishery.

Economists have tried to bring together biological information about the fish and economic information about the fishing industry, its labor and capital. Economists working with extension programs have talked to fishermen to encourage technical innovation and improved business practices, although these fishery advisory services have been much more limited than extension work in agriculture. Economists have also developed basic theories of the fishery as a common property resource, static and (more recently) dynamic models to describe the complex interactions of biological and economic forces in specific fisheries. Economists have suggested regulations to achieve more efficient use of capital and labor resources in fisheries in addition to biological goals of conserving the resource. The most prominent new management technique suggested by economists has been limitation of entry into a fishery.

Anthropologists and sociologists have worked intensively with fishing communities to understand better the social context of the industry. Although much useful information has been collected in such research, until very recently it was not available to those in policy-making positions. Therefore, social goals were incorporated into fisheries regulations as the result of political pressures from influential industry and community interests, rather than as a direct result of social research.

Fishermen themselves have usually been the first to notice declines in fish stocks and changes in location of fish. And,

of course, fishermen provide the basic data on fish catch which help biologists assess stock size. Fishermen have been part of a complex network of political influences including fishermen's representatives, processors and political representatives who are interested in the fishing industry. Now the industry must consider how it wants regulations to change. Fishermen themselves must make clear in what directions they wish to expand operations in response to extended jurisdiction.

Fishing industry representatives as well as researchers from biology, economics and anthropology will be contributing data and ideas to formulate new regulations under the regional councils. Clear communication among these groups is vital to the interests of the diverse and fragmented U.S. fishing industry. Because of the variety within the industry, representing the interests of the nation and the industry on the regional councils will not be a simple matter.

Limited Entry

Extension of jurisdiction over fisheries and formation of the regional councils will probably not have as great an immediate effect on the structure of fisheries regulations as some people expect. Regulations such as shellfish size limits, net mesh size restrictions, closed areas and species quotas will undoubtedly continue, at least for a while. Changes in regulations will take time.

The most frequently discussed new type of regulation is limiting entry. There are a few limited entry programs in other parts of the world which demonstrate some possible effects of such a program. The British Columbia Salmon Fishery Limited Entry Program has already been discussed by Courtland Smith, but I have one comment on the relevance of the British Columbia experience for New England.

The big increase in size of new vessels built for the British Columbia salmon fishery was stimulated by the initial provisions for license transfers from one boat to another. Even when the license transfer was changed to a ton-for-ton basis, some economic reasons continued to encourage exchange of old smaller boats for new bigger boats. In New England, such pressure for larger boats probably would not emerge from a sensibly designed limited effort program. In New Bedford, for example, boats built in the past 10 years have averaged 70' to 80', smaller than many older boats in the port. Fishermen seem to agree on the efficiency of medium-sized boats rather than very large boats. The trend toward medium-sized boats would be likely to persist even with entry limitation, because of economic and social reasons.

In South Africa, a limited entry program has sought to control both vessels and processing plants in the massbanker, pilchard and mackerel fisheries. The program has succeeded in conserving the stocks of fish and simultaneously keeping income levels high for boat captains and processors. However, the

South African fishing industry has a very different structure from the U.S. fishing industry. Fishing vessels are owned by the processing plants, and the industry is vertically integrated. Further, vertical integration appears to have been encouraged by the limited effort program, and entry into the fishery by newcomers has been severely restricted. Despite the limits to competition, technological innovations have recently been introduced to keep the industry modern.

In contrast, the New England fishery is made up of individually owned boats, with only limited examples of vertical integration in a few ports. Also, the major part of the New England catch is sold fresh or processed into frozen fillets.

A decision must be made about what sort of industry structure we want in the U.S. A limited entry program could have a wide range of effects on the fishery, depending on how it is structured. Do we want to preserve an individualistic competitive industry, do we want large company-owned fleets, or do we want something in between?

The decisions made now as the regional councils are formed and begin to modify existing regulations will have important repercussions for the U.S. fishing industry. Another important issue in these councils will be the allocation of benefits from extended jurisdiction: What will be the policy toward allocating some fish to foreign fleets? How will stocks be allocated between

commercial and recreational fishermen? Will the consumer receive some benefit in the form of lower prices for fish? Let us consider carefully our goals for the industry before we start changing its operations.

General Discussion

edited by Susan Peterson
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Although the workshop plan was to have people separate into smaller groups to discuss specific topics, the general discussion was so intense that we remained a single large group. In order to reproduce the general themes of the discussion without a transcript, I have abstracted the comments under several headings and listed them here. The discussions were about problems of the commercial fishing industry in New England rather than problems of recreational fishermen or consumers because the commercial fishing interests did not hesitate to express their opinions. Although it is difficult to tell from the following list of points, the fishing industry showed a great deal of skepticism about the role of academia and government in the management of the fishery. There was a feeling of futility, almost as if many of the problems were without solutions.

COMMUNICATION

"All of the industry people here have responded to the limited entry discussion. If you have not received the message, industry is against limited entry."

Many of the fishing industry people stated that a major problem is the lack of good communication between the industry and government, academia and state legislators. It was pointed out

that the latter groups are busy trying to find solutions to problems the fishing industry doesn't think exist, even though from the point of view of the public, these problems are very real.

Problem areas:

- . lack of communication between industry and government
- . lack of communication between industry and academia
- . lack of communication between industry and legislators
- . lack of consideration of recreational vs. commercial interests

Suggestions:

- . that Sea Grant funds be used/not be used to hold regular meetings/workshops.
- . that the existing New England Fisheries Steering Committee be used as a forum
- . that problems which all agree to be problems be attacked first

FOREIGN FISHING

"We find in New England that we are sort of a strange breed. What affects us is what happens in Canada, in Norway, in West Germany, in Spain and Portugal."

Most of the questions or comments dealing with foreign fishing arose because of uncertainty over what the U.S. would do to renegotiate multilaterals and bilaterals and establish the Governing International Fisheries Agreements set up by P. L. 94-265. However,

the negotiations with Canada over a boundary and over the management of fish were emphasized the most.

Problem areas:

- . allocation of quotas to foreign fishermen
- . lack of fishing information in State Department negotiations which might lead to establishment of boundaries, agreements, etc., based wholly on factors other than fish stocks

Suggestions:

- . that the industry inform legislators, Congressmen, Senators that discussions over boundaries are going on without fisheries data
- . that the method for determining the excess stock in the fishery which is to be allocated to foreign fishermen be clarified
- . that the interrelatedness of the stocks of fish be stressed when determining allocations to foreign governments.

REGULATION

"The whole thing involved in the two hundred mile economic zone is over-fishing. If you are going to revitalize the fishery, you have two problems: What is going to happen between the U.S. and Canada? What is going to happen to the Northeast peak? Second, forget about limited entry. I would rather see you talk about area fishing and quotas, and maybe more mesh regulation."

Most U.S. industry people feel they are over-regulated

compared with the foreign fishermen. They recognize the need for regulation in order to conserve the resource, but do not want their every move dictated by government.

Problem areas:

- . regulation of foreign fishermen
- . more and different regulation possible under P.L. 94-265
- . fishing industry can't continue to say they want the other guy regulated but must come up with some suggestions for domestic regulation

Suggestions:

- . that the Regional Office of NMFS rather than Washington work with Regional Councils because they know the problem.

REGIONAL COUNCILS

"The councils are designed so that the people who go to sea to make their living cannot dominate them."

Many questions arose about the make-up of the regional councils, the role of the fishing industry in the councils, data available to the councils, time schedules and so forth. Questions about the goal of a fishery management group also arose. Is it the council's job to make certain the fish are maintained or to control human behavior?

Problem areas:

- . industry representation on the councils
- . data availability for economic decisions such as tariff regulations for fishery products from Canada and the EEC and effective tariffs on the fishing industry
- . data sources for social decisions

Suggestions:

- . that all interested in the council development make their views known to the Governors who make up the list of suggested appointees
- . that NMFS encourage the collection of social and economic data in conjunction with biological data

FISHING INDUSTRY

"Does our government take into account the fact that the fishing industry brings jobs to depressed areas?"

"There are fisheries where there is a good income, but the fishermen may be away from their families for a long time. The way of life just isn't good - they get into a lot of trouble with their families."

Some general problems of the fishing industry were also discussed.

Problem areas:

- . members of the fishing industry who go to work for state and federal government no longer represent the views of industry.

- . industry feels unfair comparisons are made to Canada and other foreign industry disregarding the nature of economic support given to those fishermen
- . factory ships are frequently suggested as a way to improve U.S. fishing while the quality of life of the fishermen is never considered
- . lack of general political awareness by the people in industry

Suggestions:

- . that stronger lobbying efforts be developed by the industry since state and federal employees are not allowed to take advocacy positions
- . that studies be made of the subsidization of foreign fleets to determine their real costs per lb. of fish
- . that quality of life be considered in the development of the U.S. fishing industry under extended jurisdiction
- . that the New England fishing industry does not need or want factory ships

PRICE OF FISH/COST OF FISHING

"It's not the Soviets, not the Poles, or the Spaniards, it's the Canadians. EEC people say 'you people aren't going to survive in the U.S. until you tie the market to the resource'."

"The two hundred mile zone is great as long as we have a market. The government has to make up its mind whether or not it is going to allow cheap imports into this country."

In the past, the U.S. fishing industry has had rather limited markets catching fish for a fresh fish market, exporting little of its product, and importing foreign fish blocks to maintain a volume of fish for processing to meet the consumer demand for less expensive fish.

Problem areas:

- . industry has not yet learned to respond quickly to changes in the market
- . no long-term data is available on Canadian and EEC marketing nor on the role U.S. industry might play in world market
- . unionized ports in New England have grown based on scarce expensive fish, not on cheap, high volume fish
- . forms of subsidization vary from country to country
- . the emphasis in the U.S. industry grew to be on the total lbs. landed, not on the cost/lb. of catching it
- . imports are cheap - why?
- . the industry does not seem willing to increase productivity and lower price in order to be more competitive
- . the industry seems willing to continue to exploit high value species rather than diversifying

Suggestions:

- . that research be done by economists looking at the European and Canadian marketing systems

- . that the U.S. consider subsidizing its fishing industry
- . that mixed fisheries be developed
- . that better cost data be made available

Limited Entry

"What industry needs are examples of what will work here."

Section 303b6 of P.L. 94-265 allows the regional councils to limit access into a fishery if they feel that is necessary to conserve and manage the resource. Since the theory of limited entry has been discussed for many years and put into practice in several places in the U.S., several of the speakers were asked to mention limited entry. The following problems and suggestions came out of the general discussion following those talks.

Problem areas:

- . in the U.S. it has only been used in single species fisheries. What can be done for mixed fisheries?
- . other forms of regulation such as closed areas, seasons, gear restriction and quota are more acceptable
- . over-fishing is a problem; limited entry is not the answer
- . strict enforcement of U.S. fishermen would be impossible to maintain without very strict enforcement of foreign fishermen

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16. Abstracts The passage of PL 94-265, the Fishery Conservation and Management Act of 1976 which extends U.S. jurisdiction over fisheries to 200 miles, has generated much discussion about the effects of the law on commercial and sport fishermen, fish processors and consumers. Late in March of 1976, in anticipation of the passage of the law, a meeting was scheduled at Woods Hole Oceanographic Institution for 10 and 11 May to bring together individuals from State and Federal Government, the New England fishing industry, recreational fishing groups, and academia to discuss the implications of extended jurisdiction, to share diverse points of view about the law and its effects, and to discuss the types of information which may be used to manage the fisheries off the U.S. coasts. Speakers were invited to give brief talks about a particular aspect of extended jurisdiction. Abstracts of their talks are included here. These are followed by a general list of points raised by the audience which cover some problem areas and suggestions made during the workshop. **			
17. Key Words and Document Analysis. 17a. Descriptors			
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17b. Identifiers/Open-Ended Terms			
** Finally, a list of the workshop participants is included. The National Marine Fisheries Service's Northeast Regional Office provided encouragement as well as support in planning the workshop.			
17c. COSATI Field/Group			
18. Availability Statement		19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 53
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