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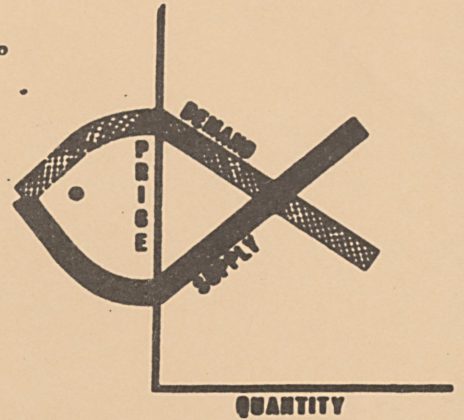
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U.S. Policy in Ocean Fisheries: A Study

in the Political Economy of

Resources Management

by

Richard C. Bishop

June 1970

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U.S. NATIONAL MARINE FISHERIES SERVICE  
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U.S. POLICY IN OCEAN FISHERIES: A STUDY  
IN THE POLITICAL ECONOMY OF  
RESOURCES MANAGEMENT

ABSTRACT

Richard C. Bishop

This is a study of the economic aspects of fishing in the United States, with special emphasis on public policy. Three kinds of analysis are presented. First, previous theoretical work on fisheries economics is appraised. Second, there is emphasis on the socio-economic underpinnings of fishing policy. Finally, policies and institutions are evaluated.

It is shown that despite favorable markets, U.S. fish production has remained relatively constant. The result has been a large increase in imports. The survey includes trends in imports, consumption, exports, and international high seas fishing competition as well as descriptions of the regime of the seas and the fishing treaties of the United States.

On a theoretical level, the dissertation focuses on the theory of fugitive resources as applied to fisheries. Fugitive resources are resources that must be captured before they become the property of the resource user. This need to capture in order to gain ownership

means that production functions of the resource users are interrelated.

Most of the theoretical analysis of fishery problems have concentrated on the resource allocation aspect. It has been concluded in these writings that, from a social standpoint, excessive factors of production will be allocated to fishing industries under laissez faire and that the government should "limit entry" to the fisheries in order to correct this misallocation of society's resources. It is concluded in this thesis that this policy recommendation is of questionable merit. From a welfare economics point of view, limitation of entry will not necessarily make society better-off, because it may leave fish consumers and excluded fishermen in a worse position. From a practical point of view, it is shown that only small quantities of the resources of the U.S. are being misallocated to fishing and that even on a regional level the problem is often small. It is also shown that the potential productivity of fishermen in alternative occupations is probably low.

The fugitive status of fishery resources also has implications for the state of conservation of fishery resources and the distribution of income from those resources. These considerations have proven to be of much greater concern to U.S. policy-makers than efficient resource allocation. The thesis shows how conservation-oriented and distribution-oriented forces interact to

influence different aspects of fishing policy, including constraints on technology, the regime of the seas, and the fishery agreements.

Several fishery related institutions are appraised. It is concluded that the present economic organization of the oceans has considerable merit, since it has facilitated tremendous increases in ocean-related economic activities over the years. The various fishery agreements are discussed individually and it is shown that, on the whole, these agreements are making a substantial contribution toward fulfilling the fishery-related objectives of the United States. Such institutions as the Convention on Fishing and Conservation of the Living Resources of the High Seas, the principle of abstention, and the U.S. exclusive fishing zone are examined.

United States Policy in Ocean Fisheries:  
A Study in the Political Economy of Resources Management

By

Richard Cleveland Bishop

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Approved:

..... *W. H. Murray*  
..... *Richard A. Pimentel*  
..... *Benjamin L. Cline*

Committee in Charge

.....

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## Chapter 1

### THE PROBLEM AND PLAN OF THIS STUDY

This is a study of the economic aspects of fishing in the United States, with special emphasis on public policy. As such, much of the thesis is descriptive in character. It synthesizes information from many sources to develop a picture of the current situation in fishery exploitation in the U.S. Three kinds of analysis are also presented. First, previous theoretical work on fisheries economics is appraised. Also, there is much emphasis on understanding the role of policy in fishing and, beyond that, the socioeconomic underpinnings of that policy. Finally, where possible, policies and institutions are evaluated from an economic point of view.

During the past two decades there has been increasing interest among economists in fishing policy. This interest has focused to a large extent on the implications of the fugitive status of fishery resources for policy. The main conclusion of the theoretical analysis has been that excessive factors of production from a social standpoint will be used by fishing industries under laissez faire and that the government should adopt a policy of "limiting entry" to its fisheries in order to correct this misallocation of society's resources. Much of the empirical

economic research on fishing has dealt with possible applications of this policy recommendation to individual fisheries.

Several economists have been rather vocal in their advocacy of limitation of entry and their work is beginning to be felt in various policy-making processes. In the United States, the report of a Presidential commission suggested a dose of this policy prescription to aid the ailing U.S. fishing industry.<sup>1</sup> An individual writer recently commented that the lack of limitation of entry in United States fisheries is considered sufficient by the Bureau of the Budget and the President's Council of Economic Advisers to justify taking a hard line on budgets for fishery research and development.<sup>2</sup>

It is therefore imperative that a study of United States policy with respect to its commercial ocean fisheries begin with an examination of the economic theory of fishing. This is undertaken in Chapter 2. The first part of that chapter presents a theoretical argument for the existence of a misallocation of resources based on the incidence of revenues and costs. Then comes the

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<sup>1</sup>U.S., Commission on Marine Science, Engineering and Resources, Our Nation and the Sea: A Plan for National Action (Washington, D.C.: U.S. Government Printing Office, January, 1969), pp. 90-94.

<sup>2</sup>J. L. McHugh, "Economists on Resource Management," rev. of James A. Crutchfield and Giulio Pontecorvo, The Pacific Salmon Fisheries: A Study of Irrational Conservation (Baltimore: Johns Hopkins Press, 1969), Science, 168(3932):737, May 8, 1970.

question of importance to U.S. policy: Does this misallocation of resources mean that the U.S. should limit entry into its fisheries? This question is approached from two directions. First, the tools of theoretical welfare economics are employed to examine the potential social implications of limitation of entry. Second, its potential social benefits for the United States economy, its regional economies, and individual fisheries are assessed. While no definite positive or negative conclusion is reached about the advisability of limitation of entry, some important questions are raised about its merits as a policy recommendation.

The remainder of this thesis utilizes a different approach to economic policy. It is based on the outlook that economics can make a contribution to both scientific knowledge and better public policy by helping to understand the historical development and current status of fishing in the United States. This approach utilizes institutional analysis and trends in events to get at the underlying social and political forces that generate policies. It also attempts to evaluate alternative institutions in terms of their contribution to the achievement of society's objectives.

Chapter 3 presents data on recent trends in United States fisheries and the role of policy in creating the present situation. Among the most impressive of these trends are the increases in foreign competition, both in

domestic markets and on the high seas. The import and tariff situations in the major U.S. fish markets are surveyed. The competitive situation in the international fisheries off U.S. coasts is also discussed. Competition in both spheres has been so strong that in spite of favorable markets, U.S. catches have remained relatively constant over the past several years. The inability of the U.S. to respond to favorable domestic demand and the resulting influx of imports are important bits of economic information for their own sake. They are more significant, however, as symptoms of underlying economic forces and especially the policies of the United States. It will become apparent in Chapter 3 that U.S. fishermen are at a competitive disadvantage at least partially because of the policies of the United States. U.S. fishermen must pay more for capital as well as labor, because the law requires that all vessels be built in the U.S. and the price of domestically built vessels is substantially higher than that for the same vessels on the world market. Also U.S. fishermen operate under a myriad of restrictions on the techniques of production they use. Furthermore, U.S. fishermen have borne part of the cost of economic development in the U.S. through the destruction of fish habitat and U.S. fishermen often face heavily subsidized foreign competitors.

Chapter 4 presents some tools for the analysis of fishing policy. A method for visualizing the role and interactions of policies, institutions, and economic



activities is presented. Various criteria for appraising the performance of institutions are discussed. These analytical tools are then used to study the interaction and socioeconomic roots of the two major policy-objectives of the U.S. in managing commercial fisheries, namely conservation and achieving a satisfactory distribution of the catch. Also, these tools will be used to develop a conceptual understanding of the oceans as an economic system.

Chapter 5 is concerned with the important set of institutions which provide the superstructure for fisheries management. These are the institutions which divide fishery jurisdiction between the coastal state and the community of nations, in short, the regime of the seas. U.S. policies with respect to the territorial sea, exclusive fishing zone, continental shelf, and high seas are described and their economic significance evaluated. Also, U.S. policy with respect to the problem of extended national jurisdiction in Latin America receives some attention.

Chapter 6 presents the regulatory fishing agreements to which the United States is a party. These agreements form the present foundation for international fishery management on the high seas. The importance of conservation and distribution objectives can be clearly seen in these agreements. It is also possible to appraise the economic contribution of many of them.

The final chapter, Chapter 7, presents the major

conclusions of the thesis.<sup>1</sup>

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<sup>1</sup>Like any thesis, this one is not able to cover a number of important topics. While the significance and need for scientific research in fisheries comes up often, little attention will be given to the special problems of such endeavors. Nor does time allow more than brief mention of the fishery problems created by the division of powers between the federal government and the states. Discussion is limited to ocean fisheries and thus does not deal with the problems of fresh water fisheries such as the Great Lakes. Unfortunately it was not possible to go into U.S. policy in water pollution. The role of the United States in FAO fisheries matters receives no attention. It was not possible to delve into antitrust and labor policies as they relate to fisheries, while both have been important in certain instances. The role of the U.S. in marketing and grading of fish products could not be explored.

## Chapter 2

### THE ECONOMIC THEORY OF FUGITIVE RESOURCES: LIMITATION OF ENTRY AND WELFARE ECONOMICS IN THE FISHERIES

Virtually all the theoretical economic analysis of fishery exploitation has focused on the indefiniteness of property rights associated with fishery resources. The best known works in this area, most of which are summarized in two recent publications,<sup>1</sup> apply what is known as the

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<sup>1</sup>See Daniel Wood Bromley, "Economic Efficiency in Common Property Natural Resource Use: A Case Study of the Ocean Fishery," U.S., Bureau of Commercial Fisheries, Division of Economic Research, Working Papers, No. 28, July 1969 and Lawrence W. Van Meir, "An Economic Analysis of Policy Alternatives for Managing the Georges Bank Haddock Fishery," ibid., No. 21, May, 1969. Major contributions to the theory of common property resources, some of which are summarized in these works, include H. Scott Gordon, "The Economic Theory of a Common Property Resource: The Fishery," Journal of Political Economy, 62:124-42, April, 1954; Anthony Scott, "The Fishery: The Objectives of Sole Ownership," Journal of Political Economy, 63:116-24, April, 1955; J. A. Crutchfield, "Common Property Resources and Factor Allocations," Canadian Journal of Economics and Political Science, 22(3):292-300, August, 1956; J. A. Crutchfield and Arnold Zellner, "Economic Aspects of the Pacific Halibut," Fishery Industrial Research, 1(1):1-173, 1963; Milner B. Snaefer, "Some Considerations of Population Dynamics and Economics in Relation to the Management of the Commercial Marine Fisheries," Journal of the Fisheries Research Board of Canada, 14(5):669-681, September, 1957; Francis T. Christy, Jr. and Anthony Scott, The Common Wealth in Ocean Fisheries (Baltimore: The Johns Hopkins Press, 1965); Ralph Turvey, "Optimization and Suboptimization in Fishery Regulation," American Economic Review, 54:64-76, March, 1964; Vernon L. Smith, "On Models of Commercial Fishing," Journal of Political Economy, 77(2):181-98, March/April, 1969; and James A. Crutchfield and Giulio Pontecorvo, The Pacific Salmon Fisheries (Baltimore: The Johns Hopkins Press, 1969).

"theory of common property resources" to fishing. Based on the idea that individual resource users do not have ownership of individual segments of the resource, but share the total, this analysis concludes that factors of production will not be allocated in an efficient fashion between fishing and other enterprises. Several of the economists involved have suggested that this state of affairs should be corrected through "limitation of entry," i.e. preventing the entry into fishing of capital and labor beyond levels which are desirable from the standpoint of efficient allocation. As noted in the introductory chapter, this recommendation is beginning to receive some attention in the policy-making processes of the U.S. Hence, a review of this whole analysis and a clarification of its welfare implications are of both theoretical and practical interest to a discussion of U.S. fishing policy.

Underlying all economic activities are sets of input-output relationships and fishing is no exception. In fact, fishing is subject to a complex set of "biological forces," the basics of which must be understood before economic issues can be examined. These biological forces are the subject of the first section of this chapter. Next, the property relationships governing fishery exploitation will be clarified. It will be shown that fisheries are members of a class of resources known as "fugitive" resources, because fish are not the property of individual fishermen until they are captured. The resulting

indefiniteness of property rights is a potential source of a misallocation of resources as the analysis of this chapter will demonstrate. The impact of the fugitive status of fishery resources on conservation and income distribution will be discussed, although a full treatment of these issues must be postponed until Chapter 5. Limitation of entry will be introduced as a potential remedy for the misallocation of resources. The welfare implications of limitation of entry will be clarified from a theoretical standpoint and the potential effects of introducing such a policy into United States fisheries will be examined.

#### The Biological Forces

Economic behavior is always founded on a set of production relationships. The relationships between levels of input and output in fishing stem from the complex interaction between populations of living organisms, their environment, and human predators. An abstract model of this interaction will illuminate biological assumptions upon which the theory of common property resources and much of this thesis are based.

The fundamental theoretical postulate of this model has been stated by Schaefer as follows:

An outstanding characteristic of populations of fishes, and other natural populations of organisms, is that they tend to remain in dynamic balance, neither falling to zero nor increasing without limit. Over any reasonably long period, losses from the population must be balanced

by accessions to the population.<sup>1</sup>

The fish population is generally conceived of in terms of weight in tons. Accessions to the population include new "recruitment" via the process of reproduction and "growth" of those fish already in the population. Decreases in the population occur through mortality, either "natural mortality" through such causes as predation, disease, aging, and starvation or "fishing mortality," i.e. mortality caused by human predation. Schaefer's "dynamic balance" occurs when natural and fishing mortality is exactly balanced by recruitment and growth. Since over time fish populations tend to maintain dynamic balance, it follows that an increase in mortality, say through an increase in fishing mortality, must be counter-balanced by an increase in recruitment and/or growth. As Schaefer put it

When, however, the percentage rate of loss is increased, decreasing the size of the population, from whatever cause, the percentage rate of renewal must increase<sup>2</sup> also, so that the population again comes into balance.

This increase in accessions to the population may result, for example, from an increase in available food as the population declines due to increased mortality.

Schaefer<sup>3</sup> combined the 'natural' biological forces, namely recruitment, growth and natural mortality, into the

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<sup>1</sup>Schaefer, op. cit., pp. 672-73.

<sup>2</sup>Ibid.

<sup>3</sup>The remainder of this section is based on ibid.; pp. 673-77.

single valued function

$$\frac{dP}{dt} = f(P) \quad (1)$$

where  $P$  is population measured in tons and  $t$  is time. He called this function the "natural rate of increase" and notes that it falls to zero at  $P = 0$  and at  $P = M$ , where  $M$  is the maximum population of the organism in question that the environment will support. Furthermore, research on animal populations and commercial fisheries shows, according to Schaefer that  $f(P)$  reaches a maximum at some intermediate value between  $P = 0$  and  $P = M$ . He also suggested that a reasonable first approximation is the quadratic

$$f(P) = k_1 P(M - P) \quad (2)$$

where  $k_1$  is a constant.

The rate of fishing mortality, symbolized by  $L$  for landings, is given by

$$L = \phi(P, E) \quad (3)$$

where  $E$  is 'fishing effort,' a composite input variable to represent the capital and labor used in fishing. This equation assumes constant technology. Thus, given a level of the fish population and a level of input or effort, equation (3) shows the instantaneous rate of landings or fishing mortality. Schaefer suggested that to a good degree of approximation

$$L = k_2 EP \quad (4)$$

where  $k_2$  is a constant.<sup>1</sup>

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<sup>1</sup>Ibid., p. 673.

Mathematically, the dynamic balance of fish populations would occur when

$$f(P) = L, \quad (5)$$

i.e. when the natural rate of increase equals landings. In terms of the more specific equations (2) and (4),

$$k_1 P(M - P) = k_2 EP$$

or

$$P = M - \frac{k_2}{k_1} E, \quad (6)$$

which means that the equilibrium population is approximated by a negatively sloped linear function of fishing effort

Substituting (6) into (4) forms a most important equation

$$L = k_2 E \left( M - \frac{k_2}{k_1} E \right). \quad (7)$$

Equation (7) is the 'Landings-Effort Function' and defines the level of landings associated with each level of effort when the fish population is in dynamic balance. It is a quadratic function of the level of effort as shown in Figure 1. When effort is zero, no fishing is taking place, so that landings are zero, the population is at its maximum,  $M$ , and  $f(P) = 0$ . At  $E_1$  of effort, the equilibrium catch is  $L_1$  and the rate of natural increase is positive and equal to  $L_1$ . If effort is increased to  $E_2$ , the population is so reduced that  $f(P)$  reaches its maximum which equals  $L_2$ . This is the maximum level of fishing mortality that the population can yield while maintaining dynamic balance over time or the



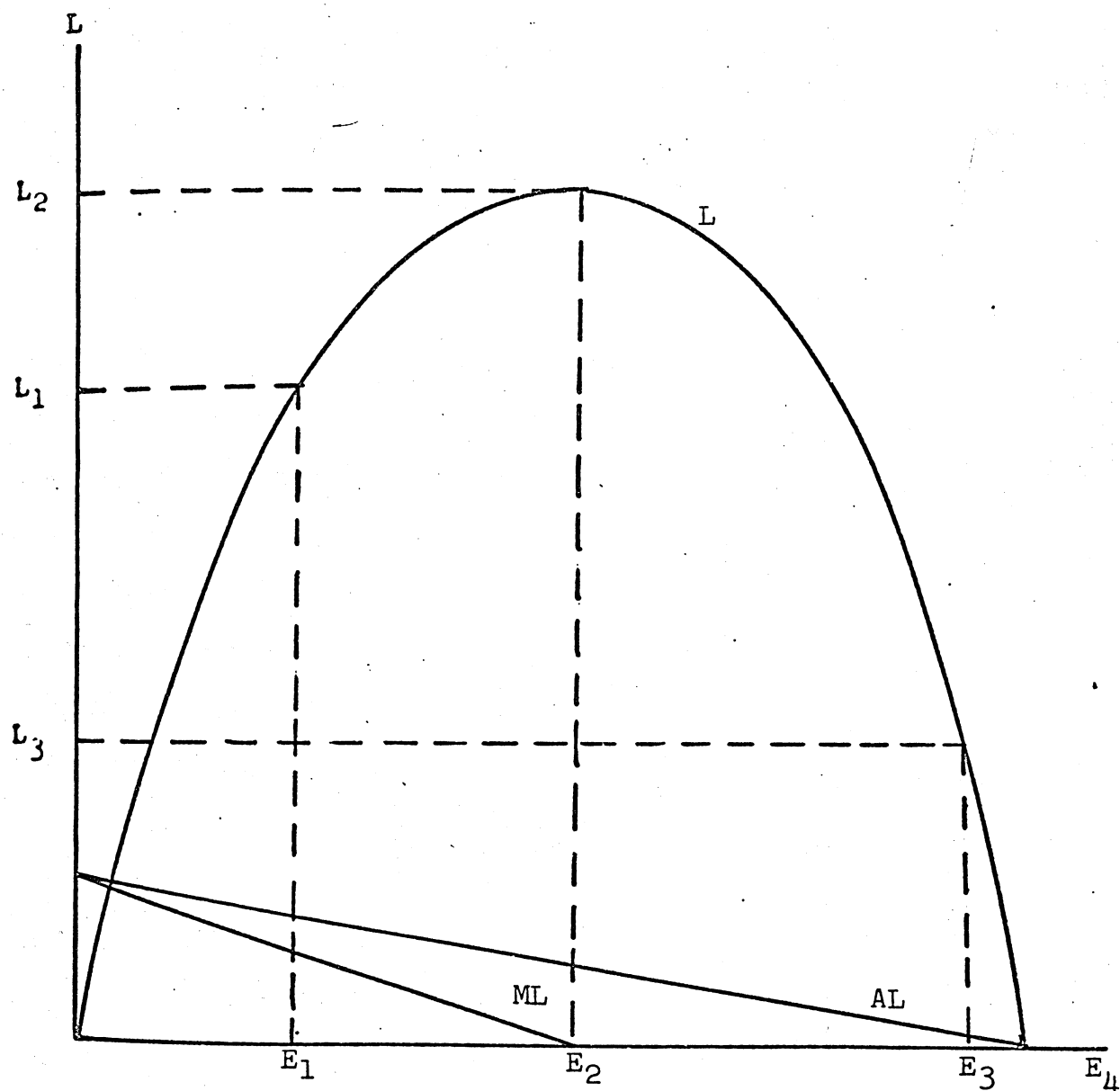


Figure 1

The Landings-Effort Function

maximum sustainable yield of the fish population. Any further increases in effort, as to  $E_3$ , for example, will result in lower equilibrium landings. Applying  $E_3$  of effort over time would so reduce the population that its natural rate of growth would not be able to provide more than  $L_3$  of fish on a sustained basis. Levels of effort that exceed that necessary to produce the maximum sustainable yield are termed 'overfishing.'

In other words, the Landings-Effort Function is the locus of all combinations of landings and effort obtaining when the fish population is in dynamic balance or equilibrium. The function says nothing about what happens in disequilibrium, as may be illustrated dramatically by effort level  $E_4$ , where equilibrium catch is zero. In disequilibrium, however, catches will be very large at first and then dwindle to zero as the population is wiped out. The theory of common property resources is mainly concerned with equilibrium catches and further discussions of disequilibria must await a later discussion of conservation economics.

The Landings-Effort Function shows output on the vertical axis and input on the horizontal. In this respect it resembles a production function. There are important differences, however. For one thing, a production function in economic theory generally shows the input-output relationship for an individual firm. The Landings-Effort Function holds for a given fish population whether it is

exploited by one firm or many. The Landings-Effort Function has an important bearing on the production functions of individual exploiting firms, but there may be other influences such as fixed factors and entrepreneurial ability. A second difference results from the fact that the Landings-Effort Function shows only values that obtain when the fish population is in dynamic balance. Firm production functions might at times, reflect disequilibrium biological situations.

The parabolic shape of the Landings-Effort Function under Schaefer's assumptions is of utmost importance. It means that average landing (AL) and marginal landings (ML) are downward sloping. In other words, as the aggregate level of effort increases, the catch per unit of effort applied declines and the increment to total landings declines and eventually becomes negative.

#### Fishery Resources as Fugitive Resources

Property has been described as a bundle of rights. Various "strands" of the bundle are allocated to government, resource owners, users, creditors, laborers, and others.<sup>1</sup> The strands of the bundle are so distributed for most fisheries that they fall into a class of natural resources

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<sup>1</sup>S. V. Ciriacy-Wantrup, Resource Conservation-- Economics and Policies, 3rd ed. (Berkeley: University of California Division of Agricultural Sciences, 1968), p. 141.

called "fugitive" resource. Fugitive resources are characterized by indefiniteness of property rights, in that they must be reduced to possession or captured before they become the property of the resource user. Examples of fugitive resources are wildlife in the United States, migratory waterfowl, agricultural land in medieval Europe, grazing land held in common by tribal groups in Africa such as the Masai, and deposits of oil, natural gas, and groundwater when the overlying surface land is held by several individual owners and control of such resources is vested in surface land owners.<sup>1</sup>

Fugitive resources can be broken down into at least three subclasses depending on the exact nature of the tenure arrangements. First, there are true common property resources. An example is nonmigratory wildlife in the U.S., which is defined in law as the property of the people of the state where it is located. More important common property resources from the standpoint of this thesis are the fishery resources of the territorial sea and contiguous exclusive fishing zone. Ownership of such fisheries in the United States is vested either in the States, as in waters up to three miles from the coast, or in the federal government, as in the zone from three to twelve miles from the coast. Common property fugitive resources are defined by the characteristic that ownership of the resource is

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<sup>1</sup>Ibid., pp. 141-42.

vested in a sovereign. Resources in the second subclass of fugitive resources have no sovereign, but are owned by no one. The outstanding example here is high seas fisheries. Use of such fisheries is open to the nationals of all nations that care to fish and no one sovereign may control such resources. Borrowing a term from law, such resources might be termed "res nullius fugitive resources." Finally, there is a third subclass which is neither common property nor res nullius. An example here is an oil pool which is owned by more than one surface land owner. On the one hand, the resource is not owned by a sovereign. On the other hand, such resources are not res nullius either, since access is open to a limited group, namely the surface owners that can drill to the pool from their land.

It must be concluded from this discussion that calling all fishery resources common property is a misnomer, since some are common property while others are res nullius. This is not merely a semantic argument either. It has very important implications for policy and that, after all, is the main concern. Where fishery resources are common property and regulation of the fishing industry is deemed desirable, this can be accomplished by the sovereign directly. The res nullius status of high seas fisheries means that regulation can be achieved only through agreement between the nations involved or through internationalization of the resources. The latter alternative would involve creation of a supernational sovereign and change the status

of high seas fisheries from res nullius to common property. So far internationalization of fishery resources has not been accomplished. U.S. policy with respect to its own common property resources and those of the high seas will receive more attention in Chapters 4 through 6.

Possible regulation of fishing was just mentioned. Let us ask what there is about fishery resources that may make regulation socially desirable. Fugitive resources, as noted above, are defined by the characteristic that they must be captured to become the property of the resource user. Quoting Ciriacy-Wantrup

Definite property rights belong only to those who are in possession--that is, who get there "fustest with the mostest." Every user tries to protect himself against others by acquiring ownership through capture in the fastest possible way. Deferred use is always subject to great uncertainty: others may capture the resource in the meantime.<sup>1</sup>

Stated differently, the need to capture in order to gain ownership means that the production functions of the individual resource users are interrelated, in that the output of each producer depends on the output of all other producers. In fishing, for example, the annual catch of a given firm for each unit of effort applied will usually be less, the more fish are being taken by all other firms. This occurs both because fish taken by other firms are not available to the firm in question and because long-run average landings decline as the total level of effort

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<sup>1</sup>Ibid., p. 142.

applied by all fishermen, in each period, rises.

This interrelatedness of production functions in fugitive resource exploitation may create three kinds of problems requiring public intervention. First, the need to capture the resource in order to gain ownership may cause a rush on the resource which results in wasteful depletion. The damage to some species of wildlife and to public grazing lands in nineteenth century America demonstrate the impact that this system of incentives can have on resource use. Overfishing has sometimes resulted from the fugitiveness of fishery resources. In such cases, public intervention may be desirable to achieve conservation of natural resources. Second, the interrelatedness of production functions means that the incomes of individual resource users are dependent on the methods and levels of production of all producers. Thus, public intervention into fugitive resource exploitation may be necessary to achieve a socially-desirable distribution of income. The role of conservation and distribution objectives in U.S. fishing policy will be treated in Chapters 4 through 6. Of interest in the remainder of this chapter is the third potential problem created by indefiniteness of tenure, namely that fugitiveness may cause an economic misallocation of resources.

To understand how this misallocation may come about, we will use the familiar economic concepts of social

revenues and social costs<sup>1</sup> and examine the effects of substitutiveness on the incidence of the social revenues and costs of fishing. If the catches over time of one fisherman goes up by a certain amount then, other things being equal, the total catches of all other fishermen combined must decline, but not necessarily by the same total amount. This, as noted above, is a consequence of the fact that average and marginal catches decline as the aggregate level of effort expands. Stated differently, if one fisherman expands his catches, the costs of output of other fishermen will rise. Thus, when the fisherman expands, he bears only a portion of the total social cost of expansion, but receives all the social revenue, as measured by the increase in catch multiplied by the price of fish.<sup>2</sup> Fishermen will have an incentive to expand their use of capital and labor in spite of the fact that the total social cost of doing so (i.e., their out-of-pocket costs plus the costs imposed on other fishermen) may exceed their contribution to social revenues. Net social revenues or "rent" will not be maximized. The use of the economy's resources could be made more efficient by reallocating enough of the factors engaged in fishing to other enterprises to maximize net social

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<sup>1</sup>For a detailed treatment of these concepts see *ibid.*, pp. 231-250.

<sup>2</sup>This assumes a constant price of fish. If the price of fish declines as a result of the increase in catches, consumers receive part of the social revenues as consumers' surplus.



revenue from fishing.

This is the basic argument behind the recommendation that entry be limited into the fisheries. What some economists have suggested is that this misallocation of resources should be prevented by not allowing capital and labor that could be more efficiently used in other industries to enter fishing in response to the system of incentives set in motion by the fugitive status of fishery resources. Such limitation of entry would either consist of licensing a limited number of units of gear or else setting taxes on catch or inputs at levels sufficient to make hiring of excessive factors uneconomical in order to maximize net social revenue. A variant on this policy suggestion is to recommend that the maximum sustainable catch be taken with a minimal amount of fishing effort.

It should be made clear that the objective of limitation of entry is not simply to get fishermen out of fishing. This could be accomplished by setting a quota on annual catch at a level low enough to force part of the fishermen out. The objective is rather to maximize net social revenue or at least to take the annual catch with a minimum of fishing effort. Such objectives would not be achieved under quota regulation because the incentive for each resource user to capture the largest possible share of the quota would insure the use of more factors of production and hence a shorter season than would be necessary to capture the quota in a given year.

### The Welfare Implications of Limitation of Entry

The question to be dealt with now is whether the United States should adopt limitation of entry in its fisheries. It is generally agreed that a proposed policy should be adopted if it increases social welfare, but there is much disagreement about what constitutes an increase in social welfare. The most commonly accepted welfare criterion among economists is the Pareto criterion, which defines an increase in social welfare as having occurred whenever the policy adopted makes at least one member of society better-off without leaving anyone else worse-off. Some of the potential welfare effects of limitation of entry can be isolated by asking whether it satisfies the Pareto criterion.

Let us first postulate a set of conditions where limitation of entry would satisfy the Pareto criterion. Suppose that limitation of entry increases the supply of fish, as it may well do if overfishing has been present for many years, or at least leaves the supply of fish unchanged. Then consumers will be better-off because they will receive just as many or more fish than before and will receive more of other goods produced by the capital and labor excluded from fishing. Also, assume that fishermen can move into occupations that provide equally satisfying monetary and non-monetary rewards. Under such circumstances limitation of entry would satisfy the Pareto criterion.

The problem with limitation of entry is that one or

Both of these assumptions may not hold true. Limitation of entry may reduce the supply of fish. Suppose, for example, that the pre-regulation level of fishing is at or near the maximum sustainable yield. Then, limitation of entry will mean a reduction in the supply of fish available to consumers. In this case, those consumers who spend a relatively larger proportion of their incomes on fish products are likely to be worse-off and those who spend more on other goods will benefit. Limitation of entry may therefore not satisfy the Pareto criterion.

Concern must also be voiced for the treatment of fishermen. In the theoretical world, fishermen can move freely from the fishery into another job which yields them the same return, both monetarily and nonmonetarily. For this reason, those excluded from fishing are no worse-off for it. In the real world, men fish because, all things considered, they are better-off than in their next best occupations. Hence, in the real world, limitation of entry is likely to harm those fishermen or potential fishermen who are excluded. The literature on limitation of entry suggests that this problem could be solved by gradual implementation of regulations. If entry is to be limited through taxation, the tax could be set very low at first and then raised slowly until a satisfactory level of effort is achieved. Under a licensing scheme, all vessels could be licensed in the beginning and then the number of licenses reduced over time. Compensation could also be used to ease

the burdens of transition. The merits of such plans are clear. Nevertheless, it must be pointed out that such measures do not completely ameliorate the social ill-effects of limitation of entry. The fact that entry must be limited over time, that some people must be kept out, probably means that these people will be worse-off. Real world job markets are such that those who would have fished, but are excluded, will be forced into an alternative job which, for some at least, will be decidedly inferior. It should be noticed furthermore, that compensation in such situations is likely to be infeasible. While it may be possible to compensate former fishermen, how could potential fishermen, excluded by regulation, be repaid for the loss?

Accounting for nonmonetary factors in ascertaining the efficient level of fishing is sure to be difficult. For one thing, fishing may serve at least partly as recreation in some cases. Here, what appears on the surface to be a labor cost turns out on closer inspection to be among the benefits of fishing and part of these benefits would be lost under limitation of entry. Other partially nonmonetary costs would be associated with the hardship of being forced out of one's chosen profession, breaking established social ties, and possibly moving to a new area. All things considered, the truly "efficient" thing to do is difficult to calculate in the real world.

It is one of the major points of emphasis of this thesis that the fugitive status of fisheries creates income

distribution questions of major importance. One of the social questions posed by limitation of entry is whether society is better-off with many fishermen earning a medium income (say, \$7500 per year) or with some fishermen earning high incomes (say \$10,000) and others, in nonfishing jobs, earning lower incomes (\$5,000 for example). One of the major points of welfare economics is that an inefficient situation may be socially preferable to an efficient one if the former has a superior distribution of income.

On this and other similar questions, some economists have argued for years that society can have both efficiency and a satisfactory distribution of income, both being achieved through proper actions of the government. There are many who doubt this view, however, even among economists. Little's remarks concerning the ideal distribution of income are relevant here. In the first place, an ideal distribution of income may not be definable. Suppose, for example, one chooses a democratic decision process. No matter what the present distribution is, it seems unlikely that a majority of citizens would vote "yes" to the question, "Is the present distribution of income in the United States ideal?"<sup>1</sup> This writer is reminded of a statement by Mishan on a related topic: "one does not have to venture beyond a vision of two stubborn men on an

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<sup>1</sup>I. M. D. Little, A Critique of Welfare Economics, Second Edition (London: Oxford University Press, 1957), pp. 121.

island with mutually opposite ideas about the proper division of labor, and fruits thereof, to run into an impasse of this sort."<sup>1</sup>

Secondly, it would not seem appropriate to assume that the present distribution of income is ideal simply because the government has the power to change it. To quote Little:

This is like saying one must always want to be in the place one is, even if one happens to be motoring through it. But the present suggestion also rests on the highly undemocratic idea that the government always knows what is best--or that it alone can say what is in the public interest.<sup>2</sup>

It seems best to assume that the government is much like other economic entities rather than some idealistic superman which can solve all the problems that economists would rather ignore. Indeed, to assume otherwise may be an inconsistency. In this regard, Buchanan has likened an economy with profit maximizers in the private sector and superman democratic governments to an economy of "bifurcated" men, who ruthlessly pursue private individual gain in the private sphere and are zealously altruistic in their public behavior.<sup>3</sup> Questions of income distribution cannot be neglected in studying the welfare implications of

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<sup>1</sup>Mishan, op. cit., p. 66, was commenting on the Arrow Possibility Theorem.

<sup>2</sup>Little, loc. cit.

<sup>3</sup>J. M. Buchanan, "Politics, Policy, and Pigovian Margins," Economica, 29:17-29, February, 1962.

limitation of entry and more will be said on this topic when the potential effects of limitation of entry on actual U.S. fisheries are discussed in the next few pages.

To summarize what has been said so far, it appears that at least in theory the fugitive status of fisheries does interfere with achievement of an efficient allocation of resources between alternative employments. Limitation of entry may not, however, provide a satisfactory solution to the problem, even in theory. For one thing, it may involve a decrease in the supply of fish and thus make those who spend relatively more on fish and less on other goods worse-off. Furthermore, excluded fishermen and potential fishermen may suffer a decrease in welfare. Thus, while welfare theory indicates that it may be possible to make at least one person better-off without harming anyone, it also indicates that limitation of entry is not a certain way to accomplish this end. There appears to be little likelihood that complicating the theoretical model to make it more closely resemble the real world would do anything to remedy this problem. Limitation of entry must be taken as a potential economic tool which is capable of making some people better-off at a sacrifice to others.

This is not a very startling conclusion, since it is true of virtually every policy recommendation ever made by economists. When it comes to making solid policy recommendations, economists go by some sort of intuitive feeling about the magnitude of benefits to the gainers

relative to the hardships of the losers. When an unemployment rate of four per cent is advocated, this cannot be based on the idea that no one will be harmed. Accompanying inflation and labor shortages in some industries are bound to hurt some and several thousand individuals will still be unable to find work because the unemployment rate is not still lower. Those economists making such recommendations are trying to balance the scales.

Limitation of entry must be assessed in the same way. A practical welfare criterion of this sort has been suggested by Ciriacy-Wantrup.<sup>1</sup> A good approximation to the Pareto criterion with compensation is the criterion of an increase in national income, provided that the policy measure under consideration does not appreciably increase the inequality in income distribution and that other policies are concurrently in operation which push the economy in the direction of greater equality of distribution. The theory discussed above suggests that resources are being allocated to fishing in excessive quantities and hence that limitation of entry would benefit society by reallocating these resources to other, more productive uses. Let us ask whether sufficient resources are being misallocated by United

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<sup>1</sup>Ciriacy-Wantrup, op. cit., p. 6 and "Policy Consideration in Farm Management Research in the Decade Ahead," Journal of Farm Economics 38(5):1301-11, December, 1956.



States fisheries to materially reduce the level of national income and what the potential effect of instituting a policy of limitation of entry would be on the distribution of income.

While the total misallocation of resources by United States fisheries has not been estimated, it is possible to estimate roughly the total resources going into U.S. fisheries. Beginning with labor, the Bureau of Commercial Fisheries estimates that there were 136,500 fishermen in the United States in 1967, as compared with 130,431 in 1960 and 161,463 in 1950.<sup>1</sup> This means that in recent years, fishing has employed something less than .2 per cent of the labor force of the United States. This is a maximum number of fishermen and must include a large number of part-time workers. A 1963 census of fishing boats of five tons and over<sup>2</sup> showed only 18,777 persons employed in fishery exploitation, including both fishermen

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<sup>1</sup>U.S. Department of the Interior, Fish and Wildlife Service, Bureau of Commercial Fisheries, Fisheries of the United States . . . 1958 C. F. S. No. 5000, (Washington, D.C.: n.n., March 1969) p. 67.

<sup>2</sup>Vessels of five tons and over make up the majority of the productive capacity of the U.S. fleet, since this survey accounted for 90 per cent of U.S. landings by value.

and shore workers.<sup>1</sup> The figure is relatively low, both because it excluded vessels under five tons and because it is a twelve-month average so that a total of more than 18,777 persons must have been involved at one time or another. Decennial census figures show 41,000 fishermen and oystermen in 1960 which is .06 per cent of the total, experienced civilian labor force of almost 68 million.<sup>2</sup> This was a decline from 77,740 fishermen and oystermen in 1950.<sup>3</sup> Since census takers ask for one's current occupation or last job held, this figure would include many seasonal workers and also delete others who were working at other jobs at census time. At any rate, it seems reasonable to conclude that fewer than 100,000 Americans spend a major portion of their working time in fishing.

Investment annually in boats and gear is much more difficult to pinpoint accurately. In order to arrive at a very rough estimate, let us consider the data in Table II-1 from the Census of Commercial Fishing, 1963. Vessel owners were asked to state the year of manufacture and cost of their vessels. Consider the year 1963, for

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<sup>1</sup>U. S., Bureau of the Census, Census of Commercial Fisheries, 1963 (Washington: U. S. Government Printing Office, 1966).

<sup>2</sup>U. S., Bureau of the Census, U. S. Census of Population: 1960, Detailed Characteristics, United States Summary, Final Report PC(1)-1D (Washington D. C.: U. S. Government Printing Office, 1963), pp. 522, 527.

<sup>3</sup>Ibid.

Table II-1

Year of Manufacture and Cost of Construction of  
Vessels over Five Tons, 1950-1963

Year	Number Reporting Cost	Number not Reporting Cost	Total Cost (in \$1,000)
1950	220	81	4,343
1951	224	75	7,551
1952	254	110	7,658
1953	312	84	7,571
1954	331	81	9,298
1955	327	43	8,122
1956	440	72	13,516
1957	521	73	25,402
1958	542	70	16,474
1959	577	57	15,402
1960	574	41	14,772
1961	562	34	13,471
1962	671	27	20,063
1963	556	37	16,824

Source:

U. S. Bureau of the Census, Census of Commercial Fisheries, 1963 (Washington: U. S. Government Printing Office, 1966).

example. In that year, at least \$16,824,000 were invested in vessels. In order to account for vessels lost, those not reporting costs, additional expenditures on gear and on boats of less than five tons, let us assume that \$40 million were invested in fishing vessels and gear. Gross Domestic Investment in 1963 was around \$80 billion making investment in vessels and gear around .05 per cent of total U.S. investment in capital goods. The total costs of all vessels constructed in other years indicate that this estimate is fairly typical or perhaps slightly high.

It is clear even from these rough estimates that relatively few U.S. resources go to fishing. Even with generous allowances for such additional expenses as processing, boat repair and maintenance, fuel, and other expenses, very small quantities of factors of production relative to the total supply are allocated to fishing. The quantity of resources which are actually being misallocated would be some unknown, but even smaller amount. If the U.S. government were to decide to become more diligent in achieving efficient allocation of the nation's resources, its fisheries would probably be low on the list of priorities. The reduction in national income associated with over-expansion of fisheries is simply not large enough to be of major concern.

An obvious rejoinder to this argument is that fishing is much more important in some regions of the U.S. than others and that much could be gained by

reallocation of resources in regions where fishing is an important occupation. Unfortunately, the impact of fishing on the economies of the major fishing regions of the United States has not been systematically studied. One study of a limited area does exist and its results are of interest here. This is a study of the Southern New England Marine Region, which includes southeast Connecticut, all of Rhode Island, and southern Massachusetts.<sup>1</sup> On the average, one-third of the value of the New England catch is landed in this region and one-fifth of its fishermen live there,<sup>2</sup> yet fishing is not one of the more important economic activities of the region. Out of a total 1965 labor force of 526,057, there were only about 3,964 fishermen. This is only .8 per cent of the total. Only 3.3 per cent of the aggregate output in dollars of marine oriented activities were contributed by the fish catching sector and marine oriented activities are an important, but not outstanding contributor to gross regional product.<sup>3</sup> Total exports of the marine sector were \$464 million of which

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<sup>1</sup> Niels Rorholm and others, Economic Impact of Marine Oriented Activities - A Study of the Southern New England Marine Region, Rhode Island Experiment Station Bulletin 396 (Kingston: University of Rhode Island, 1967).

<sup>2</sup> Ibid., p. 72.

<sup>3</sup> Marine oriented activities contributed \$500 million to a gross regional product of around \$6 billion. Ibid. pp. 55, 99.

only \$23 million or 5 per cent were fishery products.<sup>1</sup> Although the study does not go into the matter, exports of other sectors, especially manufacturing, probably exceed greatly the exports of the marine oriented sector. Evidently, "rationalizing" the fisheries of this region through limitation of entry would have only minor economic impact on the regional economy.

Would such a conclusion hold for other major fishing regions? Only speculation is possible at this time. Similar conclusions would probably hold for the major urban ports of the U.S., such as Boston, Seattle, and San Pedro. On the other hand, many fishermen live in unurbanized areas, Alaska being an outstanding example. In such regions the economic impact of fishing is likely to be greater. It is ironic to note, however, that these regions often have few alternative job opportunities. This would have economic importance in two respects. First, the income redistribution effects of limitation of entry would be more dramatic, since excluded fishermen would have more trouble finding jobs with comparable rates of pay. Secondly, limitation of entry makes less sense from an efficiency point of view because the productivity of excluded fishermen and vessels in alternative occupations will be less.

Let it be stated explicitly that nothing in this

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<sup>1</sup>Ibid., p. 99.

argument should be interpreted as meaning that fishing is in some sense unimportant to the U.S. On the contrary, it is the source of an important part of the food supply, providing many products for which poor substitutes exist, and is a source of income and employment for tens of thousands of people. The point is rather that the resource misallocation caused by the fugitive status of fishery resources is not a major social problem. Let us pursue this point one step further and also look at some other practical aspects of limitation of entry by examining some economic studies of actual fisheries.

Perhaps the most persuasive argument for efficiency, at least in dollar terms, is that by Crutchfield and Pontecorvo in their book on Pacific salmon fishing. They claim that limitation of entry in the West Coast salmon fishery could save a total of \$49.5 million annually.<sup>1</sup> Let us retrace their argument.

Salmon is one of the most valuable species harvested by U.S. fishermen, ranking with shrimp and tuna in terms of value of the catch. Because it has been so valuable for many years and because its anadromous characteristics render it especially vulnerable to economical capture, the salmon has been subject to heavy and often damaging exploitation for years. In addition, high prices have been accentuated by further decreases in supply due

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<sup>1</sup>Crutchfield and Pontecorvo, op. cit., p. 174.

to nonfishing human activities in the salmon's habitat. The resulting decline in yields resulting from all these factors has resulted in a complex set of regulations that have not limited entry. Predictably, considerable overcapacity has developed. During 1955-59, for example, it is estimated that the Bristol Bay catch could have been taken with about 20 per cent of the gear actually used. Holding the catch constant, but assuming a cost minimizing level of effort, would lead to about \$3.5 million in rent. Applying the same reasoning to the rest of Alaska, British Columbia, Puget Sound, the Columbia River, and the Sacramento River yielded the total figure of \$49.5 million.

The program recommended by Crutchfield and Pontecorvo is broken down into five parts: (1) freezing of the total number of units of gear at the level of the last fishing season; (2) raising the license fees "to levels which bear a more realistic relationship to the value of the fishing privilege conferred;" (3) setting up a revolving fund from license fees to permit the state to purchase licenses and gear at the option of the owner; (4) making licenses renewable and transferable to permit investment in gear; and (5) to encourage technological change through flexibility in licensing requirements.<sup>1</sup>

There are several interesting aspects to this plan.

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<sup>1</sup>Ibid., pp. 177-79.



For one thing, note that consumers will be at least as well-off, since they will receive just as many salmon as before and quality may be improved through use of better equipment. Consumers will also receive some other goods, the kind and quantity unknown, which will be produced by the people who, over the years, will be prevented from fishing. The major social benefit of the plan will stem from the productivity of these people in their best alternative to fishing. The economic hardship, along with some benefits, will fall on the fishermen. Higher license fees, and later on, high prices to acquire licenses will lower incomes correspondingly. Higher license fees will force out men who would otherwise be salmon fishing. Those fishermen who can hang on long enough to see the number of licenses reduced sufficiently will receive considerable fees for their licenses as future rents are capitalized into the market price. Rents to fishermen will be fairly shortlived, however, because of the rising prices of licenses. Fishermen and potential fishermen, on the whole, will fare more or less poorly depending upon how high the license fee is raised, the extent to which capitalized rent and speculation in licenses drives up the prices, and the incomes of excluded potential fishermen in their best alternative employment.

It should also be noted that the concept of efficiency in this study may be fallacious. Only those units which can afford to pay the most for licenses

will be allowed to fish. Ability to pay may be a poor guide to what really matters for social efficiency, namely opportunity cost. The young, technically agile, financially strong skipper who can build and outfit a modern vessel would be using scarce resources, including himself, to fish for salmon. The low income, middleaged man who has few alternatives elsewhere and who uses old gear, which has little or no opportunity cost, may be less able to afford the license. The same would be true for the man who moonlights as a fisherman and hence whose labor at least is practically free from a social standpoint. Unless special attention is paid to this aspect, an unknown number of part-time fishermen may be excluded, with important ramifications for both efficiency and equity.

The results of the Crutchfield-Pontecorvo plan therefore rests with the fishermen and potential fishermen, with their productivity and welfare in alternative jobs, with their ability to pay for licenses relative to their opportunity costs, and with their ability to find suitable productive part-time employment. Unfortunately the study under discussion says little about the characteristics of the fishermen.

Crutchfield also participated in a study of the Pacific halibut fishery and this study also recommends limitation of entry.<sup>1</sup> The analysis includes the theoretical

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<sup>1</sup>James A. Crutchfield and Arnold Zellner, op. cit.

misallocation argument, but it turns out that the resources "that could have been used to better advantage in other industries"<sup>1</sup> have rather dismal prospects for other productive employment. The average age of vessels was 29.5 years and the U.S. halibut fleet had not added a single vessel during the past decade.<sup>2</sup> Fully 86 per cent of the fishermen were over 35 years of age and half were over 50.<sup>3</sup> Benefits to halibut consumers would be small, since the fishery is already managed to obtain the maximum sustainable yield. Hence the social benefits from reallocating a portion of the vessels and men of the halibut fleet would consist solely of what they could produce in other occupations and this does not appear promising. The hardship imposed on the excluded fishermen could turn out to be substantial. The primary result of limitation of entry in this case would be a redistribution of income among the fishermen. There are ample reasons to doubt the efficacy of such a plan.

The situation of the Boston offshore trawler fishermen is much like that of the halibut fishers.<sup>4</sup> On

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<sup>1</sup>Ibid., p. 102.      <sup>2</sup>Ibid., p. 91.      <sup>3</sup>Ibid., p. 76.

<sup>4</sup>See two articles by Virgil J. Norton and Morton M. Miller, An Economic Study of the Boston Large-Trawler Labor Force, U.S. Department of Interior, Fish and Wildlife Circular 248 (Washington, D.C.: U.S. Government Printing Office, May, 1966) and "The Fishing Labor Force: Scarcity or Surplus?" Recent Developments and Research in Fisheries Economics, eds. Frederick W. Bell and Jared E. Hazleton (Dobbs Ferry, New York: Oceana Publications, Inc., 1967).

the average these Boston fishermen had more than thirty years of fishing experience. Two-thirds listed fishing as the only work they had ever done. An equal number had never been to high school. These authors reach two relevant conclusions. First, "ordinarily fishermen . . . would qualify for only nonskilled jobs in industry--a job category with shrinking opportunities for male workers."<sup>1</sup> Second, these writers are not concerned about the lack of limitation of entry for the Boston large-trawler fleet. On the contrary they are concerned about future shortages of labor with necessary skills.

Before concluding this section, one additional economic study will be discussed, the recent study by Bell of the U.S. northern lobster fishery.<sup>2</sup> Bell projected future yields and costs of lobster fishing and estimated that biological overfishing will occur by 1975. He then suggested limitation of entry to curb this tendency: "a continuance of this market trend, coupled with unlimited access to the northern lobster fishery will ultimately destroy or seriously impair the viability of the resource."<sup>3</sup>

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<sup>1</sup>"The Fishing Labor Force . . ." Ibid., p. 140.

<sup>2</sup>Frederick W. Bell, "Estimation of the Economic Benefits to Fishermen, Vessels, and Society of Limited Entry to the Inshore U.S. Northern Lobster Fishery," U.S. Bureau of Commercial Fisheries, Division of Economic Research, Working Papers, No. 36, March, 1970, (processed).

<sup>3</sup>Ibid., p. 36 (emphasis his).

There is a fallacy here, since limitation of entry is not necessary to prevent damage to the resource. Quotas, seasons, size restrictions and the like have successfully prevented and repaired damage to fish stocks for years. The real social question involved here becomes clear when Bell notes that under limitation of entry the incomes of fishermen will rise from \$5,923 per year in 1966 to \$10,265 in 1975.<sup>1</sup> Should society limit the number of fishermen, so that those already in the fishery will make considerably more income in the future or allow entry so that additional income generated as the fishery expands can be divided among more people? To reiterate the same view once more, the answer must depend upon the productivity and well-being in their next best occupation of those who would be excluded under limitation of entry.

#### Summary

By way of concluding this chapter, it appears that limitation of entry must be very carefully analyzed in each specific instance before implementation. On theoretical grounds, there is room to suspect that limitation of entry could be damaging to fish consumers, fishermen, and potential future fishermen. This malaise is confirmed by

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<sup>1</sup>Actually the distribution of income from the fishery under the plan envisioned by Bell is somewhat more complicated than this and includes an annual allocation of around half a million dollars to Bell's employer, the Bureau of Commercial Fisheries.

examining specific fisheries which have been studied by economists, at least with respect to fishermen and potential fishermen. There is also some question about the ability of limitation of entry based on license fees and government purchases of licenses to select those fishermen for exclusion who have the greatest potential for productive activity outside the fishery. Furthermore, the resources actually being misallocated by the fisheries of the United States are relatively small in quantity and, at least in the empirical cases discussed above, have rather low potential for productivity outside fishing.

## Chapter 3

### U.S. POLICY AND THE CURRENT SITUATION IN PRODUCTION, INTERNATIONAL TRADE, AND CONSUMPTION OF FISH AND FISH PRODUCTS

This chapter has three objectives. The first is to introduce the reader to the current situation in U.S. fisheries. The second objective is to present an analysis of the policies contributing to the current state of affairs. Finally, this chapter is designed to present background material for the remainder of this dissertation.

The opening section presents relevant data on production trends: species caught, quantities caught, value, location of catch, factor utilization, etc. It shows that in spite of favorable markets, the U.S. fish catching sector has become rather stagnant. Next international trade is discussed. A tremendous increase in imports has occurred since World War II. The role of tariff policy in bringing this about is examined. The third section of the chapter deals with consumption. While per capita consumption of edible fish products has remained constant, there have been marked changes in the composition of consumption. Fortunately detailed statistics are available on U.S. production, consumption, and international trade.<sup>1</sup>

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<sup>1</sup>Two sources are used extensively, both of which are annual statistical publications of the U.S. Department of the Interior, Fish and Wildlife Service, Bureau of

Another important aspect of the current situation is the increase in international competition for fish on the high seas. A section of this chapter summarizes available information on this competition in fisheries involving the United States. Finally, the contribution of U.S. policy to the high costs, and thus poor competitive position, of U.S. fishermen will be discussed.

### Production

Table 3-1 shows the catch in millions of pounds and in dollars by the U.S. fleet in selected years since 1930. Total production increased up until around 1940 and has remained between 4 and 5 billion pounds in most years since then. The record total catch occurred in 1962, but total catch has not exceeded 5 billion pounds since then. The composition of the catch has moved somewhat in favor of industrial fish over the years. The record catch of food fish occurred in 1950, while for industrial fish, the record was reached in 1962. In contrast to the stable character of the catch, its dollar value has risen steadily over the years to a 1969 total which is nearly five

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Commercial Fisheries. The first is Fisheries of the United States, Current Fishery Statistics Series (Washington, D.C.: n.n., various years) and will be cited as: Fisheries of the United States, 19\_\_\_. The other, more detailed statistical report is Fisheries Statistics of the U.S., Statistical Digest Series (Washington, D.C.: U.S. Government Printing Office, various years) and will be cited as Fishery Statistics of the U.S., 19\_\_.



Table 3-1: U. S. Catch of Fish and Shellfish in Selected Years, by Weight and Value

Year	For Human Food In Million Pounds	For Industrial Products in Million Pounds	Total in Million Pounds	Value in Million Dollars	Average Price per Pound in Cents
1930	2,478	746	3,224	109	3.39
1940	2,675	1,385	4,060	99	2.44
1950	3,307	1,594	4,901	347	7.09
1960	2,498	2,444	4,942	354	7.15
1961	2,409	2,697	5,187	362	6.98
1962	2,540	2,814	5,354	396	7.40
1963	2,556	2,291	4,847	377	7.78
1964	2,497	2,044	4,451	398	8.57
1965	2,587	2,190	4,777	446	9.34
1966	2,572	1,794	4,366	472	10.81
1967	2,368	1,687	4,055	440	10.84
1968	2,296	1,820	4,116	472	11.46
1969	2,246	2,046	4,296	518	12.08

Source: Fisheries of the U. S., 1969, p. 4

times the 1930 value. The market for the U. S. fishermen has apparently been fairly strong with the average price per pound of fish rising almost four times since 1930 (over 500 per cent since 1940) as compared with a rise in overall prices of two to two and one-half times (around 250 per cent since 1940).<sup>1</sup>

A more detailed picture of U. S. production can be gained by examining Tables 3-2 and 3-3, which show the most important species caught by U. S. fishermen in terms of value and weight for 1958 and 1967. Just as the total level of U. S. landings has not changed very much in recent years, so it seems also that the composition of that catch has remained fairly stable. Out of the top fourteen species by value in 1967, accounting for 85 per cent of the U. S. catch, twelve were also among the top fourteen in 1958. The three top valued fisheries were the same in both years (shrimp, salmon and tuna in that order) and these species alone accounted for 43.7 per cent and 44.7 per cent of total U. S. landings in 1958 and 1967, respectively. The higher rankings of catfish and bullheads,<sup>2</sup> red snapper, and crabs

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<sup>1</sup>The wholesale price index (1957-59 = 100), for example, rose from 47.3 in 1930 and 43.0 in 1940 to 111.9 in April, 1969. See U. S. Bureau of the Census, Statistical Abstract of the United States: 1969, 90th edition (Washington, D. C.: U. S. Government Printing Offices, 1969), p. 499.

<sup>2</sup>Catfish farming is an up and coming industry in the U. S. and may become an important competitor for U. S. ocean fish products. See Bill Barksdale, "Catfish Farming," The Farm Quarterly, Fall Forecast Issue, 1968.

Table 3-2

## Composition and Value of United States Catch at Dock Side, 1958 and 1967

Species	1958			1967		
	Value \$1000	Per cent of total	Rank in 1958	Value \$1000	Per cent of total	Rank in 1967
Shrimp	72,930	19.7	1	103,468	23.5	1
Salmon	45,904	12.4	2	48,741	11.1	2
Tuna	43,184	11.6	3	44,183	10.1	3
Crab	12,387	3.3	7	32,321	7.6	4
Oyster	30,442	8.2	4	32,241	7.3	5
Lobster (Northern)	13,218	3.6	6	22,389	5.1	6
Clams	10,526	2.8	10	20,486	4.7	7
Flounder	12,126	3.3	8	17,278	3.9	8
Menhaden	21,933	5.9	5	14,391	3.3	9
Haddock	11,732	3.2	9	11,094	2.5	10
Scallops (Sea)	9,140	2.5	11	7,767	1.8	11

(Continued on next page.)

Table 3-2 (continued)

Species	1958			1967		
	Value \$1000	Per cent of total	Rank in 1958	Value \$1000	Per cent of total	Rank in 1967
Catfish and Bullhead	5,403	1.4	15	6,994	1.6	12
Halibut	7,714	2.1	12	6,412	1.5	13
Red Snapper	2,729	.7	21	4,299	1.0	14
Subtotal	299,367	80.1		372,064	85.0	
Other	71,312	19.2		67,515	15.3	
Total	370,679	99.9		439,579	100.3	

Sources:

Fishery Statistics of the United States, 1958, p. 23.

Fisheries of the United States, 1968, p. 15.

are notable. The latter are the objective of an increasingly important Alaskan fishery the international implications of which will be the subject of discussions in a later chapter. One species is especially conspicuous by its absence from these Tables: the California sardine. This fish provided the largest volume of catch in the United States in 1958 and had a value in excess of \$5 million. By 1967 it was not of sufficient size to warrant separate classification in the statistics and by 1970 there was a complete moratorium on sardine fishing in California. The sardine case is an example where the productivity of a species may have been permanently impaired through overfishing and will thus be mentioned again when the economics of conservation is examined.

The geographic distribution of fishing activities between U. S. coasts and foreign coasts has also remained relatively constant in recent years. As Table 3-4 indicates, around 9 per cent of the U. S. catch comes from the high seas off foreign coasts. This may underestimate the relative economic importance of the distant water fleet, however, because the data are in terms of weight and not value. Large quantities of shrimp and tuna, first and third among U. S. species in value terms in 1968, come from foreign coasts. In spite of the constant level of total catch and the constant distribution of that catch between foreign and domestic coasts, there has been a marked interregional shift in catch within the United States as shown in Table 3-5,

Table 3-3

## United States Catch, By Volume, 1958 and 1967

Species	1958			1967		
	Quantity in 1,000 lbs.	Per cent of total	Rank in 1958	Quantity in 1,000 lbs.	Per cent of total	Rank in 1967
Menhaden	1,549,098	32.7	1	1,163,708	28.7	1
Tuna	319,377	6.8	2	328,368	8.1	2
Crab	166,379	3.1	8	322,184	7.9	3
Shrimp	213,842	4.5	6	307,787	7.6	4
Salmon	307,457	6.5	3	218,233	5.3	5
Industrial fish	229,493	4.8	5	211,800	5.2	6
Flounder	124,886	2.6	10	158,664	3.9	7
Alewives	76,256	1.6	13	101,127	2.5	8
Haddock	119,554	2.5	11	98,464	2.4	9
Sea Herring	278,517	5.9	4	88,158	2.2	10
Clams	36,409	.8	18	71,500	1.8	11

(Continued on next page.)

Table 3-3 (continued)

Species	1958			1967		
	Quantity in 1,000 lbs.	Per cent of total	Rank in 1958	Quantity in 1,000 lbs.	Per cent of total	Rank in 1967
Ocean perch (Atlantic)	148,645	3.1	9	71,409	1.8	12
Anchovies	11,882	.3	33	69,625	1.7	13
Whiting	111,404	2.4	12	69,543	1.7	14
Oysters	66,396	1.4	14	59,957	1.5	15
Subtotal	3,759,595	79.0		3,340,527	82.3	
Other	976,250	20.6		714,030	17.6	
Total	4,735,845	99.6		4,054,557	99.9	

Source:

Fisheries of the U.S., 1968 p. 14.

Fishery Statistics of the U.S., 1958, p. 22

Table 3-4

Catch from Waters Off the United States  
and the High Seas Off Foreign Coasts  
1958-1968

Year	Catch			
	Waters off U.S. coasts	High seas off foreign coasts	Total, U.S.	Foreign coasts as a percent of total
	1,000 pounds			
1958	4,254,366	481,479	4,735,845	10.2
1959	4,683,955	437,988	5,121,953	8.6
1960	4,478,420	463,809	4,942,229	9.4
1961	4,679,965	475,035	5,155,000	9.2
1962	4,805,200	434,500	5,239,700	8.3
1963	4,416,100	431,100	4,847,100	8.9
1964	4,112,400	410,600	4,523,000	9.1
1965	4,349,709	427,057	4,776,766	8.9
1966	3,971,814	369,186	4,341,000	8.5
1967	3,665,789	395,711	4,061,500	9.7
1968	3,763,926	352,174	4,116,100	8.6

Sources:

Fishery Statistics of the United States and  
Fisheries of the United States for the years involved.



Table 3-5  
Catch by Region, 1958-1968

Year	New England		Middle and South Atlantic		Gulf	
	Catch	Percentage of U.S. total	Catch	Percentage of U.S. total	Catch	Percentage of U.S. total
	1,000 pounds live weight basis					
1958	977,749	20.6	1,504,275	31.8	808,837	17.1
1959	933,206	18.2	1,818,497	35.5	1,154,951	22.5
1960	851,964	17.2	1,598,524	32.3	1,265,950	25.6
1961	762,700	14.8	1,676,200	32.5	1,367,200	26.5
1962	865,800	16.5	1,681,200	32.1	1,429,700	27.3
1963	828,900	17.1	1,351,400	27.9	1,399,500	28.9
1964	673,300	14.9	1,238,000	27.4	1,314,000	29.1
1965	702,181	14.7	1,304,137	27.3	1,463,475	30.6
1966	687,700	15.8	1,032,000	23.7	1,192,600	27.4
1967	624,900	15.4	936,600	23.1	1,175,900	29.0
1968	633,500	15.4	957,400	23.3	1,274,900	31.0

(Continued)

Table 3-5 (Continued)

Year	Alaska, Washington, and Oregon		California		Other		Total U.S. Catch
	Catch	Percentage of U.S. total	Catch	Percentage of U.S. total	Catch	Percentage of U.S. total	
1,000 pounds live weight basis							
1958	603,540	12.7	674,884	14.3	146,560	3.1	4,735,845
1959	530,427	10.4	524,823	10.2	160,049	3.1	5,121,953
1960	519,988	10.5	540,837	10.9	164,966	3.3	4,942,229
1961	578,800	11.2	600,100	11.6	170,000	3.2	5,155,000
1962	595,400	11.4	517,600	9.9	150,000	2.9	5,239,700
1963	603,000	12.4	513,700	10.6	150,600	3.1	4,847,100
1964	648,000	14.3	502,500	11.1	147,200	3.3	4,523,000
1965	688,697	14.4	458,028	9.6	160,248	3.4	4,776,766
1966	798,200	18.4	475,000	10.9	155,500	3.6	4,341,000
1967	627,400	15.4	504,300	12.4	192,400	4.7	4,061,500
1968	654,100	15.9	446,100	11.8	150,100	3.6	4,116,100

which presents total catch by absolute amount and by percentage of U.S. total for the years 1958-1968. Gaining in importance have been the Gulf states, and, to a lesser extent Alaska, Washington, and Oregon. The most dramatic reduction in prominence occurred in the Middle and South Atlantic States. New England is faring poorly. California landings have dropped somewhat, although the trend is much less pronounced.

Another way to look at production is from the input side. Some data on this topic were presented in Chapter 2, one of the important facts noted there being a decline in the number of fishermen since 1950. Further data on this topic are presented in Table 3-6, along with figures on shore workers, vessels, and boats. The difficulties in assessing the absolute quantity of labor due to part-time fishing and fishermen being a second occupation or even recreation have already been discussed in Chapter 2. Similar considerations must apply to shoreworkers, because of the seasonality that exploitation often exhibits. The term "vessel" may not be indicative of U.S. fishing capacity, since it applies to all craft from five tons displacement to over 1000 tons and lengths from 20 to more than 170 feet. Furthermore, the number of vessels listed is larger than the number that spent a substantial part of the year fishing. Some of the units of gear under "Motor and Other Boats" probably find their way into recreational uses part of the time. Still the numbers in Table 3-6,

Table 3-6  
 Factor Utilization in United States Fishing  
 1959-1967

Year	Fishermen	Shore workers	Vessels <sup>a/</sup>	Motor and other boats
1959	128,985	92,650	12,109	66,844
1960	130,431	93,625	12,018	65,039
1961	129,693	92,115	11,964	65,609
1962	126,993	90,993	11,511	59,222
1963	128,470	87,470	11,928	66,045
1964	127,885	83,976	11,808	64,640
1965	128,565	86,865	12,311	67,221
1966	135,636	88,748	12,677	69,445
1967	131,752	88,624	12,874	68,454

<sup>a/</sup> Five tons and over.

Source:

Fisheries of the United States for various years.

should be indicative of trends in factor utilization.

The number of fishermen remained nearly constant between 1959 and 1965 and took a substantial jump thereafter, although the number has come nowhere near the 1950 level of over 161,000 men. Many of the recent additions to the labor force are probably joining the Gulf fisheries. Out of 869 fishing vessels and boats obtaining documentation in 1967, for example, 411 went to the Gulf States, many probably joining the shrimp fleet. An additional 217 of the newly documented vessels went to the Pacific states, indicating that employment also increased there.<sup>1</sup> The overall trend in numbers of shoreworkers has been downward, although 1966 and 1967 saw a small increase over immediately preceding years. Both vessels and boats decreased in number in the early '60's and have gradually increased since.

The U. S. fishing fleet contains many old vessels. The Commission on Marine Science, Engineering and Resources reported that 60 per cent of the fleet is over 16 years old and 27 per cent was constructed more than 26 years ago. This commission concluded that, with some notable exceptions such as portions of the tuna, shrimp, and Alaska king crab industries, most of the U. S. fleet is "economically if

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<sup>1</sup>Fisheries of the United States, 1967, p. 66.

not physically obsolete."<sup>1</sup> Nevertheless, it is important to note that a significant number of new vessels is annually added to the fleet. In 1967, for example, 646 vessels were constructed in the U.S.<sup>2</sup> and in 1968 at least 350 new vessels joined the Gulf shrimp fleet alone.<sup>3</sup> The rate of construction has been high in more recent years than in the ten years ending in 1966. A survey of the year of construction of fishing vessels for this ten year period shows wide fluctuations, but the number added would average closer to 300 than to 600 vessels.<sup>4</sup>

It is interesting to note that the fishermen do not seem to be so aged as their vessels. Table 3-7 shows the age distribution of fishermen and of the labor force as a whole for the years 1950 and 1960. The age distributions of fishermen and all workers is amazingly close in spite of the large decrease in the total number of fishermen. In an industry where the total labor force is declining, one would expect the average age to increase and to be higher

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<sup>1</sup>U.S. Commission on Marine Science, Engineering and Resources, Our Nation and the Sea: a Plan for National Action (Washington, D.C.: U.S. Government Printing Office, January, 1969), p. 97.

<sup>2</sup>Fisheries of the United States, 1967, p.ix.

<sup>3</sup>Fisheries of the United States, 1968, p.ix.

<sup>4</sup>Fishery Statistics of the U.S., 1966, p. 28.

Table 3-7

Age Distribution of Fishermen and Male Employed Persons  
United States, 1950-1960

Age	1950				1960			
	Fishermen	Per cent of fishermen	Total male employed	Per cent of total male employed	Fishermen	Per cent of fishermen	Total male employed	Per cent of total male employed
14-17	1,599	3	803,872	3	1,072	3	1,324,321	3
18-19	2,062	3	1,091,625	3	935	3	1,156,321	3
20-24	6,605	10	3,916,492	10	2,841	8	3,632,797	8
25-29	7,145	11	4,946,972	12	3,071	9	4,514,792	10
30-34	7,517	11	4,948,851	12	3,860	11	5,194,651	11
35-44	16,409	25	9,534,991	23	7,424	21	10,537,984	24
45-54	13,151	20	7,605,784	19	8,461	24	9,017,154	21
55-59	4,738	7	2,996,196	7	3,492	10	3,490,444	8
60-64	3,601	5	2,282,698	6	2,240	6	2,492,086	6
65+	3,742	6	2,283,695	6	1,902	5	2,106,405	5
Total	66,572	101	40,510,176	101	35,298	100	43,466,955	99

(Continued)

Table 3-7 (Continued)

Sources:

Compiled from U.S. Department of Commerce, Bureau of the Census, Census of Population: 1950, Characteristics of Population, Vol. II Part 1, (Washington, D.C.: U.S. Government Printing Office, 1953) p. 274-75; and, Census of Population: 1960, Detailed Characteristics, United States Summary, Final Report PC(1)-1D (Washington, D.C.: U.S. Government Printing Office, 1963), pp. 540-41.



than for the labor force as a whole, but this does not appear to be true for fishing. This is especially interesting because fishermen are often thought to be immobile and this hypothesis is not confirmed by census data.

While U.S. production has remained relatively constant, imports have increased dramatically and the discussion now turns to this topic.

### International Trade

The strength of demand for fish and fish products is not only indicated by the rising average price paid in U.S. markets but also by the tremendous increase in the supply of fish to those markets. Table 3-8 shows the total supply of fish products together with the absolute amount and percentage of that supply which came from imports for the years 1959 to 1969. These figures are also broken down into edible and industrial fish products, the latter being products which are not used directly for human food. The percentage of imports made an unprecedented climb from 39.5 per cent of total supply in 1959 to 76.3 per cent in 1968. When the percentage of imports fell in 1969 to 63.6 per cent, this was due to a sharp reduction in imports of industrial fish products stemming mainly from poor fishing in South America.<sup>1</sup> As can be seen

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<sup>1</sup>Receipts of fish meal declined by 58 per cent over the 1968 level, Fisheries of the United States, 1969, p.ix.

Table 3-8

## Supply (Domestic Production Plus Imports) of Fish for United States Markets, 1959-1969

Year	Total edible products	Imported edible products	Edible products imported, per cent of total	Total industrial products	Imported industrial products	Percent of industrial products imported	Total supply of fish	Total imports	Imports as percent of total supply
	million pounds round-weight basis	million pounds round-weight basis		million pounds round-weight basis	million pounds round-weight basis		million pounds round-weight basis	million pounds round-weight basis	
1959	4,270	1,901	44.5	4,190	1,437	34.3	8,460	3,330	39.5
1960	4,264	1,766	41.4	3,959	1,515	38.3	8,223	3,281	39.9
1961	4,335	1,845	42.6	5,235	2,538	48.5	9,570	4,383	45.8
1962	4,655	2,115	45.4	5,753	2,939	51.1	10,408	5,054	48.6
1963	4,803	2,247	46.8	6,631	4,430	65.5	11,434	6,587	57.6
1964	4,873	2,376	48.8	7,158	5,114	71.4	12,031	7,490	62.3
1965	5,163	2,576	49.9	5,372	3,182	59.2	10,535	5,758	54.7
1966	5,432	2,859	52.6	7,037	5,244	74.5	12,469	8,103	65.0
1967	4,849	2,481	51.2	9,142	7,455	81.5	13,991	9,936	71.0
1968	5,528	3,232	58.5	11,809	9,989	84.6	17,337	13,221	76.3
1969	5,599	3,353	59.9	6,203	4,157	67.0	11,802	7,510	63.6

Source: Fishery Statistics of the United States, 1969, p. 42.

from Table 3-8, industrial fish products account for much of the increase in supply and imports but there were also very substantial increases in the edible fish products category. Table 3-8 shows the most recent annual installations in a long term trend toward increasing dominance of foreign products in domestic fish markets. The import situations for several important products are summarized below.

Shrimp. As shown in Table 3-2, above, shrimp is the most important item in the catch of the U. S., accounting for over 20 per cent of U. S. catch value. The recent expansion of this fishery, also described above, indicates that it is, on the average, prosperous and growing. Nevertheless, imports are growing more rapidly. In 1959, 44 per cent of the domestic supply was imported. By 1968 this proportion had grown to 53 per cent.<sup>1</sup> All shrimp, no matter what the form, enter duty free. The most important source of imports is Mexico, followed by India.<sup>2</sup>

Salmon. Imports are much less important in the U. S. salmon market than in that for shrimp. Out of a total U. S. supply of 208 million pounds in 1958, 14 per

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<sup>1</sup>Fisheries of the United States, 1969, p. 50.

<sup>2</sup>U. S. Tariff Commission, Summaries of Trade and Tariff Information, Schedule 1 (Animal and Vegetable Products), Volume 3 (Fish Products, Shellfish, and Shellfish Products), T. C. Publication 283, (Washington, D. C.: Tariff Commission, 1969) pp. 151-55. This volume will hereafter be cited as Summaries of Trade and Tariff Information, Schedule 1, Volume 3.

cent was imported (29 million pounds). In 1967, only 0.1 per cent of the total supply of only 99 million pounds came from outside the U.S. In 1969 imports were 1.8 per cent of total supply.<sup>1</sup> For tariff purposes salmon is divided into two groups. The first is fresh, chilled, or frozen salmon and the rate of duty as of January 1, 1968 was 0.4 cents per pound. When the Kennedy Round concessions are completed on January 1, 1972, this category of salmon will enter duty free.<sup>2</sup> The second category is canned salmon, which is also part of U.S. Kennedy Round concession. The first stage reduction, effective, January 1, 1968, left the rate of duty at 13 per cent ad valorem on salmon not in oil and 22.5 per cent ad valorem on salmon in oil. At the final stage, in 1972, the respective rates will be 7.5 and 12.5 per cent.

Tuna. The U.S. market for tuna can best be understood by dividing it into three components. One portion of the market is made up of tuna canned from the domestic catch. This was 37.8 per cent of the total supply in 1968 and 38.3 per cent in 1969. The second category is made up of tuna that is canned in the U.S., but caught

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<sup>1</sup>Fisheries of the United States, 1968, p. 48, and 1969, p. 48.

<sup>2</sup>U.S. Tariff Commission, Summaries of Trade and Tariff Information, Schedule 1 (Animal and Vegetable Products), Volume 2 (Fish: Fresh, Chilled, Frozen or Cured), T. C. Publication 254 (Washington, D.C.: Tariff Commission, 1968), pp. 55-63. This volume will hereafter be cited as Summaries of Trade and Tariff Information, Schedule 1, Volume 2.

by the fishermen of other countries and imported in fresh and frozen forms. This makes up 45 to 50 per cent of the market (47.6 per cent in 1968 and 46.1 per cent in 1969). Finally, there is tuna which is imported already canned and this made up 14.5 per cent in 1968 and 15.6 per cent in 1969. This percentage division of the expanding U. S. market for canned tuna fluctuates slightly but has shown no clear trend toward change over the last decade.<sup>1</sup> There is also a market for uncanned tuna, such as smoked tuna and frozen tuna pies, but it is very small relative to the canned tuna market. The tariff structure for tuna is much like that for salmon. Imports of chilled or frozen tuna, almost all of which is canned domestically, enters the U. S. duty free.<sup>2</sup> For imported canned tuna the rate depends on whether the tuna is packed in oil or not. For tuna in oil the rate is 35 per cent, ad valorem. Tuna not in oil was subject to an ad valorem rate of duty of 12.5 per cent for all imports up to 20 per cent of the domestic pack of the preceding calendar year and 25 per cent on all imports in excess of that amount. Kennedy Round concessions will leave the rates at 6 per cent and 12.5 per cent, ad valorem, respectively, beginning in 1972. There is also a small import market for tuna loins, which are cooked pieces

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<sup>1</sup>Fisheries of the United States, 1969, p. 46.

<sup>2</sup>Summaries of Tariff and Trade Information, Schedule 1, Volume 2, p. 12.

of tuna fillets from which bones, dark meat and skin have been removed. This is an intermediate good which is used by some small canners who use cooked rather than raw tuna in their canning processes. Effective in 1971, the duty on loins will be half-a-cent per pound, which is a reduction from one-cent granted as a Kennedy Round concession. The various forms of imported tuna come from a diverse set of countries including Japan, Angola, Ecuador, Spain, and Portugal.<sup>1</sup>

While it was impossible in this thesis to review the role of tariff policy in all the U.S. fisheries in detail, such a review was undertaken for tuna and results appear in Appendix A. By way of summary, the industry expanded greatly in the years just after the Second World War. Economic rehabilitation in Japan included rebuilding her tuna fleet and it was not long before Japanese products were attracted in large quantities to the lucrative U.S. market. Reversion of the duty on tuna canned in oil to its prewar level only encouraged importation of tuna in brine and more frozen tuna. The early 1950's saw the domestic industry suffering from low prices, decreasing employment, and reduced canning operations. Agencies of the federal government disagreed on the nature of the problem. The Tariff Commission saw the difficulty as one

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<sup>1</sup>Summaries of Trade and Tariff Information, Schedule 1, Vol. 3, pp. 37-46 and 91-94.

of temporary adjustment to peace-time conditions.<sup>1</sup> The Interior Department viewed the problems of the industry as long-term in character and voiced concern about the viability of domestic industry.<sup>2</sup> It suggested several remedies, including the formation of an international commodity agreement for tuna and the adjustment of the rates of duty on frozen, oil-packed, and brine-packed tuna to form a more logical tariff structure.

As predicted by the Interior Department, the United States fleet continued to suffer economic hardship through the 1950's. Vociferous outcries from the industry for higher trade barriers met with only very limited success. For one thing, the State Department opposed such measures, fearing they would adversely affect relations with Japan. Also, domestic canners were against restrictions on imports of frozen tuna since they depended upon this source of tuna to augment domestic supplies. Finally, there were substantial forces in Congress that favored "trade, not aid." Most of the relief that did come was originated not by the U.S. Government, but by the Japanese, who imposed export controls and floor prices for both tuna in brine and frozen tuna.

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<sup>1</sup>U.S., Tuna Fish (1953) (Washington, D.C.: Tariff Commission, 1953).

<sup>2</sup>U.S., Department of the Interior, Fish and Wildlife Service, Survey of the Domestic Tuna Industry, Special Scientific Report: Fisheries No. 104 (Washington, D.C.: n.n., 1953), p. 425.

The economic hardships emanating from import-depressed prices continued throughout the 1950's. Late in that decade and on into the next, new technology was introduced which has proven to be the salvation of at least part of the fleet. Catches and employment generally increased through the 1960's, as did incomes of at least some segments of the fleet. The future is uncertain, however. The trade concessions mentioned above may have a substantial impact. Also, the United States has dominated tuna fishing in the eastern Pacific since the beginning of the fishery. Competition by other countries is increasing in that region.

Crabs. Crabs consist primarily of the blue crabs caught off the U.S. East Coast and Gulf of Mexico, Dungeness crabs from the Pacific states, and king crabs of the North Pacific off Alaska. The U.S. catch has expanded greatly in recent years (see Table 3-3, above) and most of this increase has come from the king crab fishery. This expansion has seen a concomitant absolute and relative reduction in imports from 12 per cent of total consumption in 1963 to 4 per cent in 1967. The most important imported product is canned crabmeat, which will be taxed at 11 per cent, ad valorem, once Kennedy Round concessions become fully effective in 1972. Fresh, chilled, and frozen crabmeat and other crabmeat products bear a somewhat lower duty and still other crab products enter duty free, but in



small amounts.<sup>1</sup>

Oysters. Imports of oysters have grown rapidly in recent years. Data from 1963-67 show an increase in imports from 9.6 million pounds in 1963 to 19.1 million pounds in 1967. This represents an increase in the imported share of domestic consumption from 13 per cent in 1963 to 23 per cent in 1967. Ninety per cent of the imports were canned in brine and came from Japan. Only canned oysters and oyster juice are dutiable and are subject to Kennedy Round concessions which will leave the rates at between 2.2 and 3 cents per pound in 1972 depending on the form of the product.<sup>2</sup>

Lobsters. Foreign caught spiny and northern lobsters have played an important role in U. S. markets. In the period 1963-67, for example, slightly over 63 per cent of the lobsters consumed in the U. S. were imported.<sup>3</sup> Tremendous increases in imports of spiny lobsters have occurred in recent years, while imports of northern lobsters have tended to remain constant at just under 50 million pounds.<sup>4</sup> All lobsters and lobster products enter duty free.

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<sup>1</sup> Summaries of Trade and Tariff Information, Schedule 1, Vol. 3, p. 116.

<sup>2</sup> Ibid., p. 128.

<sup>3</sup> Ibid., p. 137.

<sup>4</sup> Imports of spiny lobsters jumped from 28 million pounds in 1959 to 45 million pounds in 1969 a record year. Fisheries of the United States, 1969, p. 52.

Important sources are Canada, Australia, and the Union of South Africa.<sup>1</sup>

Clams. All but two or three per cent of U. S. clam consumption is produced domestically. This situation may change, however, as a result of Kennedy Round trade concessions which lowered the rates on canned clams and clam juice considerably.<sup>2</sup>

Flatfish and Groundfish. Flatfish include many different fishes, such as halibut, flounder, sole, plaice, dab, fluke, brill, megrim, turbot, and witch. Groundfish is also a name given to several species including cod, cusk, haddock, hake, pollock, and Atlantic ocean perch. All these species will be treated together here for two reasons. First, they make-up the bulk of the U. S. market in fresh and frozen fillets (although, of course, other kinds of fish, such as salmon are sold in filleted form). Secondly, flatfish and groundfish are somewhat substitutable in the production of breaded fish sticks and portions.

Halibut is exceptional in some ways and will be treated first. Nearly all the halibut consumed in the U. S. is in the form of fresh and frozen steaks and fillets. Between 1961 and 1966, 36 to 49 per cent of all halibut consumed in the U. S. was imported, the vast majority of it

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<sup>1</sup>Summaries of Trade and Tariff Information, Schedule 1, Vol. 3, p. 137.

<sup>2</sup>Ibid., p. 102.

from Canada. Since January 1, 1970, all halibut enters duty free. This is another U.S. concession at the 1964-67 GATT trade conference (Kennedy Round). This is a reduction from half-a-cent per pound prior to 1968, which amounted to an ad valorem equivalent of 1.6 per cent, based on 1967 imports.<sup>1</sup>

Other flatfish, which are mostly sole and flounder are imported in two important forms: fresh and frozen fillets and fish blocks. In the latter form, they are not differentiated from groundfish for tariff purposes and fish blocks will be discussed below. Flatfish fillets are most often marketed for consumption without further processing although some imported fillets are converted to fish blocks after entering the country. Between 1962 and 1966, 27 to 42 per cent of U.S. consumption of flatfish fillets were imported. About 90 per cent came from Canada. A tariff which amounted to 1.5 cents per pound prior to 1968 (ad valorem equivalent in 1967 of 4.5 per cent) will be reduced to zero by 1972 as a Kennedy Round concession.<sup>2</sup>

Domestic production of groundfish has fallen drastically, from

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<sup>1</sup>Summaries of Trade and Tariff Information, Schedule 1, Volume 2, p. 119.

<sup>2</sup>Ibid., p. 112.

149 million pounds in 1951 to 47 million pounds in 1969. Imports have simultaneously skyrocketed from 47 million pounds in 1949 to 426 million pounds in 1969. In the process, imports have increased from 25.4 per cent of the market to 90 per cent.<sup>1</sup> Most imports are either fillets or blocks. Tariffs on unbreaded, fresh or frozen fillets reflect U. S. concessions in the General Agreement on Tariffs and Trade which became effective in 1948. At that time, an annual quota of 15 million pounds or 15 per cent of the average annual U. S. consumption during the three immediately preceding calendar years, whichever is larger. The tariff rates are 1.875 cents per pound for inquota imports (1967 ad valorem equivalent was 5.6 per cent) and 2.5 cents per pound on overquota imports (1967 ad valorem equivalent was 9.1 per cent).<sup>2</sup>

Fish blocks are solidly frozen slabs of skinless boneless fillets and pieces of groundfish and flatfish. Blocks were devised to provide large pieces of frozen boneless fish suitable for cutting into fish sticks or portions. Some blocks are also used for minced and ground-up fish products, such as fish balls. Almost all fish blocks used in the U. S. are imported (96-99 per cent

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<sup>1</sup>Fisheries of the United States, 1969, p. 44.

<sup>2</sup>Summaries of Trade and Tariff Information, Schedule 1, Volume 2, p. 86.

in the years 1962 through 1966) and the quantity has increased rapidly from around 145 million pounds in 1962 to 261 million pounds in 1968. Kennedy Round concessions will lead to duty-free importation in 1972. Fish blocks were previously dutiable at one cent per pound, which would be equivalent to an ad valorem rate of 4.3 per cent based on 1967 prices.<sup>1</sup>

In contrast, imports of finished breaded products, including fillets, sticks and portions have been quite small, a considerable tariff barrier being in effect. The rates prior to 1968 were 20 per cent ad valorem when the product was neither cooked nor in oil and 30 per cent otherwise. Like so many other fish products, breaded fillets, sticks, and portions are currently in the process of Kennedy Round tariff reductions which will be fully effective in January, 1972. The new rates will be 10 per cent ad valorem for uncooked breaded products, not packed in oil, and 15 per cent otherwise.<sup>2</sup>

The reasons for the decline in the U.S. groundfish industry are reviewed as a case study in Appendix A and the results of this research will be summarized here. As will be explained in the last section of this chapter, American fishermen are subject to considerable cost

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<sup>1</sup>Ibid., p. 80.

<sup>2</sup>Summaries of Trade and Tariff Information, Schedule 1, Volume 3, pp. 77-81.

disadvantages as compared with foreign competitors because of certain U.S. policies. New England groundfish fishermen suffer from some additional disadvantages as well. The Canadian and Icelandic industries, from which the bulk of the imports come, are located nearer most of the major fishing grounds in the North Atlantic and the U.S. industry must travel farther to get to many of its regular fishing banks. Grounds frequented by Canadians allow more diversity of catch. Canadians are located as close to some of the major U.S. markets as their American counterparts. Also, the structure of the groundfish industry of Canada allows them economies of scale through vertical integration and considerable monopsony power in their factor markets. The New England fleet, on the other hand, is made up of many unintegrated firms and has strong fishermen's unions. In addition Canada and Iceland both subsidize their groundfish fleets. All of these factors combine to make costs 30 to 45 per cent lower in Canada and also lower in Iceland.

Over time, the U.S. groundfish market has become more and more lucrative. The popularity of fillets has grown over time and the introduction of breaded fish sticks and portions led to very rapid expansion in the demand for groundfish. The cost advantages of various foreign fleets and processors led to the tremendous influx in imports into the U.S. market.

Efforts by the domestic fleet to erect higher tariff barriers were to no avail. On two occasions the

Tariff Commission recommended tariff increases under the escape clause of the Trade Agreements Act of 1951. On both occasions, the President refused to take action and this decision eventually led to the economic destruction of a major portion of the U.S. groundfish fleet. The reasons for inaction were two fold. First, American fish processors wanted to maintain inexpensive imports in order to exploit, as far as possible, the rapidly growing U.S. market for breaded fish products and were able to prevail over fishermen arguing for tariff relief. Secondly, both Canada and Iceland were very much interested in keeping their positions in the U.S. market. Heavy dependence of their industries on U.S. markets meant that raising trade barriers would have had considerable diplomatic repercussions. Rather than reduce the supply of fish blocks for domestic fish-stick producers and worsen international relations, the U.S. chose to sacrifice its groundfish fleet.

Industrial Fish Products. The tremendous importance of industrial fish products in the increasing fish imports of the United States was pointed out in Table 3-8 above. Less aggregated data will further pinpoint the directions of this trend. U.S. fish meal production has remained

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<sup>1</sup>Ibid., p. 80.

<sup>2</sup>Summaries of Trade and Tariff Information, Schedule 1, Volume 3, pp. 77-81.

relatively constant at around 250 thousand tons per year while imports have boomed from 100 thousand tons in 1958 to nearly 860 thousand tons in 1968. As a result imports make-up nearly 80 per cent of the domestic market. The trend in fish solubles has been in the opposite direction. The total supply decreased by 50 per cent between 1958 and 1968 and imports made up only 2.4 per cent of the total in 1968. The U. S. exports substantial quantities of fish oils and imports have not been important historically. Many industrial fish products enter duty free. This includes meal and solubles (except cod liver solubles), tankage, dead fish and whales, fish and whale scraps, and homogenized condensed fish and whales, so long as they are not fit for human consumption.<sup>1</sup> Many oils are dutiable, including anchovy, Euclan, herring, and whale oils, but the rates are being reduced under Kennedy Round concessions.<sup>2</sup>

To summarize what has been learned so far about the import situation, recent gains in U. S. demand are being met with imports to a large extent. With notable exceptions including salmon, crabs, and clams, foreign competition on American fish markets is substantial and increasing. Furthermore, what has been seen so far indicates that the U. S. government is actively encouraging this trend.

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<sup>1</sup>U. S., Tariff Commission, Tariff Schedules of the United States Annotated (1970) (Washington, D. C.: U. S. Government Printing Office, 1969).

<sup>2</sup>Ibid., pp. 75-75.



With the exception of tuna packed in oil, every major imported fish product or potential import either enters duty free already or else is subject to Kennedy Round or previous GATT trade concessions. As one added bit of evidence on this point consider Table 3-9, which shows the ad valorem equivalent duties on all imports and for fish imports. Ignoring the war years, the ad valorem equivalent rates for the two groups of goods have remained relatively close together for all years up to the late 1950's. Since then, the duties on fish products have been consistently lower by as much as fifty per cent. Finally, the tariff structure of the United States tends to favor processed products which are often used as raw materials by domestic fish processors. This was shown to be the case for canned salmon, tuna, crabs, oysters, and clams and for breaded fish fillets, sticks and portions.

The welfare implications of foreign trade policy are very complex. Consider, for example, the Kennedy round of GATT negotiations which will figure prominently in the future of at least some U.S. fisheries. Various tariff reductions negotiated during the Kennedy Round touched on some 60,000 different industrial and agricultural products that enter into international trade,<sup>1</sup> including chemicals, paper and pulp, steel, textiles and clothing,

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<sup>1</sup>Congressional Quarterly Service, Congress and the Nation, 1965-1968, Vol. II, (Washington, D.C.: Congressional Quarterly Service, 1969), p. 94.

fuels, and various agricultural products.<sup>1</sup> Economic policies of this kind raise issues that transcend in importance the policy of the U.S. relative to individual fish products. What, for example, should be the objectives of U.S. trade policy? Should the United States pursue a policy of gaining trade advantages in industrial goods, as it did in the Kennedy Round, or concentrate more on maintaining employment? Such questions preclude any conclusions here about the advisability of granting trade concessions on fish products. The point of discussing tariff policy in detail was rather to point out that this part of policy has had a definite impact on a number of important fisheries and that it will probably be significant in the future.

This discussion of imports will be brought to a close by noting the major supplying nations of U.S. imported fish products. The seventeen nations shown in Table 3-10 supplied 83 per cent of U.S. imports of edible fish products in 1967. Over half of all imports came from Canada, Japan, and Mexico. As for industrial products, the most important countries were Peru, Chile, Canada, and Norway, which together supplied around 98 per cent of all

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<sup>1</sup>Eric Wyndam White, "The Kennedy Round of Trade Negotiations," Article by the Director-General of GATT for the Bulletin of the Interparliamentary Union, processed.

Table 3-9

Average Ad Valorem Equivalent Duties  
on Fishery Imports and All Imports,  
1936-1969

Year	Average ad valorem equivalent	
	Fishery Imports	All imports
	per cent	
1936	15.6	16.5
1937	16.3	15.5
1938	14.5	15.0
1939	13.1	13.9
1940	11.4	12.0
1941	9.5	12.8
1942	6.9	11.6
1943	5.2	11.7
1944	5.6	9.8
1945	6.9	9.6
1946	6.2	10.3
1947	6.3	7.9
1948	5.6	5.9
1949	5.0	5.7

(Continued)

Table 3-9 (Continued)

Year	Average ad valorem equivalent	
	Fishery imports	All imports
	per cent	
1950	6.3	6.1
1951	4.9	5.6
1952	5.0	5.3
1953	5.7	5.5
1954	5.7	5.4
1955	5.6	5.9
1956	5.5	5.9
1957	5.3	6.0
1958	5.0	6.5
1959	4.8	7.1
1960	4.4	7.4
1961	4.2	7.2
1962	3.7	7.5
1963	3.5	7.3
1964	3.9	8.5
1965	3.8	7.7
1966	3.4	7.6
1967	3.5	7.5
1968	3.1	7.1
1969	3.0	7.1

Source:

Fisheries of the United States, 1969, p. 62.

Table 3-10

Value and Weight of United States Imports of Edible Fish Products  
by Country of Origin, 1967

Country	Value	Per cent of total	Weight	Per cent of total
	1,000 dollars		1,000 pounds	
Canada	135,411	25.15	510,222	34.70
Japan	97,666	18.14	354,573	24.11
Mexico	67,754	12.59	86,267	5.87
Republic of South Africa	20,419	3.79	39,159	2.66
Australia	20,183	3.75	11,358	.77
Norway	16,634	3.09	48,850	3.32
Iceland	13,949	2.59	48,466	3.30
India	12,626	2.34	20,171	1.37
Panama	9,366	1.74	11,147	.76
Ecuador	8,856	1.65	29,779	2.03
New Zealand	8,125	1.51	a/	a/

a/ Not available.

(Continued)

Table 3-10 (Continued)

Country	Value	Per cent	Weight	Per cent
	<u>1,000 dollars</u>	of total	<u>1,000 pounds</u>	of total
Guyana	6,686	1.24	9,458	.64
Kuwait	6,229	1.16	8,053	.55
Portugal	5,755	1.07	10,808	.74
Denmark	5,715	1.06	18,338	1.25
El Salvador	5,645	1.05	6,738	.46
French Guiana	5,625	1.04	6,731	.46
Subtotal	446,644	82.96	1,220,118	82.99
Other	91,657	17.04	250,319	17.01
Total	538,301	100.00	1,470,437	100.00

Source:

Compiled from Fisheries of the U.S., 1968 pp. 32-33.

fish meal and scrap imported in 1967 and 1968.<sup>1</sup>

Imports are one side of international trade. Let us now turn to the other: exports. Interestingly enough the United States does a considerable and growing export trade in fish products. In fact, a new record of \$104 million in exports was set in 1969. Table 3-11 shows, in value terms, domestic production, imports, exports, and U.S. consumption. Exports appear to be growing rapidly. In 1969 the U.S. exported more than 46 million pounds of salmon, the trend being toward fresh and frozen salmon and away from the canned product. Shrimp is also an important export commodity and one for which the market is rapidly growing, total exports of both domestic and foreign caught shrimp from the U.S. having more than doubled between 1965 and 1969. Fish oils and canned squid are other important exports. The most important countries importing U.S. fish products are Japan, Canada and the United Kingdom in that order.<sup>2</sup>

#### Consumption

Once exports are subtracted from total supply, the apparent utilization of U.S. consumers is obtained.

Utilization can conveniently be broken down into fish consumption, i.e. fish used directly for human food, and

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<sup>1</sup>Fisheries of the United States, 1969, p. 30.

<sup>2</sup>Ibid., pp. 34-40.

Table 3-11

Value of Catch, Imports, Exports, and Consumption  
United States, 1958-1969

Year	Catch	Imports	Exports	Consumption
1958	373	331	31	673
1959	346	370	44	672
1960	354	363	44	673
1961	362	401	34	729
1962	396	489	35	750
1963	377	501	56	822
1964	389	564	64	889
1965	449	601	69	978
1966	472	720	85	1,107
1967	440	708	82	1,066
1968	472	822	68	1,226
1969	518	844	104	1,258

Source:

Compiled from Fisheries of the United States, 1969,  
pp. 4, 41.



industrial uses. Per capita consumption of fish has remained surprisingly constant at around 11 pounds per year since at least 1916. Thus, the rise in demand for edible fish products in the United States is closely tied to the population. Edible products are broken down into fresh and frozen, canned, and cured products and the only marked tendency here has been away from cured fish and toward canned products. Within these broad classes, several important alterations in consumption have taken place. Among canned fish products consumers have moved away from mackerel, salmon, and sardines and have increased their per capita consumption of canned tuna from .4 pounds in 1936 to 2.4 pounds in 1969. Within the fresh and frozen category, the so-called "fish stick revolution" is very apparent. Per capita consumption of groundfish was only .74 pounds in 1936. A record high of 2.32 pounds per capita was set in 1969. Also, consumption of shrimp in all forms was only .35 pounds per person in 1936 and has since risen to a 1968 record high of 1.43 pounds. As for industrial uses of fish, the influx of South American fish meal has increased per capita usage, so that total per capita utilization (including both human consumption and industrial use) has risen from 43.4 pounds in 1950 to 87.7 pounds in 1968.<sup>1</sup>

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<sup>1</sup>Ibid., pp. 63-64. Per capita utilization and consumption figures as quoted here are not comparable. Utilization is estimated on the basis of round (live) weight equivalents while consumption data are in weights of raw, edible meat.

There is another side to fish consumption that needs to be treated here: the world food problem. An important part of this problem is the protein deficiency in the diets of a large share of the world's people. A recent publication of the United Nations contains estimates indicating that over one-third of the present population in developing countries suffers from inadequate protein-calorie balance of the diet and warns that, if population and food production trends continue, the world will face a protein crisis of even greater proportions.<sup>1</sup> Fish is an excellent source of high quality protein. One potential source of protein is therefore increasing the supply of fish through expansion of fishing effort in unutilized or under-utilized fisheries, better conservation practices, avoidance of damaging pollution, and other measures. An often-overlooked source of increased supplies of edible fish is the tremendous quantity of fish which are used today for industrial purposes. It is often pointed out, for example, that the largest fishing nation in the world, Peru, which is located on a continent with considerable protein deficiencies, uses the bulk of its catch for fish meal and fertilizer. The large quantities of fish caught for industrial purposes by the United States and also the large quantities of such products imported have already been

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<sup>1</sup>United Nations, International Action to Avert the Impending Protein Crisis, (New York: United Nations, 1968).

pointed out. Fish is used for industrial purposes largely because there are no better markets for it. Still, with improved marketing, processing, preservation, and consumer education, and possibly a distribution system based on need rather than ability to pay, considerable quantities of fish presently going to low-valued industrial uses could be used directly for human food, either as it is or as fish protein concentrate. Providing fish for protein-hungry people is one of the most important problems facing fishery policy-makers today.

This completes the discussion of production, trade, and consumption. For most products, this would be the end of the discussion of industry trends. Fishing has a special feature. U.S. fishermen must often compete with their counterparts for fish since part or all of many fish populations spend a portion of their lives outside the limits of national sovereignty.

#### Trends in International Competition Involving the U.S.

Unfortunately, this question has not been systematically studied and a comprehensive picture of the

situation cannot be constructed here. It became clear in Chapter 2 that those who exploit common fish populations are physically linked both in terms of the productivity of their fishing effort and the distribution of income from fishing. International competition thus influences the welfare of the participants and potential participants as well as fish consumers.

One indication of the importance of this factor can be seen by assessing how much of the U.S. catch comes from international waters. Table 3-12 shows that on the average for the years 1959 through 1963, 25.5 per cent of the U.S. catch by weight and 39.3 per cent by value come from waters beyond 12 miles off the U.S. coast, the limit of U.S. exclusive fishing rights. These fisheries are

Table 3-12

Geographic Distribution of United States Catch  
in Miles from Coasts 1959-1963

Miles from coast	Weight	Per cent of total	Value	Per cent of total
	<u>million pounds</u>		<u>million dollars</u>	
Off United States				
0-3	3,216.5	63.9	183.1	49.9
3-12	576.8	11.3	40.1	10.9
12 or more	864.7	17.0	90.5	24.7
Off foreign				
0-12	49.3	1.0	6.8	1.9
12 or more	383.1	7.5	46.5	12.7
Total	5,090.4	100.7	367.0	100.1

Source: U.S. Congress, Senate, Committee on Commerce, Subcommittee on Merchant Marine and Fisheries, Twelve-Mile Fishing Zone, Hearings, 89th Congress, Second Session on S2218 (Washington, D.C.: U.S. Government Printing Office, 1966), p. 42.

potentially subject to international exploitation. Actually, of course, a considerable larger proportion of the stocks exploited by U. S. fishermen are subject to exploitation by fishermen of other countries, since catching a fish within 12 miles of the U. S. does not imply that that fish or a portion of the population to which it belongs did not spend part of the time outside U. S. waters. Fish are notorious for paying absolutely no attention to man's artificial borders.

The U. S. Coast Guard and Bureau of Commercial Fisheries keep close tabs on the number, kind, and nationality of fishing vessels off U. S. coasts. Where possible they also note the kinds of fish being taken.<sup>1</sup> The two areas of most intensive foreign fishing are the North Atlantic and the coast off Alaska. The Northwest Atlantic has been an international fishery since before the United States became a nation and vessels from all over Europe still come to fish along with the U. S. and Canada. The pace of activity has quickened there in recent years in areas adjacent to the U. S. as Soviet vessels, and to a lesser extent, those of Poland, East and West Germany, Spain, Bulgaria, Japan, Rumania, and other countries have expanded. The Soviet Union has made a tremendous effort to expand its fisheries since World War II. Between 1945

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<sup>1</sup>Monthly reports are published in Commercial Fisheries Review.

and 1961, some 3500 new ships were constructed and most of them originally went into the Atlantic. This process of expansion has led to an increase in catch from less than 5 billion pounds annually in the early 1950's to over 13 billion pounds in 1968. Nearly 80 per cent of this catch of the USSR comes from the high seas.<sup>1</sup> In 1964, around one-third of the Soviet catch came from the Atlantic and the share coming from that region was still increasing at that time.<sup>2</sup> As in past years, groundfish of various kinds, but especially haddock, cod, red hake, silver hake (whiting) and ocean perch, are still a major incentive for the Soviets and others to come to the Northwest Atlantic. Other species of interest include herring, mackerel, scup, sprat, halibut, and flounder.

The Soviet Union is also active off Alaska, and in the late 1950's began transferring some of its bottom fishing vessels to this region. In addition, the Japanese are major competitors in this region. Fishermen from the latter country have fished in the region for many years, but have increased efforts in the post-war period. Species taken by both countries include herring, mackerel, ocean

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<sup>1</sup>U.S. Congress, Senate, Committee on Commerce, The Postwar Expansion of Russia's Fishing Industry (Washington, D.C.: U.S. Government Printing Office, January 23, 1964).

<sup>2</sup>Loyal G. Bouchard, "Overall View of Soviet Fisheries in 1963, with Emphasis on Activities off U.S. Coasts," Commercial Fisheries Review, 26(11a):15-18, November, 1964, Supplement.

perch, flounder, sole, cod, Alaska pollock, sablefish, king crab, and shrimp. Japan fishes for halibut in certain areas of the Bering Sea and the Soviets do take some halibut, but claim to do so only incidentally while fishing for other species. The Japanese also fish intensively for salmon to the west of the "abstention line," a line to the east of which they agreed not to fish for salmon under the North Pacific Treaty.<sup>1</sup> Even as long ago as 1964, over 1000 Japanese and Soviet ships spent some time off Alaska<sup>2</sup> and activities have intensified since that time.

More recently, the Soviets have extended their Pacific operations south of Alaska. In 1966 they began taking ocean perch and hake in large numbers off Washington and Oregon.<sup>3</sup> They also carry on occasional operations off California. U. S. fishermen in the Gulf of Mexico face some competition for shrimp, especially from Mexico. The United States has long dominated the fishery for tropical tunas in the waters off Central and South America. Recently, however, Japan has increased activities in this

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<sup>1</sup> See Chapter 6, supra.

<sup>2</sup> Ronald C. Naab, "Soviet and Japanese Fishing Activity Off Alaska in 1964," Commercial Fisheries Review, 27(5): 1-6, May, 1965.

<sup>3</sup> Charles R. Hitz, "Operation of the Soviet Trawl Fleet Off the Washington and Oregon Coasts During 1966 and 1967," Pacific Hake, U. S. Department of Interior, Fish and Wildlife Service, Bureau of Commercial Fisheries, Circular 332 (Washington, D. C.: U. S. Government Printing Office, March, 1970)



region and several Latin American countries including Mexico and Peru, are attempting to expand their shares of the catch.

Unfortunately, all this, plus detailed information on the number of boats by month and apparent objectives, does not indicate what is of interest here, namely, the impact of increasing competition on U. S. fishermen. Often data on the catches are not available and even when such information is available one still faces a complicated job of sorting out the influences of nature from those of the domestic economy and foreign fishermen. In some cases, nevertheless, it is fairly clear that international competition has had a considerable impact on domestic fishermen.

In 1967, Harold E. Crowther, who was then Director of the Bureau of Commercial Fisheries, discussed Soviet fishing in the Pacific and noted, "The Soviet fleets . . . fished on our Pacific ocean perch grounds to such an extent that the landings of U. S. vessels were decreased drastically."<sup>1</sup> That joint Soviet-U. S. effort was sufficient to influence the productivity of the Pacific ocean perch resources is further evidenced by the fact that both sides were sufficiently concerned to sign a conservation agreement relating to this species.<sup>2</sup> Crowther also mentioned that

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<sup>1</sup>Quoted in National Fisherman, August, 1967, Section C. p. 10.

<sup>2</sup>See Chapter 6, *supra*.

during the mid-60's the U. S. was attempting to develop the previously unutilized Pacific hake resource. The Soviets moved in during the first year (1966) and took 128,000 metric tons as compared with only 1,700 metric tons by the U. S.

The Alaska salmon situation is another instance where competition is probably affecting U. S. interests. The abstention line was originally drawn with the idea that it would separate the Asian and North American salmon stocks. It has since come to light that the salmon of Bristol Bay, Alaska, migrate far west of this line and are subject to capture by the Japanese who fish for salmon intensively in that region. It was estimated that in 1969 the Japanese got 6 per cent of the total run of sockeye salmon.<sup>1</sup> Since a large proportion of the run must be allowed to escape for reproduction, the Japanese got a fairly substantial part of the total catch. The Russians are not known to fish for North American salmon, although U. S. fishermen sometimes accuse them of doing so. There has been much concern lately about South Korean fishermen, who are less constrained than Japan because their government has not vowed to respect the abstention line and who have been fishing for salmon in the North Pacific.

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<sup>1</sup>U. S. Congress, House, Committee on Appropriations, Subcommittee on Department of Interior and Related Agencies, Department of Interior and Related Agencies Appropriations for 1971, Hearings, 91st Congress, Second Session, Part 2 (Washington, D. C.: U. S. Government Printing Office, 1970), p. 356.

Both Japan and the Soviet Union have extensive fisheries for Alaska king crabs and the competition for this species is probably strong enough to be felt by all parties. As a result of the United Nations Convention on the Continental Shelf, much of the crab fishing grounds have come under U. S. jurisdiction and the United States is presently taking steps to reduce and possibly eliminate completely the foreign fisheries for king crabs on the Alaskan continental shelf. In addition, steps have been taken to reduce the conflict between the fixed gear used for crabs and mobile gear used to fish for other species.<sup>1</sup>

In the Atlantic, several fisheries in which the United States is a major participant have been subject to relatively heavy competition. The Georges Bank haddock fishery has been especially hard hit. The haddock population has suffered a number of poor spawning years and the industry was in dire economic straits, being dependent upon a single year class to carry it over. The Soviets moved in and fished so heavily that some at the Bureau of Commercial Fisheries feared that too few spawners would be left to rebuild the fishery.<sup>2</sup> Up until recently the Soviets were also intensively fishing for red hake and scup when

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<sup>1</sup>See Chapter 6.

<sup>2</sup>U. S. Congress, House, Committee on Appropriations, Subcommittee on Department of Interior and Related Agencies, Department of Interior and Related Agencies Appropriations for 1970, Hearing, 91st Congress, First Session, Part 1 (Washington, D.C.: U. S. Government Printing Office, 1969), p. 653.

these species were far out to sea. U.S. fishermen had traditionally caught these fish later in the year when they migrated close to shore. Catches fell with increasing Soviet effort and the U.S. fishermen claimed the Soviets were catching the fish while they were still out of reach of the coastal fishermen. This problem is the subject of an international agreement discussed in Chapter 6.<sup>1</sup> Both red hake and silver hake (whiting) were exploited exclusively by U.S. fishermen prior to the arrival of the Soviet fleet.<sup>2</sup>

The U.S. has major fisheries for many of the other species that are subject to international competition. In Alaska, for example, the U.S. has major fisheries for halibut, shrimp, herring, and sablefish. Just how much these species have been affected by the intensification of effort cannot be assessed at this time. There are probably several instances like those discussed above and, as world fishing expands, the number of fisheries with high levels of international competition is likely to increase.

Considering the two sides of international fishery competition raises an interesting question: How many of

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<sup>1</sup>See also National Fishermen, Aug., 1967, Section C, p. 10.

<sup>2</sup>Herbert H. Graham, "The Offshore Resources of the Northwest Atlantic," Recent Developments and Research in Fisheries Economics, Frederick W. Bell and Jared E. Hazelton (eds.) (Dobbs Ferry, New York: Oceana Publications, Inc., 1967) pp. 147-73.

the fish imported by the United States are caught off U.S. coasts? While this question has not been studied in detail, some speculation is possible based on the data presented in this chapter. About 60 per cent of U.S. imports of edible fish by weight are imported from Canada, Japan, and Mexico. Canada does not have large fishing operations off U.S. coasts, but some of the halibut and salmon imported from Canada may come from U.S. coasts. Japan does fish extensively there, but tuna is the major import from that country. Japan fishes for tuna all over the world and relatively few of the tuna imported would have been caught anywhere near the U.S. The Japanese do take large quantities of crabs from North American waters, but the U.S. currently imports relatively few. Small amounts of the other species taken by Japan off U.S. coasts may be exported to the United States, but there is little indication that large amounts are involved. Mexico fishes mostly in coastal waters, although some shrimp taken from the U.S. Gulf Coast may later return as imports. Looking for indicators from a different angle, by far the majority of the fish taken from U.S. coasts by foreign vessels are taken by the USSR and Japan. To this writer's knowledge, the U.S. imports no fish products from the Soviet Union. As for industrial products, Peru and Chile are the most

important sources of imports and these countries acquire their raw materials in coastal waters. In sum, it appears that relatively few of the fish and fish products imported by the U.S. are caught off the U.S.

#### U.S. Policy and Costs in the Domestic Fisheries

It was shown in the section on trade that many U.S. fish markets are beset by ever increasing competition from foreign products. This is symptomatic of the fact that U.S. producers face higher costs. Increasing fishing activities off U.S. coasts may also be a reflection of higher domestic costs to some extent. This section introduces the reasons for higher costs and the programs of the United States designed to aid its fisheries.

Let us begin to examine U.S. fishing policy by pursuing the question of higher costs among U.S. fishing vessels as compared to their competitors from other countries. Like other U.S. industries, fishing firms generally pay higher wages than nondomestic competitors. The decrease in the number of fishermen since 1950 is a good indication that fishermen do enter other professions and the most plausible explanation for this move is better pay. Thus there is no reason to believe that wages are substantially lower in fishing than in alternative occupations. In general, higher wages must be paid by U.S. fishing firms than by non-U.S. firms.

Other U.S. industries are also burdened by higher wages and yet maintain large shares of U.S. markets.

There are several reasons for the phenomenon. First, barriers to trade have played an important role in keeping domestic markets for domestic producers. U.S. tariff policy on fish products was discussed in the trade section of this chapter. Secondly, U.S. firms have enjoyed enough differentiation in products to hold a large portion of U.S. markets. Some parts of the fishing industry must enjoy this advantage. Consumer preferences for fresh fish create such an advantage for some products. In general, however, fish products are standardized. Third, simply being located near raw materials and U.S. markets provides cost advantages. U.S. fishermen are located near markets and near rich fishery resources. The fishery resources off U.S. coasts are so vast that one writer has commented, "The North American coastal fisheries are apparently among the 'developing fisheries' of the world."<sup>1</sup> U.S. fish markets are certainly substantial.

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<sup>1</sup>P. A. Larkin, "North American Fishery Potential," The Fisheries of North America, U.S. Department of the Interior, Fish and Wildlife Service Circular 250 (Washington, D.C.: U.S. Government Printing Office, September, 1966), p. 2.

Finally, U.S. industries have been able to stay on top of U.S. markets in spite of high wage rates by using technologically-advanced, capital-intensive methods of production. This is a stumbling block for U.S. fisheries and one that is of special interest here because it involves public policy.

One of the major sources of higher costs for United States fishermen is that they not only have to pay more for labor but also for their major capital input, fishing vessels. Laws dating back almost to the founding of the United States force fishermen to use vessels constructed in the United States. It turns out that ships produced in other countries cost substantially less. Table 3-13 shows the prices of various sizes of trawlers in the U.S. and abroad and indicates that U.S. fishermen must pay 70 to 124 per cent more for their vessels than they would have to pay on the world market. The Bureau of Commercial Fisheries estimates that this requirement increases the



Table 3-13

## Foreign vs. Domestic Cost of Construction for Various Size Trawlers

Cubic number <sup>a/</sup>	Approximate U.S. length (LOA) feet	U.S. price dollars (U.S.)	Low foreign price	Country	Ratio of U.S. price to foreign
10,000	60	173,000	102,000	Netherlands	1.70
20,000	80	340,000	191,000	"	1.78
40,000	108	668,000	362,000	"	1.85
80,000	144	1,320,000	680,000	"	1.94
120,000	171	1,940,000	982,000	"	1.98
160,000	194	2,570,000	1,260,000	Japan	2.04
200,000	212	3,190,000	1,510,000	"	2.11
250,000	234	3,960,000	1,820,000	"	2.18
300,000	252	4,740,000	2,120,000	"	2.24

a/ Cubic number = length (LOA) x beam x depth from deck to keel.

Source: "An Economic Justification For Recommended Legislative Changes in the 1964 Fishing Fleet Improvement Act," U.S. Department of Interior, Bureau of Commercial Fisheries, Division of Economic Research, Working Papers, No. 5, February, 1969, p. 2.

cost of groundfish by 10 per cent, of tuna by 14 per cent, and of menhaden by 25 per cent.<sup>1</sup> The fishermen are aware of this problem and have been active for years to get the law changed. Thus far they have not been successful, probably because of ship building interests in the United States.

In addition to paying high prices for vessels, U. S. fishermen are constrained by a myriad of restraints on their production methods. Consider salmon fishing, for example. It is generally believed that the most efficient means of catching salmon is some form of trap to catch the fish as they migrate upstream. Not only are fish in prime condition at the time they begin their runs, but traps require minimal amounts of capital and labor, and escapement of sufficient spawners to maintain the run can be precisely controlled. Yet, trapping has been outlawed or is extremely restricted in all states. In California, the regulations are even more strict, stating that salmon can be taken only by hook and line. In Washington waters salmon fishermen are not allowed to use electronic fish finders. Alaska has a law against the use of salmon purse seiners of over 50 feet in length. Stringent laws also apply to other species.

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<sup>1</sup>"The 1969 Fishing Fleet Improvement Act: Some Advantages of Its Passage," U. S. Department of Interior, Bureau of Commercial Fisheries, Division of Economic Research, Working Papers, No. 20, July, 1969.

In California, for example, it is illegal to use trawls for any purpose south of the border between Santa Barbara and Ventura Counties. Abalone may not be taken commercially in Northern California in spite of generous supplies. Halibut may not be taken by trawls anywhere in the north-eastern Pacific.<sup>1</sup> In Maryland's portion of Chesapeake Bay, oysters may only be taken by sailing vessels.<sup>2</sup> A complete list of such restrictions would be a long one. In fact, it is probably correct to say that fishing is unique among domestic industries in the amount of government regulation exercised over the means of production. The impact of these constraints on the costs of production has never been assessed, but it must be substantial. These constraints are largely the result of interaction between those social forces oriented toward conservation and those oriented toward distribution. These social forces and their impact on technological constraints receive further attention in the section of the next chapter entitled "Interrelations between Conservation and Distribution Objectives."

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<sup>1</sup>Wilbert McLeod Chapman, "Politics and the Marine Fisheries," The Fisheries of North America, U.S. Department of Interior, Fish and Wildlife Service, Circular 250 (Washington, D.C.: U.S. Government Printing Office, 1966).

<sup>2</sup>Francis T. Christy, "Efficiency in the Use of Marine Resources," California Museum of Science and Industry, California and the World Ocean (Sacramento: Office of State Printing, 1964) p. 87.

Two other factors may be contributing to the poor position of U.S. fishermen in domestic markets and on the fishing grounds. First foreign fleets are often subsidized. This is true of such major competitors as Canada and the USSR. Secondly, the economic development of the U.S. has led to pollution, dams, and other damage to the fish habitat. How badly this has damaged the fish population is difficult to say, but, for some species such as salmon, the impact has been considerable.

Various influences on costs are related to each other. Destruction of habitat increases the costs by making fish more scarce. Constraints on technology may increase catches through conservation, but also increase costs by forcing fishermen to use less efficient equipment. Habitat destruction, technological constraints, higher vessel costs, and subsidization of foreign fishermen are additive in their effects on the competitive position of U.S. fishermen, although the absolute or relative importance of the individual factors has not, as yet, been estimated. Working in the opposite direction, new technology and various aid programs may raise catches, if conservation is being practiced, and lower costs. New technology is at least part of the reason that U.S. catches have remained constant while the number of fishermen has decreased in recent years. Let us turn to the various parts of U.S. fishery programs which work to reduce costs.

In spite of the tremendous differences in cost between domestic and foreign vessels, fishermen have not been able to secure the legislation necessary to allow them to buy vessels abroad. As a compromise, a vessel subsidy program was established by the Federal Fisheries Assistance Act of 1959.<sup>1</sup> This bill authorized the spending of \$2.5 million per year for three years. The purpose of the program was to pay the difference between U.S. construction costs and the cost of constructing the same vessel abroad. Total government payments could not exceed one-third of the total cost, however, and only vessels going to fisheries that had been damaged by imports could qualify. Only six vessels were built under this program and all six went to the New England groundfish industry.<sup>2</sup>

A new program was begun by the Fishing Fleet Improvement Act of 1964 (PL 88-498). The requirement concerning damage from imports was abolished and the program was broadened in several ways. The annual appropriation was increased to \$10 million per year. The maximum subsidy was increased to 50 per cent of the total cost. On the other hand, the new law was more restrictive in that subsidized vessels had to be of advanced design and

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<sup>1</sup>PL 86-516.

<sup>2</sup>Congressional Quarterly Service, Congress and the Nation, 1945-1964 (Washington, D.C.: Congressional Quarterly Service, 1965), p. 1070.

use newly developed gear. It could not operate in a fishery if such operations would cause hardship to efficient producers already established in the fishery. As safeguards here, the law required that public hearings be carried out as part of the review procedures for each loan application and that owners of subsidized vessels gain permission from the federal government before moving into a different fishery from that stated in the loan application.

The contribution of this program to reducing the high cost of fishing in the U. S. has been marginal. Indeed, the requirement that the vessel be of advanced design may mean that the program was never designed to meet the problem of higher costs in U. S. fisheries. It was noted above that between 300 and 600 vessels are constructed in the U. S. annually. Between 1965 and March, 1970, a total of 23 subsidized vessels had been constructed, nine more were under construction, and five were expected to be under construction soon.<sup>1</sup> Thus only 37 vessels, at most, will have been built under the 1964 Act, which stated that no new applications could be taken after June 30, 1969. A new law was still under Congressional consideration in March, 1970, but will most likely not

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<sup>1</sup>U. S., Congress, House, Committee on Appropriation, Subcommittee on Department of Interior and Related Agencies, Department of Interior and Related Agencies Appropriations for 1971, Hearing, 91st Congress, 2nd Session (Washington, D. C.: U. S. Government Printing Office, 1970), p. 431.

substantially enlarge the program if it is enacted.

The U. S. has two other financial aid programs for fishermen: the Fisheries Loan Program and the Fishing Vessel Mortgage Insurance Program. The Loan Program was established under the Fish and Wildlife Act of 1956 (PL 84-1024) which authorized a \$10 million revolving loan fund for improvement, replacement, or repair of vessels and gear. The revolving fund was increased to \$20 million in 1958 (PL 85-888) and the requirement that a new vessel financed under the program replace an existing vessel was dropped in 1965 (PL 89-85). The interest rate was 5 per cent. This program was authorized until July 30, 1970. As of March, 1970, renewing legislation had not passed. The Vessel Mortgage Insurance Program has been in effect for many years. In 1958, the Bureau of the Budget transferred this program from the Department of Commerce to the Department of Interior and imposed a \$10 million limit on the total outstanding loans being guaranteed at one time.<sup>1</sup>

Like vessel subsidization, these programs have not done a great deal to remedy the cost disadvantages faced by U. S. fishermen. This conclusion is based on two factors. First, the benefits of lower interest rates and other credit advantages stemming from these programs must

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<sup>1</sup>Congressional Quarterly Service, loc. cit.

be small compared to the disadvantages imposed upon U. S. fishermen by the high cost of labor and vessels plus gear restrictions. Secondly, neither program is very large. In 1969, for example, 94 applications for loans totaling \$3,398,024 were approved under the loan program. During the same year 17 new mortgages were approved for mortgage insurance, their total value being less than \$5 million.<sup>1</sup>

Aid to the fishing industry does not stop here. The Bureau of Commercial Fisheries carries on a good deal of research on a broad group of problems including everything from marketing to ecology. Under the Saltonstall-Kennedy program 30 per cent of the duties on fish imports are diverted to BCF for use in providing research as well as marketing services and emergency economic aid to the fishing industry. Under the Commercial Fisheries Research and Development Act of 1964 (PL 88-309) cooperative federal-state research and development programs are conducted, with the federal government absorbing 50 to 75 per cent of the cost. The program includes research on resource ecology, fishing gear, propagation of commercial species, processing and product development, marketing, and economics. The Anadromous Fish Act of 1965 (PL 89-304) established a program of research on anadromous species, on forecasting runs, and on artificial propagation of

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<sup>1</sup>Fisheries of the United States, 1969, p. 72.



salmon. The expenses are shared on a fifty-fifty basis between the states and the federal government. Research by the Bureau of Commercial Fisheries is augmented by other Federal programs such as the Sea Grant program and by much research done at the state level. The Jellyfish Act of 1966 (PL 89-720) provides for aid in pest control. Costs are shared equally between states and the federal government. BCF carries on many management tasks including management of the Pribilof seal herds,<sup>1</sup> grading of various fish products, policing both domestic and foreign vessels to assure observance of various fishing treaties and the contiguous fishing zone of the U. S., and management of specific fisheries such as the haddock of George's Bank. The U. S. government is active in gathering statistics, a sample of which were discussed in Chapter 3 of this thesis. It also maintains a fishermen's protective fund to help defray the costs faced by U. S. fishermen who are caught in territorial waters or contiguous fishing zones not recognized by the U. S.<sup>2</sup> This is not an exhaustive list of activities but it does contain most of the major programs.<sup>3</sup> The impact of all these activities would be difficult to assess, but one thing is clear: They have not been

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<sup>1</sup>Discussed in Chapter 6.

<sup>2</sup>See Chapter 5.

<sup>3</sup>For a more detailed presentation see U. S. Congress House, Committee on Appropriations, op. cit., pp. 262-483.

sufficient to allow U.S. fishermen to regain the advantage in domestic markets.

### Summary

While there are exceptions in some segments like shrimp, tuna, and king crab fishing, on the one hand, and groundfish and Pacific sardines, on the other, fish production in the United States is generally stable. Employment has fallen somewhat since 1950, but has remained relatively constant in recent years; vessels are aging; annual catch remains fairly constant and the composition and location of catch have not changed very much, except on a regional basis. It is notable that this stagnation has occurred at a time when American fish markets have been rather lucrative. The favorable character of U.S. markets is evidenced not only by a rapid influx of imports, but also by the fact that, in spite of the rise in imports, prices have been fairly good, generally speaking. U.S. policy has contributed to this state of affairs in a number of ways. Costs are higher for U.S. producers because their vessels must be constructed in the U.S., their choices of production methods are closely controlled, their resources have been reduced through habitat destruction and foreign competition, and their foreign competitors are subsidized. U.S. fishery programs have not done a great deal to alleviate these difficulties. Matters have been further complicated by a tariff policy

which has been, and continues to be, adverse as compared to the tariffs on most imported goods.

With these facts as a backdrop, let us turn our attentions to some policy issues of strategic importance to fishing, to the issues surrounding U.S. ocean policy.

## Chapter 4

### CONCEPTUAL FRAMEWORK FOR THE ANALYSIS OF U.S. OCEAN POLICY

The preceding chapter was mainly descriptive. While there is much descriptive material yet to be presented, the remainder of this thesis will be more analytical in character. It will be more analytical, first of all, in that there will be more emphasis on the social forces underlying the phenomena to be discussed. In other words, one objective will be to gain a better understanding of why things are as they are. Secondly, there will be more emphasis on the economic desirability of the policies and institutions involved in fishery issues. That is to say, more attention will be given, where possible, to evaluation of economic performance.

U.S. ocean policy is the sum total of all U.S. policy dealing with use of the ocean. "Ocean policy," and not just "fishing policy," is at issue here because fishing and other uses of the ocean are often closely related. In order to better understand ocean policy, the first section of this chapter introduces a general conceptual framework which is useful for analyzing the relationships between policies, institutions, and economic activities. This framework is then used in the remainder of the chapter to introduce two aspects of ocean policy of conceptual

interest. First of all, the socioeconomic sources, roles, and interactions of conservation and distribution objectives in determining fishing policy will be discussed. Second, in the final section of the chapter, the present decision system of the oceans is described and evaluated.

#### A Framework for the Analysis of Policies and Institutions

In attempting to analyze the fishing related aspects of U.S. policy, it is helpful to distinguish accurately between policies and institutions. To this end, the hierarchy of social decision-making due to Ciriacy-Wantrup will be discussed.<sup>1</sup>

An economy may be visualized as a huge decision system made up of three levels. On the lowest level, which is called the operating level, "decision-making relates to the control of inputs, outputs, and the host of similar decisions made by the operating sectors of the economy, namely, firms, industries, and public operating agencies such as water projects and irrigation districts."<sup>2</sup>

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<sup>1</sup>See S. V. Ciriacy-Wantrup, "The Economics of Environmental Policy," Paper presented at the Preparatory Conference on Ecology and Science Policy, The Center for the Study of Democratic Institutions, Santa Barbara, California, April 20-26, 1970, and, by the same author, "Water Policy and Economic Optimizing: Some Conceptual Problems in Water Research," American Economic Review, 57:179-89, May, 1967.

<sup>2</sup>Ciriacy-Wantrup, "The Economics of Environmental Policy," p. 13.

It is on this level that many of the decisions discussed in modern textbook economics, such as profit maximization and utility maximization, are made. It is important to note that decision-makers on this first level treat decisions on the upper levels as constraints in the optimization calculus.

The second level of the hierarchy is called the "institutional level." This level prescribes the rules of the game under which the operating sector must operate. The institutional level administers these rules through such formal activities as public regulation, law enforcement, civil judicial proceedings, and markets and through less visible, informal means such as mores and folkways. An important characteristic of decisions on the institutional level is that they do not control the input-output decisions of the economy directly. "Rather, the purpose is to maintain and to increase welfare by continuously influencing decision-making on the lower level under constantly changing conditions that, for any point in time, can only vaguely be projected and that are always uncertain with respect to actual occurrence."<sup>1</sup> The role of the institutional level is to provide the environment in which in the input-output decisions can be so channeled as to conform with the objectives as determined on the third, or "policy," level.

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<sup>1</sup>Ibid., p. 14.

The policy level of the decision system is where social objectives are determined and the institutions for their achievement are created and maintained. It falls upon the policy level to design institutions which can guide the operating level through the uncertain future in such a way as to achieve the objectives of society. This is achieved through the various tools of policy-making, such as changing laws, creating and destroying governmental units, influencing public opinion, and setting up tax and subsidy programs.

Obviously, the success or failure of an economic system is dependent upon its performance at all levels of decision-making. Economists have thus far concentrated mainly on the structure, functioning, and performance of decision systems on the first level. In fact, a substantial proportion of the effort of economists has been directed toward the workings of one kind of subsystem, namely, markets in their various forms. It must be remembered, however, that efficiency in the market case is a criterion applicable only to the first level of the decision hierarchy. Likewise, the criterion of maximization of rent from fishing discussed in Chapter 2 is a criterion

for performance at the first level. Once the limitation of entry hypothesis was subjected to welfare criteria, which are criteria for the second level, a number of potential shortcomings were observed.

The search for meaningful criteria for performance of the institutional and policy decision subsystems is only beginning. As in the limitation of entry case, welfare economics has been of help mainly by showing why operating criteria are not fully applicable to decisions on the upper two levels. In a similar way, welfare economics has taught us to distrust community indifference curves and social utility functions. Some more positive guides to institutional performance may be discernable. One is the Ciriacy-Wantrup criterion, discussed in Chapter 2. This was the criterion that economic State A is superior to economic State B if (1) national income is increased, (2) State A does not have a substantially more unequal distribution of income than State B, and (3) forces are concurrently in effect that are moving the economy toward a more equal distribution of income. Let us now consider this criterion a bit further.

Condition (3) is probably satisfied for the United States, although progress has been slow. Fishery problems, however, sometimes involve the international economic



relationships and distributional considerations are not so clear here. In the southeastern Pacific and the Caribbean the gap between the U. S. and some of the poorer countries may be widening.<sup>1</sup> In most other international fisheries involving the U. S., condition (3) is probably satisfied.

A more serious difficulty may underlie the concept of national income, since its calculation requires evaluation or weighting of various goods and services.<sup>2</sup> This means that either market prices or some indirectly calculated unit values must be used. Market prices are subject to many kinds of influences including market form, externalities, and the nonexistence of markets for certain goods which are indivisible or incapable of ownership. A single set of prices may be impossible to arrive at in international fisheries involving very different economic systems, such as those jointly exploited by the United States and the U. S. S. R. Because market prices reflect the distribution of income, it may be possible to have an increase in international income without adversely affecting the distribution of income and yet do little to accomplish

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<sup>1</sup>For a discussion of long-run international trends in per capita product see Simon Kuznets, Modern Economic Growth (New Haven and London: Yale University Press, 1966) pp. 390-99.

<sup>2</sup>See S. V. Ciriacy-Wantrup, "Concepts Used as Economic Criteria for a System of Water Rights," Land Economics, 32(4): 295-312, November, 1956, reprinted in Stephen C. Smith and Emery N. Castle, Economics and Public Policy in Water Resource Development (Ames, Iowa: Iowa State University Press, 1964), pp. 251-71. A discussion of this problem is given on p. 267 in the latter volume.

international social objectives such as eradication of protein and other dietary deficiencies. Thus dwelling on aggregate income may detract from activities aimed at more pressing needs. Developing of unit values outside the market is a difficult task and has led in most policy-making to the use of multiple objectives, in lieu of attempting to condense everything down to a single objective function like aggregate income.

Other problems are created if the policy in question forces a change in prices. For one thing, social valuation must consider changes in consumer surplus and/or changes in producer rent. A related point can be seen by considering a movement from an overfishing situation to the maximum sustainable yield from a fishery where entry is limited to prevent any increase in effort at the new equilibrium catch. Such a move may make the country or countries involved better-off, yet, if demand is inelastic, national income will actually decline.

Finally, the uncertainty with which institutions must deal places certain limits on the applicability of the national income criterion. A change in institutions which increases current national income may be very costly when some unforeseen future event occurs which the new institution is ill-equipped to handle.

All this does not mean that the criterion for institutional performance under discussion are useless. On the contrary, they have been used to considerable advantage in studying water policy.<sup>1</sup> Rather, the above remarks will serve to warn against uncritical application of the criterion and to indicate that other criteria of institutional-level performance may be applicable. Two additional criteria will be discussed here. One is

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<sup>1</sup>See *ibid.*

whether the institutional level maintains a safe minimum standard of conservation in dealing with natural resources problems. This can best be explained in the context of conservation policy in the next section. The other is whether the institutions involved have "survival value,"<sup>1</sup> a criterion which is also due to Ciriacy-Wantrup.

To understand survival value, remember that how institutions perform at any point in time is less important than how they perform over long periods of time under conditions that are often difficult to foresee. If an institution has been in existence for several years and if the performance of related economic activities has been reasonably satisfactory, then apparently the institution has guided the operating sector in such a way as to meet a minimum standard of performance. Such an institution would be said to have survival value. The process of analysis is analogous to that applied by a geneticist who differentiates between favorable and unfavorable gene variants, mutations, traits, and other characteristics or that used by a student of animal behavior to specify favorable and unfavorable instincts on the basis of their contribution to animal species survival. California water law may serve to illustrate how the criterion can be applied. California has changed radically since 1850 and

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<sup>1</sup>"Water Policy and Economic Optimizing: Some Conceptual Problems in Water Research," pp. 184-86.

water use has changed accordingly. In the early days, placer mining was the outstanding use of water. Today, agriculture dominates water use in what has become one of the most populous, industrial states. It is also interesting to note that antiquated segments of California water law which gave special priority to agricultural uses have been neutralized. This ability of California water law to adapt to rapid and radical economic change indicates that it has survival value.<sup>1</sup>

How would such analysis aid the policy-maker? In the first place, it would help him see the long term role of California water law in the growth of the state. This is an important perspective in view of the many criticisms, based on a short-run point of view, which have been leveled at water law in the Western States. Secondly, if an undeveloped region were expecting to grow rapidly both agriculturally and industrially, its policy-makers might find California's experience helpful in designing the necessary water institutions.

The ultimate objective of this and the following two chapters is to apply this framework for economic analysis to U.S. ocean policy. Fishing policy is a basic ingredient of ocean policy and the next section will outline the social origins of fishing policy. Various aspects of that policy have already been discussed and one

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<sup>1</sup>Ibid., pp. 186-87.

of those aspects, controls on the technology of production, will be used for illustrative purposes.

Interactions Between Conservation and Distribution Objectives

Institutions may often be used to get at the nature of underlying policies and, in turn, at the foundations of the policy in the social system. Let us use technological controls for this purpose.

One of the hypotheses of this thesis is that

controls on technology and other institutions of fishery regulation and control stem from the interaction of those policies which aim at conservation of fishery resources and those which aim at the distribution of income from fishing.

Conservation has deep political roots in the U.S. Such a policy originates partially from the fishermen themselves, since they have a definite stake in the productivity of the resources they exploit. Also important are the influences of those who work for fishery regulatory agencies, humanitarian interests including conservation pressure groups and university personnel, and concerned private citizens.

Distribution objectives stem from the political activities of the fishermen, and are the result, in part, of the fugitive status of the resource.

Conservation is concerned with the time distribution

of rates of use of the resource, i.e. the output from the resource over time. Conservation is the redistribution of use rates in the direction of the future. In other words

conservation occurs when the time distribution of use rates is changed in such a way that present output is curtailed in order to increase future output. Depletion is the opposite of conservation and consists of high use rates in more recent periods which can be gained only at the expense of lower physical yields in more distant periods.<sup>1</sup> Looking once more at the landing effort function of Chapter 2 (Figure 1) and the equations upon which it is based, it can be seen that there are no conservation problems in this model unless effort exceeds that necessary to produce the maximum sustainable yield. At lower levels of effort, society does not give up future yields in order to increase output since the fish population is not being fully utilized. At levels of effort in excess of the maximum sustainable yield, on the other hand, depletion takes place, since current yields can be obtained only at the expense of future yields. A reduction of the level of effort toward that which produces the maximum sustainable yield would be conservation: catch would be reduced in the short run but increased in equilibrium.

Conservation is a problem in fisheries for a number of reasons. It has already been pointed out that competition combined with the fugitive status of the

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<sup>1</sup>S. V. Ciriacy-Wantrup, Resource Conservation-- Economics and Policies, 3rd ed. (Berkeley: University of California, Division of Agricultural Sciences, 1968).

resource may lead to overfishing or depletion. Such depletion causes concern for two reasons. First, the depleted resource will not produce all it is capable of producing over some future period. This has unsatisfactory implications for fish consumers, since the resource will not produce its maximum yield on a sustained basis. It may also have an unhappy impact on fishermen since it lowers their aggregate incomes (unless, of course, demand is inelastic over the range between current catch levels and those closer to the maximum sustainable yield). Secondly, depletion has the potential of doing economically irreversible damage to the resource. One of the most important tasks of fishing institutions is to make certain that safe minimum standards of conservation<sup>1</sup> are applied to all species so that irreversible depletion does not occur. Potential economic irreversibility has not been the same threat to sea animals as it has been to land animals. Most of the time fishermen go broke before the fish population becomes so hard hit that it cannot bounce back. There are some exceptions to this, however, including the sardines of the California current. Once the most productive fishery in the Western Hemisphere, there is now a moratorium on all commercial fishing for sardines because of scarcity of fish. Heavy fishing of the sardines opened

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<sup>1</sup>See Ciriacy-Wantrup, Resource Conservation, op. cit., Chapter 18.



a niche in the ecology of the California current, a niche that was filled by an increase in the population of anchovies.<sup>1</sup> Fishing for the anchovies is probably not economic at this time.<sup>2</sup> Economically irreversible damage has occurred in this fishery.

There is need to be concerned lest expanding technology may so increase man's ability to capture the fish that irreversible damage will be done to more and more fisheries. This is coupled with the fear among some observers that even now the fishery resources of the world are noticeably diminished. Whether this has actually occurred is still a question requiring more scientific research and the decline, if it has occurred, has not been definitely linked with either overfishing or habitat modification. The issues involved here testify to the tremendous need for scientific knowledge of the nature and extent of fishery resources and for institutions to maintain safe minimum standards of conservation.

Forces aimed at conservation in fisheries are not the sole determinants of fishery policy. The distribution of the catch is also important. Because the resources are

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<sup>1</sup>An alternative explanation is that human action was only secondary and that the sardine decline was part of a cyclical ebb and flow of this species.

<sup>2</sup>William F. Perrin and Bruno G. Noetzel, "Economic Study of the San Pedro Wetfish Boats," U.S. Department of the Interior, Bureau of Commercial Fisheries, Division of Economic Research, Working Papers No. 32, October, 1969.

fugitive, each resource user's income is dependent upon his own ability to catch fish vis-a-vis other fishermen's ability. Thus, rivalry develops and this rivalry often centers upon the competition between different forms of gear. The energy generated focuses on the political process, especially when conservation measures are being applied. The resulting compromises are the socially "satisfactory" distributions of income. The position of established producers is also insecure because new technology often involves radically different means of production, which may not be available to established operators. An example is the controversy between handraking and dredging for clams.<sup>1</sup> Dredging would be beyond the financial capacity of the rakers even if they could master the necessary skills. The problem stems from the fugitive status of the resource.

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<sup>1</sup>Andreas Holmsen, The Rhode Island Quahog Industry--Some Economic Aspects, Rhode Island Agricultural Experiment Station Bulletin 386, no date.

Perhaps this question can be illuminated by comparing the relative positions of farmers and fishermen whose competitors are adopting new methods of production. The farmer would be interested to see if the innovation could be profitably applied to his own land. He can adopt it or not as suits his own operation. If his farm is too small to accommodate the new invention he can always sell his land<sup>1</sup> or acquire more land. The only way that the new invention can hurt him economically is through higher prices on input markets or lower prices in product markets. The fisherman has a much less secure position. He has nothing comparable to the farmer's exclusive access to his own land. To the fisherman, the innovation may mean that its users can take fish which would ordinarily have been his and thus reduce his income. It is not surprising that fishermen are more inclined than farmers to use political means to control the technological alternatives open to his competitors.

The political forces thus generated are augmented by two other characteristics of fishing. For one thing, the political pressures are probably more intense because fishermen are paid on a share-of-the-catch basis. This means that changes in the distribution of the catch are felt immediately by larger numbers of people than if labor

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<sup>1</sup>Possibly at a very favorable price since the introduction of new capital would increase the marginal productivity of land.

and capital were paid at fixed rates. Increased numbers involved in the political controversy means more attention from politicians, the press, and the public at large. This is bound to produce some sort of compromise between innovators and established fishermen. Second, the uncertainty which surrounds fishing probably generates even more political energy in support of the status quo. For one thing, the impact of various methods of fishing on the population may not be discernible even with modern scientific techniques, especially in advance of making use of the gear in question. This leaves gear controversies open to all kinds of accusations about the effects of different gear on the stocks. This is especially true of newly introduced gear. Uncertainty of the actual effects not only encourages alarm among established producers, but lends credence to their arguments for maintenance of the status quo. A small slump in catches about the time the new gear is introduced may be helpful to eliminate the competitor on conservation grounds in spite of the fact that the slump could be from natural causes. From a politician's point of view, playing it safe with the status quo would have much appeal.

The biological forces also have an effect in favor of the status quo. The decline in average landings associated with increased fishing effort mean that already established fishermen bear part of the costs of new entrants. Hence, gear restriction may reflect a desire on

the part of established firms to avoid this externality. An interesting reflection on this point appears in the provisions of the 1964 vessel construction subsidy law. This law requires that no subsidized vessel be used in fisheries where such operations would cause harm to efficient producers already established in the fisheries. This program will be discussed in more detail later in this chapter.

Distribution questions often get intertwined with conservation issues. Where overfishing is a potential problem, gear regulation may discourage depletion. Also, conservation has much support in the U. S. Distribution arguments carry more weight in the political arena when tacked onto conservation measures. The two issues are actually easily separated. Conservation deals only with physical rates of use, such as expressed in the objective of maximum sustained yield. Distribution policy can be seen from examining the particular set of institutions that are charged with carrying out the conservation policy. In the controversy involving clam rakers and dredges, for example, a variety of institutions could have accomplished the conservation objective, e.g. restricting the number of dredges or placing a quota on the total catch of rakers and dredges. The form of regulation actually chosen restricted the area and season for dredging, thus maintaining at least part of the predredging status quo for the rakers.

It would be a mistake to propose that all gear

regulation relates to the fugitiveness of the resource. Such restrictions may sometimes be viewed as efforts to eliminate market competition, just like any other industry. Consider, for example, the outlawing of salmon traps. Traps are located in the rivers and would not interfere directly with other kinds of gear. Trolling and purse seining take place farther out to sea and even gill nets would often be able to fish below the traps. Only if the traps seriously reduced future runs would catch be redistributed among the various fishermen. The traps hurt the fishermen in the salmon market by supplying large quantities of salmon at low cost. Once again, conservation became an important vehicle for income distribution changes, traps being outlawed to achieve conservation and redistribution.

It is worthwhile to note that gear regulation to achieve conservation and satisfactory distribution is not a phenomenon limited to the United States. Consider Japan, for example. Her mobil mother ships and giant fish companies are held up as guides to how modern fishing countries operate. It is often forgotten that the largest proportion of Japanese fishermen work in the inshore fisheries, where productivity and incomes are low. One writer has summed up the situation as follows: "The government of Japan . . . followed to a great extent the principle of placing inshore fisheries under rigid control at the expense of productivity, in order to avoid the development of radical situations in fishing communities

and thus minimize social unrest."<sup>1</sup> Similar institutions probably exist in most countries with large coastal fisheries.

In summary, the interaction between forces oriented toward conservation and those oriented toward distribution play important roles in determining fishery policies and institutions. This point has just been illustrated by reference to gear regulation, but these forces will be shown to be important in determining other parts of ocean policy as well. There are two aspects of ocean policy that are of great importance in managing fishery resources. The first, to be discussed in Chapter 5, is the regime of the seas. Institutions here determine the distribution of jurisdiction and control over fishery resources between coastal states and the community of nations. Second are the fishery agreements by which fishery resources are managed on an international basis. The international fishery agreements of the United States will be discussed in Chapter 6. Before turning to these topics, however, the method of arriving at policies and institutions with respect to the oceans, i.e. the decision system of the oceans, needs to be discussed.

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<sup>1</sup>Hiroshi Kasahara, "Japanese Fisheries and Fishery Regulation," California Museum of Science and Industry, California and the World Ocean (Sacramento: Office of State Printing, 1964) p. 58.

### The Decision System of the Oceans

The international economic organization of the oceans is somewhat different than the usual economy. The activities that take place in this economic arena are based on a rather unique resource: the world ocean.

The distinctive features of the process of interaction by which people use and enjoy the ocean derive most importantly, from the special physical characteristics of ocean resources, which include both the spatial-extention resource, principally useful as a domain for movement, and renewable fisheries, difficult or impossible to deplete in a degree technologically irreversible.<sup>1</sup>

Other things being equal, each state wants as few constraints

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<sup>1</sup>Myres S. McDougal and W. T. Burke, The Public Order of the Oceans (New Haven: Yale University Press, 1962) pp. vii-viii.



as possible upon its access to the ocean for military and economic activities. The physical features just noted (i.e. spaciousness and low danger of irreversibility<sup>1</sup>) argue for allowing all nations to freely carry on whatever activities they choose on the oceans. In the absence of conflicts, freedom of the seas allows each nation the largest number of alternatives or, in economic parlance, the largest production possibilities set. In other words, assuming that the uses of various countries do not conflict, the world is better off, the fewer constraints there are on the activities of each country. In fishing, for example, if the level of fishing effort is so small that it has only a small influence on the fish population, it would make little sense to restrain the fishing effort of one or more of the fishing countries. This is the basic rationale for freedom of the seas. Freedom of the seas means that individuals and governments can use the ocean without interference from other countries.

Conflicts do exist, however, and the regime of the seas has found ways to handle such conflicts. The institutions for resolving conflicts can be broken down into two groups: those that reconcile the conflict by granting special privileges to coastal states to restrict

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<sup>1</sup>McDougal and Burke stick to technological irreversibility rather than economic irreversibility as discussed above. It is probably better to think in economic terms here, since if damage is economically irreversible, it makes little difference to society whether rebuilding a stock is technologically feasible or not.

the activities of others along their coasts and those that provide for resolution by international agreement.

As various countries endeavor to enjoy the many uses of the oceans, coastal states are subject to many kinds of ill-effects from the interaction off their coasts. One of the most important is the potential for a foreign country to use the ocean as a base for invading the coastal state. Also various economic activities of the coastal state may conflict with the uses of non-coastal countries. Two examples of this are transportation and fishing. In recent years, oil production has also become important. Finally, nationals of non-coastal states may use the seas to commit criminal acts such as smuggling against the coastal nation.

All nations with sea coasts share these problems. Hence, it has become an accepted principle of international law that the coastal state should have control of some of the activities of foreigners off its coasts. In the abstract, the guiding principle here is that the coastal state's interests decline as the distance from the coast increases. From a military standpoint, for example, the further out to sea are the military forces of other states the less the danger of surprise attack. In fishing, coastal fishermen are less dependent on the fish stocks, the farther away from the coast the fish are located. Thus, the world community agrees that coastal states should have at least some special rights in coastal waters, but

that jurisdiction should decrease as the distance from the coast increases. The ocean can be divided into three zones.

The most comprehensive authority applies to inland waters and the territorial sea. Here the coastal state exercises practically the same authority as it does on its land. The most important thing from the standpoint of this study is that the coastal state has exclusive access to fish in the inland waters and territorial seas.

Territorial seas are belts of water lying seaward from the land mass. The actual width varies from country to country. Two common widths are three and twelve miles.

The second institution is the contiguous zone which lies adjacent to the territorial sea. Here the coastal state claims authority over limited and specific activities such as sanitation control, customs regulation, and exclusive fishing rights. For purposes other than those specified by the coastal state, the waters of the contiguous zone have the status of high seas. An exclusive fishing zone would not, for example, inhibit the movement of warships. On the high seas proper, freedom of the seas prevails. For fishing this means that all nations may engage in fishing as they please, subject only to fishery treaties and other international agreements.

Perhaps a slightly different view of the same phenomenon will help to further elucidate its characteristics. Each state on behalf of its own interests may be thought of as having two types of interests, inclusive and exclusive

interests. Inclusive interests aim at joint use of the ocean by all nations. Part of the inclusive claims stem from mutually advantageous use such as the provision of navigational aids, joint search and rescue, and scientific research. Beyond these mutually advantageous uses, each state would prefer to have exclusive use of the entire ocean in order to minimize the conflicts incurred under inclusive use. This is obviously not possible for all states, however, and the result is a compromise with each state having a belt of exclusive use adjacent to its land mass and the remainder of the sea being used inclusively.

The process of arriving at this compromise is most interesting.<sup>1</sup> Each nation has a package of exclusive and inclusive claims, a strategy for that nation's use of the oceans. The strategies of all nations interact in the world's political arena through a process of bargaining which entails claims and counterclaims backed up by reciprocal and retaliatory threats and actions. One result of this decision process is the division of the oceans between exclusive use in the inland waters, territorial seas, and contiguous zones on the one hand and high seas on the other. The U.S. strategy in this regard is the subject of Chapter 5.

The essence of the high seas as an economic subsystem

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<sup>1</sup>A more complete account is provided in the book by McDougal and Burke, (ibid.).

is that all states may use its resources on an equal basis. Conflicts of one form or another which occur there cannot be settled by one state unilaterally without violating this principle of equality. On the other hand, where all states involved in the conflict freely bargain and reach agreement, the equality principal is maintained. Various U. S. agreements relating to fisheries are discussed in Chapter 6.

Hence, the institutions governing fishing and other activities provide two methods of solving the problems associated with conflicting uses of the ocean: (1) exclusive use by the coastal state in adjacent waters and (2) international agreements on the high seas.

The process of claim, counterclaim, reciprocity, retaliation, and negotiation leads to an allocation of ocean resources which can be thought of as satisfying an international Pareto condition, i.e. it would be impossible to better satisfy one country's policy objectives without reducing the satisfaction of other countries' policy objectives. Just as in other economic situations, however, many possible allocations would satisfy the Pareto condition. Let us discuss the method by which the actual allocation of the benefits of ocean exploitation is chosen. Consider first potential conflicts which would occur in the territorial sea and involve the coastal state. Here the allocation goes to the coastal state. On the high seas, the ocean's resources are allocated on the basis of the

quantity of non-ocean resources nations are willing to invest in the exploitation of the ocean resources. This gives the richer countries the advantage on the high seas.

As with resource allocation in other spheres, the close association between resource allocation and income distribution has led to much political jousting aimed at altering the distribution by changing allocation. The result so far has been a reallocation of resources in favor of coastal states through (1) pushing the baselines for measuring the territorial waters seaward, (2) enlarging the widths of territorial waters, (3) establishing of national jurisdiction over the coastal seabed and subsoil, and (4) establishing and extending exclusive fishing zones. Such changes will probably benefit the poorer countries, since they benefit the least from the high seas and can develop coastal resources more easily without outside interference.

There is much talk these days about doing away with the regime of the sea, or at least part of it, and substituting a more centralized set of institutions, perhaps within the U. N. Such proposals are well worth considering, but one should not be blinded to the virtues of the present set of institutions. Over several centuries, the present regime of the seas has guided the operating sector in a satisfactory manner as judged by the tremendous increases in fish production, ocean shipping, communications, mineral production, and so on. In other words, the present regime has survival value.

## Chapter 5

### THE REGIME OF THE SEAS

Among the institutions governing fishery exploitation are those that allocate authority to control fishery resources between the coastal state and the community of nations. These institutions bear heavily on both conservation and income distribution and are therefore of utmost economic importance. This chapter concentrates on U.S. policy on the regime of the seas as it relates to fisheries. It begins with a discussion of U.S. policy toward territorial seas, both that of the U.S. and those of other countries. Next, the political and economic background of the U.S. exclusive fishing zone will be presented and the implications of this zone for U.S. fishing interests examined. Many fish species inhabit the ocean floor and this portion of the ocean's resources is currently a topic of great interest in the United Nations. United States policy toward the sea floor and subsoil and the impact of that policy on fishery resources are the subject of the third section of this chapter. Finally, U.S. policy with respect to the high seas is introduced. The cornerstone of high seas fishery policy, namely international agreements, is the subject of the next chapter.

## Territorial Seas

The U.S. territorial sea of three miles in width dates back to the administration of George Washington. At that time, England and France were notified that the limits of U.S. neutrality would extend three miles to sea. Further authority was added to this zone when it was sanctioned by Congress in 1794. The United States was the first nation to apply a specific limit of three miles, as opposed to the cannon-shot rule.<sup>1</sup> The United States has held the limit of its territorial sea at three miles ever since.

For many years, other nations followed similar rules, although three miles has never been uniformly followed by all nations. As late as 1951, at least 45 nations, not counting colonial possessions, claimed three miles.<sup>2</sup> Recently the trend has been toward larger territorial seas. A recent FAO study,<sup>3</sup> which includes 102 countries, shows only 28 countries still maintaining a territorial sea of three miles. Twenty-one nations claim more than three but less than twelve miles, while

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<sup>1</sup>Jean Pierre Salanic, "Fishing Limits in International Law," unpublished LL.M. thesis, Boalt Hall Law School, University of California, Berkeley, September, 1969.

<sup>2</sup>W. T. Burke, "Contemporary Legal Problems in Ocean Development," Stockholm International Peace Research Institute, Toward a Better Use of the Ocean (New York: Humanities Press, 1969) p. 62.

<sup>3</sup>FAO, Limits and Status of the Territorial Sea, Exclusive Fishing Zones, Fishery Conservation Zones, and the Continental Shelf, FAO Legislative Series No. 8 (Rome: FAO, 1969).



some 40 countries claim twelve miles, and eight countries have territorial seas of more than twelve miles.<sup>1</sup>

Further extensions of national sovereignty have arisen through seaward revisions of the baselines from which the territorial waters are measured. Although this aspect of the ocean has many interesting legal and political implications, its economic importance is probably small for the United States and it will not be discussed at length here.

Two interesting kinds of fishery-related questions are raised in the context of the territorial seas. The first group are concerned with U.S. policy toward its own territorial sea and why the United States has thus far stood fast at three miles, while other nations have found it expedient to go beyond this traditional limit. Secondly, extensions of national sovereignty by other nations constrain the U.S. high seas fishing fleet. This has been of significance in the waters off some Latin American countries in recent years. U.S. policy toward such extensions is thus important for fisheries and will be discussed below.

To begin to understand the United States policy toward its own territorial sea, it is necessary to ask what

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<sup>1</sup>All numbers represent this writer's count. Among those claiming more than twelve miles are a number that claim no specific width but simply waters superjacent to the continental shelf. In addition, there were five countries that could not be placed in any group.

kinds of nations tend to favor narrow national limits. With a few important exceptions, the older, economically developed, sea powers have held to narrow territorial seas. Such countries are the United States, the United Kingdom, France, Japan, Australia, Denmark, Belgium, the Netherlands, Norway, Sweden and Finland.<sup>1</sup> A large number of the countries claiming 12 miles or more are in the underdeveloped world.<sup>2</sup> In the latter group are such countries as India, Mainland China, Ecuador, El Salvador, Ethiopia, Indonesia, Brazil, Algeria, Cyprus, Ghana, Iran, and so on. Thus part of the diversity in territorial-sea claims must stem from differences in the ocean oriented sectors of the economies of developed and underdeveloped countries. Coastal oriented interests tend to be more predominant in poorer countries. Developed countries have a greater interest in keeping the seas open for purposes of commerce, communications, naval activities, and distant-water fisheries.

This seems especially true of the United States. A sea power of immense importance, it has a world-wide interest in keeping the seas international so that its navy can move about at will. Objects of special concern

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<sup>1</sup>The Scandanavian countries at the end of this list have four mile limits, but these have been recognized for many years.

<sup>2</sup>Very important exceptions to the division of countries into developed ones that have narrow territorial seas and underdeveloped ones with wider territorial seas are found in the Communist world, the outstanding example being the USSR, which claims twelve miles.

in this regard are international passageways, such as straits and waters between islands. Sometimes, extensions of sovereignty leave no international waters in such passageways. The 1958 Geneva Convention on the Territorial Sea and Contiguous Zone (which the United States has ratified) does provide rather broad rights to innocent passage, even for warships. However, several states still do not recognize this Convention and even those that do ascribe to it could still deny access to warships in order to protect neutrality or other coastal interests.

Freedom of the seas is important to the defense of the United States in many other ways. The right of innocent passage does not extend to aircraft in the airspace over the territorial sea or to submerged submarines. In this way, more extensive territorial seas inhibit the effectiveness of both naval and air forces. Enemy submarines could presumably hide in the territorial seas of neutral nations and be out of reach of surface ships and aircraft of the United States. Innocent passage does not extend to missile tests or military practice missions.<sup>1</sup>

American commerce is also heavily dependent upon

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<sup>1</sup>These and other military considerations were discussed by Arthur H. Dean, Chairman of the U.S. delegation to the Geneva Conference on the Law of the Sea, in two articles: "Freedom of the Seas," Foreign Affairs, 37:83-94, October, 1958, and "The Geneva Conference on the Law of the Sea," American Journal of International Law, 52:607-28, October, 1958.

maintaining as much of the sea as possible in international jurisdiction. Ocean transportation depends on freedom of the seas to some extent as do air transportation and transoceanic communication. Scientific research is fostered by open access to the ocean. The United States has a sizable distant water fishing fleet. As noted in Chapter 3, 10 per cent of the U.S. catch comes from foreign coasts and, hence, the United States has a definite interest in maintaining access to the fishery resources off foreign coasts.

All of these military and commercial reasons considered, it is not surprising that the United States has adopted a policy of maintaining a narrow territorial sea in order to encourage other countries to do likewise.

This is not to say that there are no pressures to expand the territorial sea of the United States. On the contrary, intense political pressures to this end have been exercised by fishing interests for years. Only recently (July, 1970), Soviet fishing off the coast of California brought vociferous outcries from Northern California fishermen. Congressman Don Clausen (R-Crescent City, California) introduced a bill to extend the U.S. territorial sea to 200 miles.<sup>1</sup> Such pressures must at times be intense

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<sup>1</sup>San Francisco Chronicle, July 25, 1970, 1:3.

as foreign fishing increases off U.S. coasts. Thus far, however, other interests, especially those of the military, have prevailed.<sup>1</sup>

Although fishing interests have so far been unsuccessful in expanding the breadth of the U.S. territorial sea, their efforts have had some important effects. One result is the 12-mile exclusive fishing zone discussed below. Another is the strengthening of laws relating to exclusive use of the resources of the territorial sea. In the early 1960's foreign vessels were observed violating the territorial waters of the U.S. Until 1964, the law provided only for expulsion of a foreigner violating the U.S. territorial sea. A 1964 law (PL 88-308) expressly outlawed foreign fishing in the U.S. territorial sea and in other waters where the U.S. has the same fishing right as it has within its territorial sea. It also forbade fishing for continental shelf resources of the United States. Forfeiture of vessel and catch, imprisonment for up to one year, and up to \$10,000 in fines were specified as possible punishment. This law specified certain rather stringent conditions under which foreigners could be authorized to

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<sup>1</sup>The closest the three mile policy of the United States has come to change occurred in 1958 and 1960 at the Geneva Conferences on the Law of the Sea, when the U.S. proposed that the convention on the territorial sea include a six mile width for the territorial sea, along with six additional miles of exclusive fishing rights. See S. Oda, International Control of Sea Resources (Leyden, Netherlands: A. W. Sythoff, 1963), pp. 100-105.

fish in the U.S. territorial sea.<sup>1</sup>

There are some indications that the United States will adopt a twelve-mile limit for its territorial sea in the near future. This was mentioned in a recent speech by a State Department official<sup>2</sup> and, more importantly, by President Nixon in his May 23, 1970, statement on ocean policy. Since the United States already has a twelve-mile exclusive fishing zone, the effects of such a move on the fishing industry is likely to be slight, although changing the status of the twelve-mile zone to a full-fledged territorial sea may mean better enforcement of the exclusion of non-U.S. fishermen. This action, if it does occur, will be a result of the ineffectiveness of U.S. maintenance of a three-mile limit to induce other countries to do likewise. Since the U.S. has been unable to stop the world trend toward broader territorial waters, it now hopes to gain enough of a consensus to hold the line at twelve miles.

As explained above, there is another side to the question of U.S. policy toward the territorial sea, namely its policy toward the expanded sovereignty of other countries. One of the most publicized aspects of fishing

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<sup>1</sup>See Congressional Quarterly Service, Congress and the Nation 1945-1964 (Washington, D.C.: Congressional Quarterly Service, 1965) p. 1070.

<sup>2</sup>New York Times, February 22, 1970, 5:1.

in the United States has been the long, bitter, sometimes violent conflict between U.S. fishing vessels (as well as those of Canada and Japan) and the governments of several Latin American countries. Two types of U.S. vessels have been involved in these incidents: shrimpers in the Gulf of Mexico and tuna vessels in the Pacific. Both types of operations have ranged into Central and South America for many years. Claims to national jurisdiction vary considerably among the countries involved in these incidents. Mexico has claimed a nine-mile territorial sea for many years and in 1966 added a three-mile exclusive fishing zone contiguous to its territorial sea. Honduras claims 12 miles for its territorial sea. A major cause of difficulties has been the 200-mile claims which have been made by several other countries since the late 1940's. The full extent of sovereignty in non-fisheries matters varies from country to country, but those countries presently claiming 200 miles of exclusive fisheries jurisdiction include Argentina, Ecuador, El Salvador, Panama, Chile, Peru, Nicaragua, and Brazil.<sup>1</sup> Through the last two decades, international conflicts have included both harassment and vessel seizure, followed by payment of fines, registration fees, and license fees.

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<sup>1</sup>FAO, op. cit. (Brazil's 200 mile claim was made after publication of this document.)

The upshot of these claims has been that American fishermen have tried to fish in the disputed waters and have been encouraged by their government to do so. Precipitated by incidents in 1952 and 1953, the United States adopted the Fishermen's Protective Act of 1954.<sup>1</sup> The U.S. does not recognize any territorial seas or contiguous zones larger than its own. The 1954 Protective Act put teeth into this nonrecognition by providing government payments of fines and other direct charges incurred while fishing in disputed waters not recognized by the United States.

There has been a considerable number of international incidents since 1954. One House document noted that around 75 U.S. fishing vessels were seized and an unknown number harassed between that date and mid-1968. Most vessels were held four or five days, although one was held for 26 days. Total fines were \$489,470 of which the U.S. had paid \$332,702. (Some fishermen had apparently not filed claims for reimbursement.) Payments by country are shown in Table 6-1. In addition to direct payments to foreign governments, boats lose whatever they would have made while being detained, plus overhead costs. For a tuna vessel this may amount to between \$1543 and \$2752 per day of detention and for a shrimper, around \$354 per day.<sup>2</sup>

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<sup>1</sup>Oda, op. cit., pp. 21-24.

<sup>2</sup>U.S. Congress, House, Fishermen's Protective Act of 1967, House Report No. 1566, 90th Congress, 2nd Session. (Washington, D.C.: n.n., 1968).



Table 6-1

Payments by U.S. under Fishermens  
Protective Act of 1954 to  
Mid-1968

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Ecuador . . . . .	\$120,996.90
Mexico . . . . .	114,800.00
Honduras . . . . .	44,000.00
Panama . . . . .	22,500.00
Peru . . . . .	22,128.00
Colombia . . . . .	<u>8,277.90</u>
Total	\$332,702.80

Source:

U.S., Congress, House, Fishermens Protective Act  
of 1967, House Report No. 1566, 90th Congress, 2nd  
Session (Washington: n.n., 1968), p. 6.

Under the 1954 act, the U.S. government reimbursed fishermen whose vessels were seized for fines and other direct payments only. The Fishermen's Protective Act of 1967 (PL 90-482) extended aid to damage of vessels and gear resulting from seizure, payment of market value of fish spoiled or confiscated, and up to 50 per cent of the estimated gross income lost due to seizure and detention. This law provided that vessel owners pay at least one-third of the cost of the program through insurance-like payments. It also ordered the Secretary of State to take appropriate actions to recover U.S. costs under the program from the seizing country. Foreign aid funds equal to the amount of these claims were to be withheld pending payment, if payment was not made within 120 days after the U.S. claim was conveyed to the seizing government.<sup>1</sup> As of December 31, 1969, some 55 guarantee agreements had been signed with vessel owners who paid fees totaling almost \$77,000. Tuna vessels from California and Puerto Rico paid an average annual fee in the first year of the program of \$1,150 and the smaller vessels that fish for spiny lobsters and shrimp out of southeastern U.S. ports paid an average annual fee of \$200. As of March 4, 1970, one claim for \$1,100 had been paid, another potential large claim was pending and

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<sup>1</sup> Congressional Quarterly Service, Congress and the Nation, 1965-68, Vol. II (Washington, D.C.: Congressional Quarterly Service, 1969), p. 494.

three small claims were expected.<sup>1</sup>

The United States has made several efforts to negotiate some sort of settlement of the problem. As early as 1955, it proposed submitting its dispute with Chile, Ecuador, and Peru to the International Court of Justice, but the proposal was rejected by the Latin American countries. Other attempts at formal solution have been equally fruitless. Informal agreements have been reached at times, but have not been effective for very long.<sup>2</sup> In 1969, the U.S. agreed not to stop the sale of arms on credit to Ecuador and Peru. It was rumored that this was an inducement to enter into discussions of the fishing issue.<sup>3</sup> Talks did take place in August and September, but little was gained. As in the past, the Latin American countries refused to submit the question to international arbitration.<sup>4</sup>

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<sup>1</sup>U.S., Congress, House, Committee on Appropriations, Subcommittee on Department of the Interior and Related Agencies, Department of Interior and Related Agencies Appropriation For 1971, Hearings, Part 2, 91st Congress, 2nd Session (Washington, D.C.: U.S. Government Printing Office, 1970), pp. 77-80.

<sup>2</sup>See Joseph Grunwald and Philip Musgrove, Natural Resources in Latin American Development (Baltimore and London: The Johns Hopkins Press, 1970), p. 478.

<sup>3</sup>New York Times, July 4, 1969, 1:2.

<sup>4</sup>New York Times, January 6, 1970, 6:6.

In the meantime, the problem in the Pacific continues. The American Tunaboat Association claims that, since 1961, 92 boats have been seized and that this has caused losses of over three-quarters of a million dollars.<sup>1</sup> Fines and other payment to secure release of the vessels alone are often considerable. The City of Panama, a tunaboat out of San Diego, for example, was released by Ecuador on February 16, 1970, after paying \$49,650.<sup>2</sup> Fourteen vessels were arrested in 1969 alone.<sup>3</sup>

The controversy in the Gulf of Mexico and Caribbean is less intense only because the United States adopted a fishing limit of 12 miles. This means that the United States recognizes exclusive fishing rights to 12 miles from the coast, the limit of claims by Mexico and Honduras.

The United States has not been able to come upon a strategy that will force the Latin Americans off their stand. Naval protection of fishing vessels, as suggested by fishing interests, is certainly out of the question given the volatile character of international relations between the U.S. and Latin America. Retraction of economic and military aid would also have far reaching, undesirable

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<sup>1</sup> Ibid.

<sup>2</sup> New York Times, February 17, 1970, 18:8.

<sup>3</sup> New York Times, January 6, 1970, 6:6.

consequences. Even such relatively mild measures as cutting off fish imports from countries seizing U.S. fishing vessels have little chance of passage.<sup>1</sup> In the first place, relatively powerful interests from fish processing and agriculture would oppose such a move. Also, the Latin American countries involved have a discomfoting proclivity to engage in relatively painful economic retaliation, including, but not limited to, expropriation of valuable plants and equipment of U.S. corporations. Beyond government aid of the type currently in force, American fishing interests probably have little hope of reversing the situation in this area.

#### The U.S. Exclusive Fishing Zone

Moving seaward from the territorial sea, one encounters the nine-mile contiguous zone in which the United States claims exclusive fishing rights. Many maritime countries like the United States have held steadfastly to the three mile territorial sea. Even these countries have tended to take more extensive jurisdiction over fisheries, however. In 1966, when the U.S. was considering extending its fisheries jurisdiction, Senator Edward M. Kennedy could find only ten other countries in

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<sup>1</sup>There is, however, a great deal of political effort in this direction. Several bills to this effect have been introduced into the 91st Congress, including H.R. 3816, 5277, 10607, 11498, 11508, and 11912.

the entire world that limited their fisheries jurisdiction to three miles. He also pointed out the major reason for U.S. hesitation and why he favored extension:

We have waited all these years because we were afraid that unilateral action on our part would lead others to follow and perhaps make still more expansive claims. But the other nations have not waited . . . .<sup>1</sup>

The U.S. strategy of holding its own claims at three miles had largely failed to prevent extensive claims by other countries and tremendous political energy was emanating from the reaction within the U.S. to intensified foreign fishing off U.S. coasts. The result was the enactment in 1966 of a 12-mile exclusive fishing zone.

Before discussing the provisions of this law, the economic impact of contiguous zones should be clarified. As with expansion of the territorial sea, establishment of contiguous zones solves international conflict situations in favor of the coastal state. In a competitive fishing question, the coastal state wins the income and output of the geographic region encompassed by the zone. The total output of the world may or may not decline depending upon whether the coastal state can take over the exploitation of all resources previously being utilized. It is possible for output to increase if the coastal state applies

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<sup>1</sup>Quoted in U.S., Congress, Senate, Committee on Commerce, Subcommittee on Merchant Marine and Fisheries, Twelve-Mile Fishing Zone, Hearings, 89th Congress, 2nd Session, on S.2218 (Washington, D.C.: U.S. Government Printing Office, 1966).

conservation measures which were not previously in effect. Total world output of fish also depends on whether the excluded countries can find suitable alternative fishing grounds. There is an important difference between territorial seas and contiguous zones. While the territorial sea precludes all foreign uses of the sea within its boundaries unless sanctioned by the coastal state, contiguous zones aim at the solution of particular conflicts, without influencing other, non-conflicting uses. This is an important point from an economic view. As noted in Chapter 4, coastal interests generally decline as the distance from the coast increases. Nevertheless, a coastal state may have considerable special interests beyond the territorial sea as when a coastal fishing industry is overwhelmingly dependent on the resources there. The contiguous zone provides a vehicle for solving conflicts in this region in favor of the coastal state without interfering with other international uses such as ocean and air commerce and military activities. Thus, the contiguous zone provides institutional means for a smooth transition between the overbearing coastal interests in the territorial sea and the international zone of the high sea.

The provisions of the U.S. fishery zone, established by PL89-638, are as follows. In a zone of nine nautical miles in width, contiguous to the territorial sea, the U.S. exercises the same rights to exclusive fishing as in the territorial sea, subject to such traditional fishing by

other countries as is recognized by the United States. The law also stipulates that, while states may continue to regulate fishing within three miles of the coast, fishing in the contiguous zone will be regulated by the federal government.<sup>1</sup>

While the fishing zone stems from foreign fishing near U.S. coasts, it will do little to alleviate this problem as it now exists. The simple truth of the matter is that up to 1966, when the zone was adopted, there was very little foreign fishing within twelve miles of the U.S. According to testimony of an Interior Department official the only fishing within twelve miles of the U.S. was intermittent fishing by Japanese and Russians within twelve miles of Alaska.<sup>2</sup> Hence the main benefit of this act for U.S. fishermen is that it provides protection against expansion of foreign fishing toward U.S. coasts in the future. As shown in Chapter 3 (Table 3-12) above, about 10 per cent of the U.S. catch comes from the three to

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<sup>1</sup>For further details see Congressional Quarterly Service, Congress and the Nation, 1964-1968, p. 493.

<sup>2</sup>U.S., Congress, Senate, Committee on Commerce, Subcommittee on Merchant Marine and Fisheries, op. cit., p. 38.



twelve-mile zone.

Enactment of the fishing zone also has an indirect advantage for U.S. fishermen. Both Japan and the Soviet Union, for example, have found loading of fish from one vessel to another within twelve miles of the U.S. to be of enough economic value to make such privileges the subject of international negotiation with the U.S. In order to gain these privileges, both countries have made important concessions to the U.S., as will be seen in the next chapter. Also, simply avoiding crossing the line will increase the costs of foreign fishermen and thus discourage fishing near the U.S. Finally, the reduction of Japanese and Soviet fishing off Alaska should not be discounted. Not only does this eliminate some direct competition between U.S. and foreign fishermen, but, also, there were indications that Soviet trawling in what is now in the U.S. exclusive fishing zone was damaging king crabs.<sup>1</sup>

The main disadvantages for U.S. fishermen is that any expansion of exclusive fishing weakens the U.S. position in its confrontation with the Latin American countries. At least representatives from the two industries most involved, shrimp and tuna, opposed the measure on this basis. The shrimp people had a special interest in the proposed zone, since Mexico had only a nine-mile territorial sea. Not only did the U.S. zone encourage Mexico to extend her

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<sup>1</sup>Ibid., pp. 44-46.

exclusive fishing rights to twelve miles, which she did in 1966, but, also, the U.S. zone meant that shrimpers could no longer claim aid under the Fishermens Protective Act of 1954 when their vessels were seized off Mexico and Honduras.

There has been much talk and some legislative activity concerned with a further extension of U.S. exclusive fishing rights to protect coastal fishermen from foreign competition. In view of the controversy over the twelve-mile zone, chances of further extensions seem remote. The Department of the Interior was indifferent about the twelve-mile zone.<sup>1</sup> While the Departments of State and the Navy raised no objections to the twelve-mile zone,<sup>2</sup> they did so only because many other nations had already extended to twelve miles and more and the establishment of the zone did not interfere with air transportation and navigation. Any extension beyond twelve miles would be viewed with great reservations by the executive branch as well as some members of Congress.

#### The Seabed and Subsoil

Let us now turn from the water dimension of the sea to the soil and subsoil underlying it. The terrain of the ocean floor varies greatly, but is classified roughly into

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<sup>1</sup>Ibid., pp. 2-3.

<sup>2</sup>Ibid., pp. 5 and 58.

four areas. The "continental shelf" is a more or less gently sloping region immediately adjacent to continents and islands. It is here that most of the exploitation of both living and nonliving resources of the seabed takes place. Seaward from the continental shelf is the "continental slope," an area where the water depth increases rapidly. At the bottom of the continental slope, the sea floor descends more gently and the area is called the "continental rise." The continental shelf, slope, and rise are referred to as the "continental margin." At the base of the continental rise is the "abyssal plain." This is a vast area about which relatively little is known. Resource exploitation is nil on the abyssal plain, although many believe that it will become an important source of minerals in the future.

At present, continental shelves are utilized primarily for fish and petroleum production, although it is a source of some minerals, notably coal and sulphur. The seabed promises to become an increasingly important source of petroleum in the future and major exploitive ventures for other minerals are also in the offing. Interactions between mineral development and fishery exploitation are likely to multiply as both economic endeavors gain momentum. Thus, not only the close ecological relationships between all marine life and the seabed, but also the potential for competition between fishing and mineral production, make a discussion of the

regime of the seabed imperative to this thesis.

Several factors make mineral exploitation different from the harvesting of living resources and other, more water-oriented activities such as naval operations and ocean transportation. For one thing, there are many ties with adjacent land masses for mineral operations. The various phases of oil exploitation, from exploration through storage require close links with dry land. Also, at least under present technology, installations with considerable permanence are often required. The construction of permanent facilities by one state in close propinquity to the coast of another may be viewed by the latter as a definite threat to its security. Third, the coastal nation has a definite interest in supervising mineral exploitation. The Santa Barbara oil incident is rather vivid evidence of the close relationship existing between ocean mineral development and the adjoining land mass. All these special characteristics of seabed exploitation mean that states may want to make different claims relative to the seabed than relative to the superjacent waters.<sup>1</sup>

The extent to which the same arguments apply to living resources is the subject of considerable controversy. For pelagic species, the continental shelf does not

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<sup>1</sup>Myres S. McDougal and W. T. Burke, The Public Order of the Oceans (New Haven: Yale University Press, 1962), pp. 632-33.

provide a boundary on the basis of which to demarcate fish populations for management purposes, since such species often range freely without regard for the geographic features of the sea floor. The non-pelagic fish, such as bottom dwelling fish, crustacea, and those species which spend parts of their lives attached to or imbedded in the seafloor have a closer association with the continental shelf. Nevertheless, there are important differences between the exploitation of such fishes and exploitation of the mineral resources of the sea floor. For one thing, methods of fishing do not require the close connections with land. High seas fleets of such countries as Japan have fished off foreign coasts for years without any need for contact with adjacent land masses. The need for fixed implacements is not usually present, since almost all exploitation is carried out using mobile gear. The dangers of major pollution and ecological damage are much less in the fishing case. For these reasons, much emphasis has been placed on separate regions to control mineral exploitation from those that control fisheries, the institutions for fishing being more inclusive and international in character.<sup>1</sup>

On the other hand, giving the coastal state

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<sup>1</sup>Ibid., pp. 642-44 and L. F. E. Goldie, "Sedentary Fisheries and Article 2(4) of the Convention on the Continental Shelf--A Plea for a Separate Regime," American Journal of International Law, 63(1):86-97, January, 1969.

exclusive control over mineral resources, while leaving fishery resources in international waters has at least one potential disadvantage. In situations where mineral operations will damage fisheries, living resources may not receive proper emphasis in the decision of whether to produce the minerals or not. It thus appears that steps may be necessary to make the coastal state safeguard fishery resources, although, as McDougal and Burke<sup>1</sup> have pointed out, it may not be necessary to give exclusive fishing rights along with mineral rights to achieve this objective.

The discussion of U.S. policy toward its territorial sea and contiguous zone showed that the U.S. has been rather timid in expressing claims for exclusive jurisdiction in relation to fisheries. It is interesting that this approach to ocean policy has not carried over to the seabed. On the contrary, the U.S. took the lead in this area in the Truman Proclamation of 1945:

Having concern for the urgency of conserving and prudently utilizing its natural resources, the Government of the United States regards the natural resources of the subsoil and seabed of the continental shelf of the United States as appertaining to the United States, subject to its jurisdiction and control.<sup>2</sup>

Which, if any, living resources were included as "natural resources" in this proclamation remained unclear. The mention of "mineral resources" in the preamble to the proclamation and the fact that a proclamation concerning conservation

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<sup>1</sup>op. cit., p. 645.

<sup>2</sup>Presidential Proclamation No. 2667, Federal Register 10(10):12303, October, 1945.

of fisheries was issued concurrently are evidence that living resources were not intended to be included.<sup>1</sup> However, there has been some disagreement here.<sup>2</sup> It is entirely possible that "natural resources" was purposely left undefined.

The U.S. claim to its continental shelf was strengthened by explicit legislative recognition in the Submerged Lands Act of 1953,<sup>3</sup> but again the question of living resources was left hanging. At any rate, no claims to exclusive use of living resources were prosecuted by the United States under the 1945 Truman Proclamation or the Submerged Lands Act.

Several factors lead to the United States taking more aggressive action with respect to exclusive access to mineral resources than it has in fisheries. Of paramount importance is the fact that exclusive access to the seabed need not interfere with Naval and Air Force activity, while it does provide more oil reserves for defense purposes. Potential pollution, as noted above, is much larger for mineral than fisheries exploitation. In addition, the political influence of the oil industry in foreign affairs is well-known. Finally, the lack of established foreign mineral production off U.S. coasts made counterclaims and retaliation much less likely than would be true for extended fishing limits.

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<sup>1</sup>See McDougal and Burke, op. cit., p. 637.

<sup>2</sup>Ibid., p. 650.

<sup>3</sup>PL88-31.

Whatever the source of the U.S. strategy, its impact was dramatic. Countries all over the world have followed the U.S. lead and there have been few counterclaims, except in cases where states have claimed the waters above the shelf itself.<sup>1</sup>

As part of the efforts to codify the law of the sea through UN action, the Convention on the Continental Shelf has entered into force and has been adopted as U.S. policy. The continental shelf is defined as "the seabed and subsoil adjacent to the coast but outside the area of the territorial sea to a depth of 200 metres or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of said area."<sup>2</sup> The Convention provides that the coastal state shall have sovereignty over its continental shelf including exclusive access to its natural resources.<sup>3</sup>

Several portions of the Convention refer directly to living resources. Most important is the definition of continental shelf natural resources, which includes not only mineral and other nonliving resources of the seabed and subsoil, but also sedentary species of living organisms, "that is to say, organisms which, at the harvestable stage, either are immobile on or under the sea bed or are unable

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<sup>1</sup>Burke, "Contemporary Legal Problems in Ocean Development," p. 20.

<sup>2</sup>Article 1.

<sup>3</sup>Article 2(1).



to move except in constant physical contact with the sea bed or the subsoil."<sup>1</sup> Also, the exploration and exploitation of the natural resource of the continental shelf by a coastal state may not result in "unjustifiable interference with navigation, fishing, or the conservation of the living resources of the sea."<sup>2</sup> Finally, the coastal state may establish safety zones of 500 meters in radius around its installations to be respected by all ships and the coastal state "is obliged to undertake, in the safety zones, all appropriate measures for the protection of living resources of the sea from harmful agents."<sup>3</sup>

The Continental Shelf Convention has not ended the controversy over seabed jurisdiction. In only a few years, it has begun to look as though mineral production of substantial importance will soon expand beyond the 200 meter isobath of several countries. This raises the prospect of increasing national claims beyond the 200 meter line. While many still see national jurisdiction as the key to management of these resources and distribution of the income therefrom, others are advocating a new, international regime. The whole topic has become the subject of an international debate.

Specific events in the UN have been summarized

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<sup>1</sup>Article 2(4).

<sup>2</sup>Article 5(1).

<sup>3</sup>Article 5(7).

elsewhere<sup>1</sup> and are somewhat beyond the scope of this thesis. There have been two major thrusts to the political activities in the UN: (1) to encourage scientific research aimed at development of ocean resources and (2) to limit the areas of exclusive jurisdiction of coastal states and place the remaining portion of the seabed under an international agency. Such an agency would use the seabed for peaceful purposes only and would channel the net financial gains into UN activities, especially the development of poorer countries. In preliminary plans, there are provisions for regulation of pollution resulting from mineral development and for resolution of conflicts between fishing and mineral exploitation.<sup>2</sup> Steps have already been taken by the UN to study potential pollution resulting from exploration and exploitation of the minerals of the seabed.<sup>3</sup>

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<sup>1</sup>See A. Denis Clift ". . . of Diplomats and Ocean Politics," U.S. Naval Institute Proceedings, 96(7/809): 31-39, July, 1970, and Burke, "Contemporary Legal Problems in Ocean Development."

<sup>2</sup>See UN, General Assembly, Committee on the Peaceful Uses of the Sea-Bed and Ocean Floor Beyond the Limits of National Jurisdiction, Study on the Question of Establishing in Due Time Appropriate International Machinery For the Promotion of Exploration and Exploitation of the Resources of the Sea-Bed and Ocean Floor. . ., Report of the Secretary-General, UN Doc. A/AC.138/12 (18 June, 1969) and AC.138/12/add 1 (30 June 1969).

<sup>3</sup>See UN, General Assembly Committee on the Peaceful Uses of the Sea-Bed and Ocean Floor Beyond the Limits of National Jurisdiction, Study of Marine Pollution Which Might Arise From Exploration and Exploitation of the Sea-Bed and Subsoil Thereof, Beyond the Limits of National

Developments in the U.S. policy since adoption of the Continental Shelf Convention have emphasized international cooperation in research. Beginning with the Kennedy Administration, the U.S. has supported the Intergovernmental Oceanographic Commission of UNESCO and various other international agencies.<sup>1</sup> In the UN, the United States has played an active role in initiating preliminary studies of the UN's role in seabed policy.<sup>2</sup>

In areas of more substantive policy, President Johnson set the mood for coming policies in 1966 when he said:

Under no circumstances, we believe, must we ever allow the prospect of rich harvest and mineral wealth to create a new form of colonial competition among the maritime nations. We must be careful to avoid a race to grab and to hold the land under the seas. We must ensure that the deep seas and the ocean bottoms are, and remain, the legacy of all human beings.<sup>3</sup>

Things came to a head in the UN in August, 1967, when the Ambassador from Malta asked the Secretary-General to include a declaration and treaty in the Agenda of the General Assembly. This declaration and treaty would have reserved the ocean floor beyond the current limits of national jurisdiction for peaceful purposes and provided

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Jurisdiction, Note by the Secretary-General, UN Doc. A/AC.138/13 (28 July 1969).

<sup>1</sup>Clift, op. cit.                      <sup>2</sup>Ibid., p. 33.

<sup>3</sup>Quoted in Ibid., p. 33.

for controlled exploitation of its natural resources in such a way as to safeguard the interests of mankind. The United States and several other nations felt that such strong, direct action would be premature. The United States favored continued research and extended consideration of the various aspects of the problem.

The Nixon Administration has recently taken steps to support internationalization of the seabed. In August, 1970, it introduced before the UN Seabed Committee a proposal entitled, "United Nations Convention on the International Seabed Area." This proposal would establish an International Seabed Area to include all suboceanic lands beyond the present limits of national jurisdiction, the 200-meter isobath. Each coastal state would act as "trustee" for those parts of the International Seabed Area which correspond roughly to its continental margins. The rights of the coastal state in its Trusteeship Area amount to complete control, subject only to minimum standards for safety and pollution, to requirements that the trustee state make payments to an international fund, and to provisions prohibiting arbitrary expropriation. The rights of the trustee nation would extend to control of sedentary living resources as well as mineral resources. Outside the Trusteeship Area control of mineral resources would be vested in an International Seabed Resource Authority and all states may exploit the living resources there, subject to necessary conservation measures, just as they do now. The

proposed convention includes provisions to protect the marine environment.

Since this convention is only a proposal, the future of which is very uncertain, and since relatively few living resources are involved, detailed discussion is beyond the scope of this thesis. Let us move on to the international zone of the high seas.

### The High Seas

Much U.S. policy on the high seas is discussed in the next chapter, where international fishery conventions are discussed. As a background for that discussion, the two UN Conventions relating to the high seas will be discussed here, i.e. the Conventions on the High Seas and on Fishing and Conservation of the Living Resources of the High Seas. The U.S. is a party to both conventions.

Since many fishing boats are sea-going vessels and make extended journeys over the oceans of the world, the provisions of the High Seas Convention relating to such matters as safety, flags of national origin, and piracy are

of great economic importance to fishery exploitation. Their economic implications and importance are obvious, however, and further discussion of such provisions is not necessary here. Instead, let us inquire into the basic principle of freedom of the seas as defined in this Convention. The high seas are defined as "all parts of the sea that are not included in the territorial sea and internal waters of a state."<sup>1</sup> Freedom of the high seas includes freedom to navigate, to fish, to lay submarine cables, and to fly over the high seas. These and other activities recognized by international law may be pursued by any state "with reasonable regard to the interests of other states in their exercise of freedom of the high seas,"<sup>2</sup> but without interference from other states. This is an important part of the institutional structure which governs shared use of high seas fisheries.

The Convention on Fishing and the Conservation of Living Resources of the High Seas will require somewhat more lengthy treatment. Article 1 specifies that "All States have the right for their nationals to engage in fishing on the high seas, subject (a) to their treaty obligations, (b) to the interests and rights of coastal States as provided in this Convention, (c) to the provisions contained in the following Articles concerning conservation

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<sup>1</sup>Article 1.

<sup>2</sup>Article 2.

of the living resources of the high seas." All states are obligated to join other states in measures to conserve living resources. Conservation is defined as those "measures rendering possible the optimum sustainable yield from" the living resources of the sea "so as to secure a maximum supply of food and other marine products . . . with a view to securing in the first place a supply of food for human consumption."<sup>1</sup> In situations where a high seas resource is exploited by nationals of one state, that state is obliged to adopt such measures as are necessary to achieve the conservation objective.<sup>2</sup> When exploitation involves two or more states, all states must enter negotiations to achieve conservation agreements at the request of any of the states.<sup>3</sup> States which enter a fishery after such an agreement has been reached must apply previously-agreed-upon measures which do not discriminate against it and enter into negotiations concerning measures that it does not accept.<sup>4</sup>

The Convention explicitly recognizes the special interest of coastal states in adjacent fisheries, even if no nationals of that state participate in the fishery. States have an obligation to negotiate with a coastal state to achieve conservation at the latter's request and may not enforce conservation measures opposed to those of the

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<sup>1</sup>Article 2.

<sup>3</sup>Article 4.

<sup>2</sup>Article 3.

<sup>4</sup>Article 5.

coastal state. Where urgent need exists for conservation measures and agreement is not reached within six months after the negotiations begin, the coastal states may apply conservation measures unilaterally, pending final settlement, so long as such measures are based on scientific findings and do not discriminate against foreign fishermen.<sup>1</sup>

If final settlement is not possible through negotiation within twelve months, the question can be submitted to a commission of five members at the request of any one of the parties. The commission members are to be decided upon by the countries involved or, that failing, by the Secretary-General of the UN in consultation with the disputants, the President of the International Court of Justice, and the Director-General of FAO. The decisions of the commission are to be by majority vote and must be based on scientific demonstration of the need for conservation. Measures adopted must be practical, have a firm scientific basis, and not be discriminatory against fishermen of other states.<sup>2</sup>

This document is a fascinating manifestation of the fishing-related social forces at work in the world today. The UN policy of increasing food supplies is present and compulsory arbitration provisions are an attempt to put teeth into this policy. In other words, the document

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<sup>1</sup>Articles 6 and 7.

<sup>2</sup>Articles 9 and 10.



states that selfish national interests will not be allowed to reduce the productivity of the world's fishery resources. Special recognition of the interests of coastal states is also an important development. This part of the Convention is aimed at the extensions in national sovereignty that have occurred in Latin America. The idea is that if a coastal state's conservation interests are protected, there will be less incentive for it to expand its territorial sea.

Let us examine the problem faced by coastal states in more detail. With the expansion of world fisheries has come the expansion of high seas fishing operations by several countries. Coastal fishermen are at a decided disadvantage as compared to high seas fishermen because they cannot fish elsewhere in coming seasons. Thus, a real conservation problem may develop for a state with coastal fishing interests. However, whether a conservation problem is created or not, foreign fishing still may create a diseconomy for the coastal fishermen simply because the aggregate level of effort is expanded. There will also be a related redistribution of income in favor of the foreigners. Hence, foreign fishing could cause economic distress and even bankrupt coastal fishermen without creating a conservation problem at all. In this way, the Living Resources Convention may have missed the main problem of coastal states and their main incentive for expanding national sovereignty. The Convention certainly has not

turned the tide of expanding claims.

The Living Resources Convention will probably not be an important force in future fishing disputes simply because many of the major nations have refused to ratify it. This list includes Peru, Japan, USSR, the Peoples Republic of China, the Republic of Korea, Spain, Canada, Norway, and India.<sup>1</sup>

The rather poor reception received by the Living Resources Convention in spite of its rather mild special treatment for coastal states lends credence to the view that other international institutions will not soon replace extensions of national jurisdiction as a means of protection for coastal fisheries. Given the present emphasis in U.S. policy on freedom of the seas, this conclusion does not brighten the future outlook for either the coastal or distant-water fleets of the United States.

#### Summary

The regime of the seas is important to fishing because it regulates competition between coastal fishermen and those from other countries. The territorial sea is an exclusive fishing area for the coastal state. The United States has traditionally maintained a very narrow territorial sea in order to encourage other countries to do likewise.

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<sup>1</sup>For a list of those who have ratified or acceded to the Convention see FAO, op. cit., pp. 29-30.

The primary reason for this policy is the military needs of the United States. This strategy has not prevented expansion of territorial seas and contiguous zones by other countries. Most important to fishing have been enlarged exclusive fishing zones in Latin America and thus far at least the U.S. has not been able to do much to remedy this situation.

In 1966, the United States enacted a twelve-mile exclusive fishing zone. This improved the competitive position of U.S. fishermen only slightly, however, because there was little regular foreign fishing in the three-to-twelve-mile zone before 1966. It will prevent such fishing in the future and has had some indirect effects. Most notably it has provided bargaining material in international negotiations as discussed the next chapter.

Turning to the seabed, the United States has ratified the Convention on the Continental Shelf which includes exclusive jurisdiction for the sedentary resources of its continental shelf. The desire of the U.S. to keep the seas free has led it to support an international regime to manage the seabed with an important modification that the coastal state will act as trustee for that area between the end of national jurisdiction and the continental margin. The future of this proposal is uncertain. The UN is taking preliminary steps at least to see that fishery resources are protected as development of nonliving resources increases.

On the high seas the U.S. supports freedom of fishing. It is also a party to the Convention on Fishing and Conservation of Living Resources. This agreement is probably not strong enough to properly protect coastal fishing interests in many cases. It is likely that many states will be forced to rely on expansion of national fisheries' jurisdictions to protect coastal fisheries in the future. The next chapter deals further with high seas policies and institutions by discussing the international fishing agreements to which the U.S. is a party.

## Chapter 6

### INTERNATIONAL FISHERY AGREEMENTS AND U.S. FISHING POLICY

The United States is a party to a considerable number of agreements related to fisheries. These agreements are of interest not only for their own sake as resources management institutions, but also as indicators of U.S. fishing policy. In the latter sense, much can be learned by comparing and contrasting the various agreements.

#### The Early Agreements

Not only the earliest but one of the most interesting of the fishery agreements is that for the management of Bering fur seals. International management began in 1911, when a treaty was signed by Russia, Japan, Canada, and the United States. Prior to that date the seals had been heavily overfished. They breed primarily on the Commander Islands which are Soviet territory and the Pribilof Islands which belong to the United States. The Treaty of 1911 specified that there would be no more pelagic sealing (i.e., the taking of seals on the high sea). Instead, the four countries agreed that Russia would take the harvest of the Commander Islands herd and the U.S., that of the Pribilof herd. Both countries would then share the harvests with Canada and Japan, 15 per cent from each harvest going

to Japan and like percentage going to Canada.<sup>1</sup> While important details have changed, the same arrangement is in effect today.<sup>2</sup>

The mode of harvesting the Pribilof seals comes closer to limitation of entry than any other fishery regulation scheme practiced by the United States. Between 1870 and 1909, harvesting privileges were leased to government-regulated monopolists. This did not prove financially satisfactory to the U.S. Government<sup>3</sup> and since that time the Government itself has done the job. First the Department of Commerce and Labor and later the Department of Interior have carried out the slaughter and preparation of the skins and by-products. Each summer labor is hired from the local population and the annual harvest takes place. The U.S. sells its part of the catch at auction and the money goes to the Treasury and the State of Alaska.

The current fur seal agreement was signed in 1957 and in name at least is an interim measure. The basic source of dissatisfaction is from Japan, which believes that the seals are major predators of important fishes

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<sup>1</sup>Jozo Tomasevich, International Agreements on Conservation of Marine Resources (Stanford University, California: Food Research Institute, 1943), pp. 95-97.

<sup>2</sup>For a concise history of fur seal regulation see D. M. Johnston, The International Law of Fisheries (New Haven: Yale University Press, 1965), pp. 264-69.

<sup>3</sup>Tomasevich, op. cit., p. 93.

including salmon. The various countries are currently researching this question.

As noted above, the fur seal scheme is unique among U.S. fishery management schemes in the extent to which the Government controls exploitation. It is interesting to note that similar schemes of management were not applied in two other pre-World War II fishery agreements involving the United States and Canada: the Fraser River sockeye salmon and Pacific halibut agreements. This is especially true in the salmon case, since Fraser River sockeye salmon and fur seals are somewhat analogous. Both the seals and the salmon spend a portion of their lives at sea and are potentially harvestable by more than one nation during this part of their lives. On the other hand, reproduction takes place within the territory of a single state, the seals returning to the Pribilof Islands which are part of Alaska and the salmon returning to the Fraser River, which lies entirely in Canada. Finally, both types of marine life are especially subject to capture during the reproductive phase. Seals are concentrated on land. The salmon concentrate near the mouth of the Fraser River and travel up the River in schools. As will be seen momentarily, the regulatory scheme for Fraser River salmon is much different than that for fur seals. In view of the fact that two of the same countries are involved and the similarities between the two species, this difference in regulatory schemes is curious. Let us first discuss the salmon

convention and then return to this question.

Canadian interests began canning Fraser River sockeye salmon in the late nineteenth century and dominated the fishery for several years. Beginning in 1897, however, the pack was almost evenly divided between the two countries and from 1906 to 1934, U.S. fishermen dominated the catch. Along with expanding American importance came decreasing abundance and a resulting desire, especially on the part of the Canadians, for joint regulation of the fishery. These efforts gained some momentum after 1913, when a landslide at Hell's Gate on the Fraser seriously reduced catches. It was thought that this impediment to upstream salmon migration was removed by 1921 and that, if adequate escapement were insured through regulation, the resource would rebuild itself. Nevertheless, primarily due to American interests, necessary measures were not agreed upon until 1937 and actual regulation did not begin until 1946.

The treaty, entitled the Convention for the Protection and Extension of the Sockeye Salmon in the Fraser River System, had three major provisions. First, the International Pacific Salmon Fisheries Commission, which was brought into being by the Convention, was authorized to conduct extensive research on salmon. One immediate benefit of this provision was the discovery that the Hell's Gate problem had not been adequately dealt with. This discovery led to corrective action which was successful. Second,



based on the results of its research, the Commission was authorized to design and place in effect regulations to rebuild and maintain the sockeye runs. Finally, the regulations were to be so designed as to distribute the catch as nearly as possible to fifty-fifty between fishermen of the two countries.<sup>1</sup>

Reviewing the process of reaching final agreements indicates some of the economic foundation of U.S. fishing policy. As noted above several attempts were made at joint regulation of the resources before 1930. In many of these cases, Canada was quite willing to go along, but progress was blocked by the United States. Part of the difficulty was based on the distribution of power between the Federal Government and the State of Washington. Washington State was in charge of regulating the U.S. fishery, but had no treaty making powers. The Federal Government hesitated to take the steps necessary to regulate the fishery by treaty, because of opposition from Washington. Part of Washington's objections were based on the antagonism of Washington's fishermen to regulation. This antagonism came from two sources. First, the increasing share of the catch going to U.S. fishermen vis-a-vis their Canadian competitors probably served as an incentive to

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<sup>1</sup>This Convention is discussed by various sources including *ibid.*, pp. 257-265; James A. Crutchfield and Giulio Pontecorvo, The Pacific Salmon Fisheries: A Study in Irrational Conservation (Baltimore: The Johns Hopkins Press, 1969), pp. 140-46; and Johnston, *op. cit.* pp. 386-88.

keep the fishery "wide open," especially in the years before the impact of the Hell's Gate landslide was felt. In fact, as will come to light shortly, it was a shift in the catch distribution between Americans and Canadians which eventually led to U.S. ratification of the treaty in 1937. Secondly, many attempts at regulation ran into opposition from Washington fishermen because of income distributional considerations. A 1918 proposal, for example, called for limiting the number of fishing licenses issued by Washington, would have curtailed purse seining, and excluded some fishermen because they were not yet American and Canadian citizens.<sup>1</sup>

The treaty that was finally adopted was signed in 1930 and appeared to be headed for failure, like its predecessors, because of the opposition of U.S. fishermen and the State of Washington.<sup>2</sup> Objections were mainly aimed at the fifty-fifty division of the catch, since the U.S. had been taking nearly two-thirds of the catch for some years. The states-rights question discussed above was also an issue. In 1935, however, Washington adopted the so-called "Initiative 77," which outlawed the use of fixed gear such as traps, fish wheels, and set nets from Washington waters. This step was the result of gear warfare among Washington

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<sup>1</sup>Tomasevich, op. cit., pp. 254-55.

<sup>2</sup>Canada ratified it on May 29, 1930. See *ibid.*, p. 259.

fishermen,<sup>1</sup> but had a most important inadvertent effect: the share of the total catch going to U.S. fishermen fell to 40 per cent.<sup>2</sup> States rights arguments were quickly forgotten and the treaty was ratified in 1937.

The Fraser River sockeye salmon agreement was much less stringent than that for fur seals. It did not vest the harvesting of the resource in one of the parties with the income to be shared between them. It did not create government monopolies to exploit the salmon. Instead, it aimed at facilitating the operations of private fishermen by increasing the total supply of fish and by providing for an even division of the catch between the fishermen of the two countries.

It is clear from this discussion that the fur seal and sockeye treaties differed because the policy-objectives of the United States and Canada were not the same. In the fur seal case, the United States was interested in conserving and exploiting the resources of its relatively new purchase, Alaska, to make money. Canada's pelagic sealing industry was small and easily compensated. Furthermore, Canada must have felt that continued pelagic sealing would have meant an end to economic exploitation of the resource in a short-time anyway. Hence it was not difficult to reach agreement at least between these two parties on a plan of conservation

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<sup>1</sup>Crutchfield and Pontecorvo, op. cit., pp. 137-40.

<sup>2</sup>Tomasevich, op. cit., p. 260.

and exploitation emphasizing the simple economic goal of obtaining rent from the resource. Whereas in the fur seal case the United States was only confronted with a single firm in the Pribilof Island operation and a hand full of pelagic sealers, in the sockeye salmon case, it faced a large number of well-organized, politically powerful fishermen and this affected the policies by placing much more emphasis on the distribution of income between the private citizens involved. The same forces that led to gear warfare made the policy of the United States one of establishing conditions conducive to stable or increasing incomes for Washington fishermen through (a) not introducing anything in the joint regulation scheme to change the distribution of the catch among U.S. fishermen, (b) insuring satisfactory distribution of the catch between Canadians and Americans, and (c) increasing total catch via conservation measures for the benefit of both countries so long as (a) and (b) were satisfied. Canada was in a similar situation except that prior to 1934 it was faced with a declining share of a smaller catch and hence was more willing to adopt conservation measures and measures assuring it half the catch.

The Fraser River salmon treaty and the institutions it constructed have apparently achieved these policy objectives satisfactorily, for they have remained in operation to the present time and have substantially

increased the salmon runs of the river system.<sup>1</sup> The survival value of the International Pacific Salmon Fisheries Commission is further indicated by the fact that in 1957 the pink salmon of the Fraser River System were brought under its control.

This regulatory scheme has nevertheless been criticized by economists. Say Crutchfield and Pontecorvo,

Even in the few cases where the stocks have been rebuilt, such as the Fraser River sockeye, the evidence is overwhelming that potential gains from the scientific and regulatory program have been largely if not entirely dissipated through excessive factor cost resulting from the inability to appropriate the economic rent that would accrue, under rational exploitation, to the owner--private or public--of the basic resource.<sup>2</sup>

The analysis of this chapter indicates, however, that the objective of the sockeye treaty was not economic rent as in the fur seal case. Furthermore, how can policy-objectives determined through legitimate channels of the democratic decision process and institutions which have satisfactorily achieved those objectives be termed "irrational"?

A third pre-World War II regulatory agreement was the Pacific halibut agreement between the United States and Canada. The first convention was signed in 1923. Its main impact was to establish the International Fisheries Commission which did sufficient research to form the basis

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<sup>1</sup>See Johnston, op. cit., p. 390 and Crutchfield and Pontecorvo, op. cit., pp. 153-54.

<sup>2</sup>Op. cit., p. 195.

for actual regulation. Official authorization for the Commission to carry out regulatory actions came in a 1930 convention, which allowed the Commission to divide the fishing grounds into regulatory areas and set annual catch quotas for each area. It was also empowered to control the uses of gear that were harmful to the resource.

As compared with the fur seal and Fraser River salmon agreements, the halibut convention tends to emphasize "biological" rather than "economic" objectives. Its regulatory role was defined by one Commissioner who said,

The Commission can and does try to make its regulations interfere as little as possible with the economic conduct of the industry. But the Commission has no power to deal with commercial purposes. It can only protect and preserve.<sup>1</sup>

The extent to which both governments have steadfastly opposed any control over the industry by the Commission is illustrated by two examples. Regulation is carried out by closing the season when the quota is taken. Partly due to the shortening of the season as fishermen rushed to the grounds to secure as large a share of the quota as possible and partly for other economic objectives, including higher prices and market stability, the industry has for years undertaken "voluntary curtailment programs." These programs have consisted mainly of enforced layovers

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<sup>1</sup>Quoted in James A. Crutchfield and Arnold Zellner, "Economic Aspects of the Pacific Halibut Fisheries," Fishery Industrial Research, 1(1):32, April, 1962

in port between trips and catch limits per man per trip. The problems of enforcing such programs, involving hundreds of vessels distributed over several ports in two countries, are obvious. There was some talk about having the Commission take over this kind of regulation and, in 1938, the Commission requested permission from the two governments to do so. During the early post-war years, both governments refused to grant it such powers.

A second such example occurred during the early years of the Commission when some Canadians suggested that 50 per cent of the catch in regulatory area 2, the area off British Columbia, should go to Canadian fishermen,<sup>1</sup> just as in the sockeye agreement. The American portion of the industry was opposed to this proposal, since Canada's annual share was only 40 per cent.<sup>2</sup> This proposal was never acted upon.

There are several possible reasons for the difference in treatment of catch distribution between the salmon and halibut conventions. While the share of the catch going to Canadians steadily increased until roughly 1950,<sup>3</sup> the change in international distribution was accomplished

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<sup>1</sup> Tomasevich, op. cit., p. 196.

<sup>2</sup> Ibid.

<sup>3</sup> Thereafter it appears to have stabilized at around 40 per cent. For annual statistics to 1958, see Crutchfield and Zellner, op. cit., p. 123. Data on the division of catch are printed in annual issues of Fishery Statistics of the United States.

rather gradually. One would expect such a redistribution to have more drastic political consequences when it happens rapidly, as in the sockeye case.<sup>1</sup> Secondly, the halibut fishermen were not faced with disastrous declines in catches like those that followed the landslide at Hell's Gate and hence may have been less sensitive to income redistribution. Also, the redistribution of the catch of halibut was not due completely to heavier competition from the Canadians. The American fleet placed more emphasis on curtailing operations to raise and stabilize prices than did Canadians, at least in the pre-World War II years.<sup>2</sup> For reasons that are not clear, competitive rivalry in the halibut fishery has not taken on the nationalistic overtones that it has in most other international fisheries. This is evidenced by the close cooperation between the two segments of the industry. In 1950, for example, a separate agreement was signed whereby the halibut vessels of each country could land halibut at the other's ports. Finally, it should be noted that the Fraser River salmon convention is really more the exception than the halibut convention

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<sup>1</sup>The U.S. share went from zero in the early 1890's to more than 50 per cent between 1906 and 1934. See Tomasevich, p. 239.

<sup>2</sup>See *ibid.*, pp. 185-86, 195. It should be noted, on the one hand, that the Canadians enjoyed lower costs than the Americans and were probably in a stronger economic position during the early years of regulation. This was especially true in the mid-1930's when export demand from the United Kingdom became important and after 1936 when the U.S. tariff was cut in half.



as regards catch distribution. Most regulatory conventions leave catch distribution at least partially to the forces of competition, as will be seen below.

U.S. policy in the halibut case might be summed up as one of conserving the resource in order to produce the maximum sustainable yield while leaving the distribution of that yield to be determined by market forces. U.S. satisfaction with the regulation of the fishery by the International Pacific Halibut Commission and related institutions over their forty years of operation is indicated by the fact that when the original convention was revised in 1937 and again in 1953, the only changes strengthened and broadened the powers of the Commission.<sup>1</sup>

The last of the agreements to be discussed in this section are the whaling conventions, since regulation of whaling did begin in the pre-World War II period. Since the U.S. is not a major whaling nation only a cursory review of developments in whaling can be given here.

The United States was a party to two whaling agreements before World War II. These agreements outlawed the taking of some endangered species, established closed seasons, placed limits on minimum sizes, prohibited the taking of female whales with suckling calves, and began the accumulation of badly needed scientific information by requiring factory ships and land stations to keep records.

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<sup>1</sup>Johnston, op. cit., pp. 375-80.

Conservation efforts were hindered by inadequate knowledge of whales, the refusal of some nations to adopt regulations adverse to their whaling industries, and Japan's unwillingness, as a major whaling nation, to participate in the programs at all.<sup>1</sup>

The International Whaling Commission was established in 1946. It has eighteen affiliated countries, including the United States.<sup>2</sup> This commission has authority to protect endangered species, determine seasons, close areas to whaling, set size limits, prohibit wasteful harvesting methods, and collect scientific information.<sup>3</sup>

The productivity of the world's whale resources has been severely damaged by overexploitation. The International Whaling Commission has not been able to stem this tide, at least until very recently, because it could not agree on sufficiently stringent regulations to hold back overexploitation. By the mid-1960's hunting success was quite low and an international committee of experts warned that the situation was critical.<sup>4</sup> One of the major

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<sup>1</sup>L. L. Leonard, International Regulation of Fisheries (Washington, D.C.: The Carnegie Endowment for International Peace, 1944), pp. 101-109.

<sup>2</sup>Other members include Argentina, Australia, Brazil, Britain, Canada, Denmark, France, Holland, Iceland, Japan, Mexico, New Zealand, Norway, Panama, South Africa, Sweden, and the U.S.S.R.

<sup>3</sup>Johnston, op. cit., p. 402.

<sup>4</sup>Scott McVay, "The Last of the Great Whales," Scientific American 215(2):17-20, August, 1966.

tasks of the commission is to set annual catch quotas. Not only have these quotas been set too high, but they are in terms of "blue whale units," rather than for specific species. Hence even one of the more optimistic scientists is somewhat anxious that the critical zone for blue whales will be violated as the last remaining members are incidently destroyed while the whalers pursue the more plentiful species.<sup>1</sup>

Only starting with the 1968-69 and 1969-70 seasons have quotas been set at levels which may allow the stocks to begin to rebuild themselves.<sup>2</sup> Whether the International Whaling Commission can maintain this conservation program remains to be seen. At any rate, it will take many years to undo the effects of man's inability to discover successful conservation institutions. The history and current status of international whaling is vivid testimony to how difficult it can be to discover adequate compromises between conservation and distribution objectives when managing an international resource.

#### Early Post-World War II Developments

The years immediately following World War II were

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<sup>1</sup>E. J. Slijper, Whales: the Biology of Cetaceans (New York: Basic Books Publishing Co. Inc., 1962) pp. 393-94.

<sup>2</sup>See Commercial Fisheries Review, 32(1):78, January, 1970.

fertile with international fishery agreements including the conventions for tropical tunas of the eastern Pacific (1949), the Northwest Atlantic fisheries (1950), and the high seas fisheries of the North Pacific (1953).

The Inter-American Tropical Tuna Commission (IATTC) was created by an agreement between the United States and Costa Rica, ratified in 1950. The task of this commission was to gather information on yellowfin and skipjack tunas and other fishes taken by tuna fishermen in order to determine the levels of population necessary to maintain maximum sustainable yields. The commission had no regulatory powers and could only make regulatory recommendations to member governments for joint action. This convention is also notable because it was designed to prevent overfishing before it occurred. This was something of a first in the history of fishery conservation.<sup>1</sup> Membership has since expanded to include Panama, the United Mexican States, Canada, and Japan.

The IATTC found that overfishing was not a problem prior to 1959. However, as discussed in Chapter 3, a major portion of the yellowfin fleet converted to purse seiners in the late 1950's and 1960's. This caused fishing

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<sup>1</sup>Milner B. Schaefer, "Scientific Investigation of the Tropical Tuna Resources of the Eastern Pacific," in United Nations, Papers Presented at the International Technical Conference on Conservation of the Living Resources of The Sea, Rome, 13 April to 10 May 1955. (New York: The United Nations, 1956), pp. 199-201

intensity to increase significantly and in September, 1961, the commission recommended that member governments limit the annual catch of yellowfin in the convention area. There was an attempt at encouraging voluntary restraint, but results were negligible. It was not until September, 1966, that joint action was taken to limit total catch.<sup>1</sup> A five year lag between the diagnosis of overfishing and the beginning of regulation did little harm either to producers or consumers.<sup>2</sup> Once regulation was decided upon by member governments, authority for setting quotas and determining actual season dates was delegated to IATTC and it is still carrying out this function.

While the original convention and subsequent extension of regulatory authority in 1966 did not address themselves to the question of distribution of the catch, this question came up soon after regulation began. The U.S. fleet is very large and efficient, taking around 90 per cent of the total catch within the regulatory area. This means that the yellowfin quota is caught more rapidly and the season closes earlier than if the U.S. fleet were

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<sup>1</sup>Richard Marasco, "The Organization of the California Tuna Industry: An Economic Analysis of the Relations Between Market Performance and Conservation in the Fisheries," U.S. Department of the Interior, Bureau of Commercial Fisheries, Division of Economic Research, Working Papers, No. 45, March, 1970, pp. 39-41.

<sup>2</sup>Ibid., Chapter 5.

less capable. When the season ends, some of the more efficient members of the U.S. fleet can fish elsewhere, some even going as far as Africa, but smaller vessels must fish for skipjack tuna or some other species. Skipjack are lower in price and more expensive to catch. The less-developed tuna fishing nations wanted to expand their tuna fishing fleets but found this economically unrewarding with the U.S.-induced short season for yellowfin. The current compromise on this question is to allow a small quota for each nation's smaller vessels (under 300 tons fish capacity). This arrangement is satisfactory even to the United States, whose smaller fishermen have suffered from the short yellowfin season.<sup>1</sup>

The future of IATTC is uncertain. Its similarities to the International Pacific Halibut Commission indicate that it may be able to solve the problems facing it. The two situations are different in many ways, however. For one thing, there are non-member nations currently fishing the resource. Should these nations substantially increase their competitive strength, this would threaten the future of the convention. U.S. dominance in the fishery is a disadvantage because of Latin America's sensitivity to

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<sup>1</sup>Milner B. Schaefer, "Investigation, Conservation and Management of the Fisheries of the High Seas with a Case Example of the Tuna Fisheries," Paper Presented at the Preparatory Conference on Ecology and Science Policy, Center for the Study of Democratic Institutions, Santa Barbara, California, April 20-26, 1970, pp. 45-46.

U.S. economic strength. This writer suspects that the problems created by competition for tropical tunas are far from being solved.

Moving from the eastern tropical Pacific to the Northwestern Atlantic, let us examine the International Convention for Northwest Atlantic Fisheries. This convention established the International Commission for Northwest Atlantic Fisheries (ICNAF), which held its first meeting in 1951. The convention has fourteen members at present.<sup>1</sup> ICNAF's regulatory area includes broad reaches of the Northwestern Atlantic from Rhode Island to Greenland. Its objective is scientific investigation and regulation of the fisheries of the area in order to maximize their sustainable yields.<sup>2</sup>

The convention establishing ICNAF requires that regulations can only be adopted if all member-nations vote positively. With so many members this greatly limits ICNAF's power. It is not difficult to understand why the only regulations thus far applied are limits on minimum mesh sizes. Since minimum mesh sizes increase the average

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<sup>1</sup>Canada, U.S.S.R., U.S.A., Spain, Portugal, France, Germany, Denmark, United Kingdom, Norway, Poland, Iceland, Italy, and Rumania.

<sup>2</sup>Herbert W. Graham, "The Offshore Resources of the Northwest Atlantic," Recent Developments and Research in Fisheries Economics, eds. Frederick W. Bell and Jared E. Hazelton (Dobbs Ferry, New York: Oceana Publications, Inc. 1967) pp. 147-73.

size of fish caught, without usually altering the competitive position of the participants materially, net mesh regulation is usually favorable to all participants.<sup>1</sup> Thus one would expect to find unanimous agreement on this type of conservation regulation.

Looked at from another direction, ICNAF probably has so many members because a nation cannot lose by joining. It can veto any regulation which will make it worse-off. In one sense, this would appear to be a disadvantage, since the international organization has little real power. Still it must also be true that, by getting the various countries together, ICNAF is facilitating the bargaining process to such an extent as to yield some social gains beyond those accruing to a strictly scientific and statistical organization. The net mesh regulation itself is an example of this gain. As other areas become intensively fished by large numbers of countries, ICNAF-type organizations will probably crop up.

Whatever ICNAF's advantages for the U.S., they have not been sufficient to remedy the drastic impact of foreign competition on U.S. fishermen. Increasing effort by European nations has caused total catch for ICNAF to rise while U.S. landings from the area have declined. As was

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<sup>1</sup>A potential exception might be where immature fish inhabit different areas than mature ones and coastal fishermen without capabilities to go to the location of more mature fish are forced to fish the immature stocks using larger mesh nets.



seen above, this decline has been precipitated by increasing competition, both in domestic fish markets<sup>1</sup> and on the fishing grounds themselves.<sup>2</sup> It is not surprising, therefore, to find the United States pressing ICNAF to adopt measures to relieve some of this pressure. What the U.S. has proposed is a national quota system to be imposed by ICNAF.<sup>3</sup> The U.S. Commission on Marine Science, Engineering and Resources endorsed this approach, although its arguments were more in terms of letting each nation have a share of the catch so that it could limit entry to "increase profitability," than in terms of the social function of such a proposal, namely to stabilize the distribution of the catch.<sup>4</sup>

More will be said about national quotas and their part in the U.S. strategy when the king crab agreements and other agreements with Japan and the Soviet Union are discussed. First, however, it is necessary to discuss a different strategy, the "principle of abstention" and its development in the North Pacific.

The principle of abstention states that if (a) one

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<sup>1</sup>See the groundfish case in Chapter 3, above.

<sup>2</sup>See the discussion of increasing competition in the northwestern Atlantic in Chapter 3, above.

<sup>3</sup>U.S. Commission on Marine Science, Engineering, and Resources, Our Nation and the Sea: A Plan for National Action (Washington, D.C.: U.S. Government Printing Office, January, 1969), p. 107.

<sup>4</sup>Ibid., pp. 105-06.

or more nations are exploiting a high-seas fish population to its maximum sustainable yield and (b) are practicing conservation to maintain the productivity of the resource, then other nations should abstain from fishing that population. The International Convention for High Seas Fisheries of the North Pacific, signed by Canada, Japan, and the United States in 1953, is the only modern fishery convention to apply the principle, but it was adopted in the late 1930's in a salmon dispute between the United States and Japan. A bit of historical information on this dispute and the events that followed is helpful in understanding the implications of this U.S. strategy of fishery competition.

Up until the 1930's the rich salmon resources of the Pacific coast of North America were exploited solely by the U.S. and Canada. Alaskan exploitation had become very heavy by the mid-1930's and the industry there viewed preliminary Japanese interest in Bristol Bay sockeye salmon with great trepidation. In 1937 a Japanese company proposed a joint salmon venture with American canners, which would have used American and Japanese capital and Japanese labor. Later that same year, Japanese vessels, which appeared to be canning salmon in commercial numbers, were spotted within twenty or thirty miles of the Alaskan coast.<sup>1</sup>

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<sup>1</sup>Homer E. Gregory and Kathleen Barnes, North Pacific

Much political activity followed. In Congress, bills were introduced to extend U.S. jurisdiction over salmon fishing far out into the high seas and to extend the territorial waters of the United States to the edge of the continental shelf. Such drastic actions were not required, however, since the problem was solved by diplomatic means.

In November, 1937, the U.S. government presented a formal statement to the Japanese government arguing that Americans had made sacrifices to conserve the salmon of Bristol Bay<sup>1</sup> and that Japanese fishing in the area would soon nullify the benefits of the conservation program. The U.S. further argued,

It must be taken as a sound principle of justice that an industry such as described, which has been built up by the nationals of one country, cannot in fairness be destroyed by the nationals of other countries.<sup>2</sup>

On this basis the United States requested that Japan refrain

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Fisheries (San Francisco: American Institute of Pacific Relations, 1939), pp. 293. The very interesting history of this dispute is treated in various parts of this volume and also in Leonard, op. cit.

<sup>1</sup>This is an interesting allegation in view of the fact that overfishing was at its maximum during the last half of the 1930's. The Alaska pack reached its all time high in 1936 and catches in 1937 and 1938 are among the highest ever recorded. No yields have been comparable since 1941. See Richard A. Cooley, Politics and Conservation: The Decline of the Alaska Salmon (New York: Harper and Row, 1963), p 63.

<sup>2</sup>The full text of the U.S. statement, from which this quotation is taken, appears in Gregory and Barnes, op. cit., pp. 303-08.

from salmon fishing off the coast of Alaska and the Japanese agreed. Gregory and Barnes suggested that this was primarily due to the fact that Japan was at war with China at the time and could not jeopardize American neutrality by allowing a full-scale fishing controversy.<sup>1</sup> Whether this action would have been taken under normal circumstances cannot be known. World War II changed the relative bargaining positions of the two parties.

The next step in the U.S. strategy to control Japan as a competitor in the salmon fishery of the eastern Pacific came in 1945. With the end of hostilities approaching, there was much concern and uncertainty about the future competitive position of Japan once peace was restored. This was evidently part of the reason for the Truman Proclamation of 1945.<sup>2</sup>

This proclamation noted that the U.S. had "viewed with concern the inadequacy of present arrangements for the protection and perpetuation of the fishery resources contiguous to its coasts." It also pointed out the importance of coastal fisheries to local communities and the

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<sup>1</sup>Ibid., pp. 298-99.

<sup>2</sup>There were actually two Truman Proclamations of 1945 dealing with ocean resources. One dealt with the continental shelf and was discussed above. A companion proclamation was issued at the same time: Proclamation 2668, "Policy of the United States With Respect to Coastal Fisheries in Certain Areas of the High Seas," in U.S. National Archives, Federal Register, 10(193):12304, October 2, 1945.

threat of depletion due to advancing technology. It concluded that there was an urgent need to protect the coastal fisheries of the United States. President Truman therefore proclaimed that where necessary to achieve this protection, it was the policy of the United States to establish "conservation zones" contiguous to the coast of the United States to conserve coastal fishery resources. Where the fisheries had been developed and maintained by nationals of the United States and other countries together, the conservation zones were to be established by agreement between the countries involved. This part of the proclamation was not a radical departure from past policies of the United States or from international law. The interesting part of the proclamation dealt with coastal fisheries which had been or would be developed and maintained by U.S. fishermen acting alone. Here, "the United States regards it as proper to establish explicitly bounded conservation zones, in which fishing activities shall be subject to the regulation and control of the United States alone." In other words, the United States could, under this provision, regulate foreign fishing in an area of the high seas, provided that the fishery were contiguous to the United States and had been developed and maintained solely by U.S. nationals.

While the Truman Proclamation did not mention either Japan or salmon, an accompanying press release said, "As a result of this new policy, the United States will be able

to protect effectively, for instance, its most valuable fishery, that for the Alaska salmon."<sup>1</sup> The proclamation has never been applied directly to salmon or any other species. It is important because it probably served as an inducement for the Japanese to agree to the North Pacific Convention and because it embodies principles very close to the principle of abstention. There is an important difference, however. The 1945 Proclamation claimed exclusive authority to regulate, while the principle of abstention goes one step further and claims the right to exclusive exploitation.<sup>2</sup>

The early postwar years saw renewed concern over potential Japanese competition in fisheries traditionally fished by Americans. Japan's defeat made the time ripe for a hard push by U.S. interests to gain as favorable and as permanent a settlement as possible. Some of these interests went so far as to suggest that Japan should be forced to relinquish all rights to fish near the coasts of the U.S. as part of the treaty of peace, while others favored requiring them to observe conservation regulations of the U.S. applying to the high seas.<sup>3</sup> These "hard-line"

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<sup>1</sup>The Truman Proclamation and accompanying press releases are reprinted in United Nations Legislative Series, Laws and Regulations on the Regime of the High Seas, ST/LEG/Ser. B/1 (New York: United Nations, 1951), pp. 112-13.

<sup>2</sup>For further discussion of the Truman Proclamation, see McDougal and Burke, op. cit., p. 967.

<sup>3</sup>B. C. Cohen, The Political Process and Foreign

positions ran head-on into a U.S. policy which favored liberal treatment of the Japanese. In the final settlement, for instance, reparations were kept to a minimum, careful attention was paid to protecting Japan's foreign-exchange position, and Japan was given the right to rearm for self-defense, in spite of some pressure for her total disarmament. Taking advantage of Japan's weak position to greatly restrict its fishing rights on the high seas would have been anomalous to this policy. On the other hand, the political strength of the fishing interests could not be ignored, since the question of the treaty's acceptability to the Senate had to be considered. The potential antagonism of West Coast Senators to a treaty which was too lenient in regard to fishing made a compromise between fishing interests and the State Department imperative.<sup>1</sup>

The compromise took the following form. The fishing negotiations were dropped from the peace talks. In return the Japanese promised to negotiate fishing matters separately and in the meantime to prohibit its nationals from fishing all resources that were currently subject to conservation and all fisheries where Japanese fishermen had not operated in 1940.<sup>2</sup> The actual fishing convention

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Policy: The Making of the Japanese Peace Treaty (Princeton, N.J.: Princeton University Press, 1957), p. 258.

<sup>1</sup>Ibid., pp. 253-77.

<sup>2</sup>Ibid., p. 268. Specifically mentioned were salmon, halibut, herring, sardines, and tuna of the eastern Pacific.

was negotiated after the peace treaty was signed, but before it was ratified, in order to insure ratification of the peace treaty. These negotiations produced the International Convention for North Pacific Fisheries between the United States, Japan, and Canada. This convention formally instituted the principle of abstention as the guiding principle for fishery competition between the three nations in the North Pacific Ocean. An annex to the convention specified certain stocks to which abstention would apply upon ratification: Japan agreed not to fish for salmon, halibut, and herring over broad areas of the Pacific and Canada agreed not to fish for salmon in certain smaller areas.<sup>1</sup>

The convention established the International North Pacific Fisheries Commission which, in addition to scientific duties, had charge of applying the principle of abstention on a year-to-year basis. After the convention had been operative for five years, it was to determine on an annual basis whether the stocks to which the abstention principle was currently being applied still qualified for abstention under the convention. As a result of these annual reviews the stocks of herring off Alaska, the U.S. mainland, and Queen Charlotte Island and the halibut of

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<sup>1</sup>For a more detailed discussion of this convention see Johnston, op. cit., pp. 274-282.



part of the Bering Sea have been removed from abstention.<sup>1</sup>  
Also, the commission was given the responsibility of studying, at the request of one or more of the parties, any species the greater part of which was harvested by that party or parties to see if it qualified for abstention. If so the commission was to make appropriate recommendations to the member governments. Under this authority the commission agreed in 1959 that king crabs were not yet so heavily fished as to require action under the convention. Finally, the commission was empowered to recommend changes in existing regulations. In spite of the fact that studies have shown that North American salmon cross the abstention line in the Pacific and become subject to Japanese capture the commission has not made any recommendation on this question. The reason is Japanese objections.

In 1963, the first ten years of the treaty had elapsed and it became possible for any member to terminate it upon giving the other parties one year's notice. While the Japanese have not abrogated the convention, they have voiced considerable dissatisfaction with it and have proposed that nondiscriminatory joint conservation measures replace the abstention principle. It is not difficult to understand their displeasure. At a time when they were in a very poor bargaining position, they were forced to give up their rights to resources that are supposedly international

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<sup>1</sup>Ibid.

in character. Indeed, why should international resources be allocated indefinitely to a given country or countries simply because it or they were there first and practiced conservation? Certainly incentive to conserve resources is necessary, but this indefinite abstention by others is extreme. First-come, first-served is a doubtful principle of international equity. This is probably why the principle of abstention fell flat on its face when it was recommended by the United States at the Law of the Sea Conferences in Geneva. Thompson cogently pointed out the nature of international difficulties with the abstention principle when he said,

It is apparent . . . that the machinery of a treaty must first make a bargain economically acceptable to all concerned; and then long-term conservation stands a chance. For the great majority of interested men, Japanese or American, concern for tomorrow yields place to financial concern for today, and it is they who accept or reject the treaty, not the scientist.<sup>1</sup>

The principle of abstention as an institution for guiding high seas fishing competition must be judged to have low survival value.

#### Recent Agreements

The period between 1953 and the mid-1960's saw no new regulatory agreement involving the United States. Then

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<sup>1</sup>W. F. Thompson, "Fishing Treaties and Salmon of the North Pacific," Science, 150(3705):1786-89, December 31, 1965.

several short-term bilateral agreements were reached with the U.S.S.R., Japan, Poland, Mexico, and Canada. Since these short-term agreements are something of a new development for the United States, they will be treated in detail below. The chapter is then concluded with a discussion of a more traditional agreement, the very recent Convention for Conservation of Atlantic Tuna.

Large-scale foreign fishing off the Atlantic coast in the early- and middle-1960's led to much concern in the United States over both conservation and the distribution of catch. So far this concern has led to two agreements, one with the Soviet Union and the other with Poland, involving the red hake, white hake (whiting), scup (porgy), and flounder of the Middle-Atlantic Region. Part of the problem was that scup and flounders were being taken more or less incidently to the catches of other fishes in the area. These species are important to both commercial and sport fishermen in the region and were available in smaller numbers than usual, apparently because of heavy fishing and natural causes.<sup>1</sup> Also both species of hake were being taken in considerable numbers each year before they reached the inshore areas where American fishermen traditionally catch them.<sup>2</sup>

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<sup>1</sup> Barbara Lundy, "U.S. and U.S.S.R. Agree Anew on Soviet Fishing Off Mid-Atlantic Coast," Commercial Fisheries Review, 31(1):38-41, January, 1969.

<sup>2</sup>U.S., Congress, House, Committee on Appropriations, Subcommittee on Department of Interior and Related Agencies,

An agreement with the Soviet Union concerning these problems was reached in 1967<sup>1</sup> and a new, two-year agreement was reached in late 1968. The provisions of the current agreement, applying to 1969 and 1970 are as follows:

1. The governments agreed to joint research "in appropriate cases" and to coordinate research including exchange of data and published reports.

2. The vessels of both countries exceeding 110 feet in length would (a) refrain from fishing for the first three months of each calendar year in the area shown as Area 1 in Figure 3, "to ensure access of red hake and silver hake to the spawning grounds and to protect winter concentrations of scup and flounders," (b) refrain from increasing their catches of red hake, silver hake, scup, and flounder above the 1967 levels of the catch in waters situated west and south of Sub Area 5 of the ICNAF Convention Area and north of Cape Hatteras in Figure 3, and (c) refrain in the same waters as described in (b) above from conducting specialized fisheries for scup and flounders and from increasing their incidental catches.

3. Both countries agreed to conduct their fishing operations "with due regard for conservation."

4. Vessels of the Soviet Union were to be allowed

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Department of Interior and Related Agencies, Appropriations for 1970, Hearings, 91st Congress, 1st Session (Washington, D.C.: U.S. Government Printing Office, 1969) p. 681.

<sup>1</sup>TIAS 6377 in U.S., Department of State, United States Treaties and Other International Agreements, 18(3):2864-70, 1967.

# U.S.-USSR 2-YEAR FISHERIES AGREEMENT

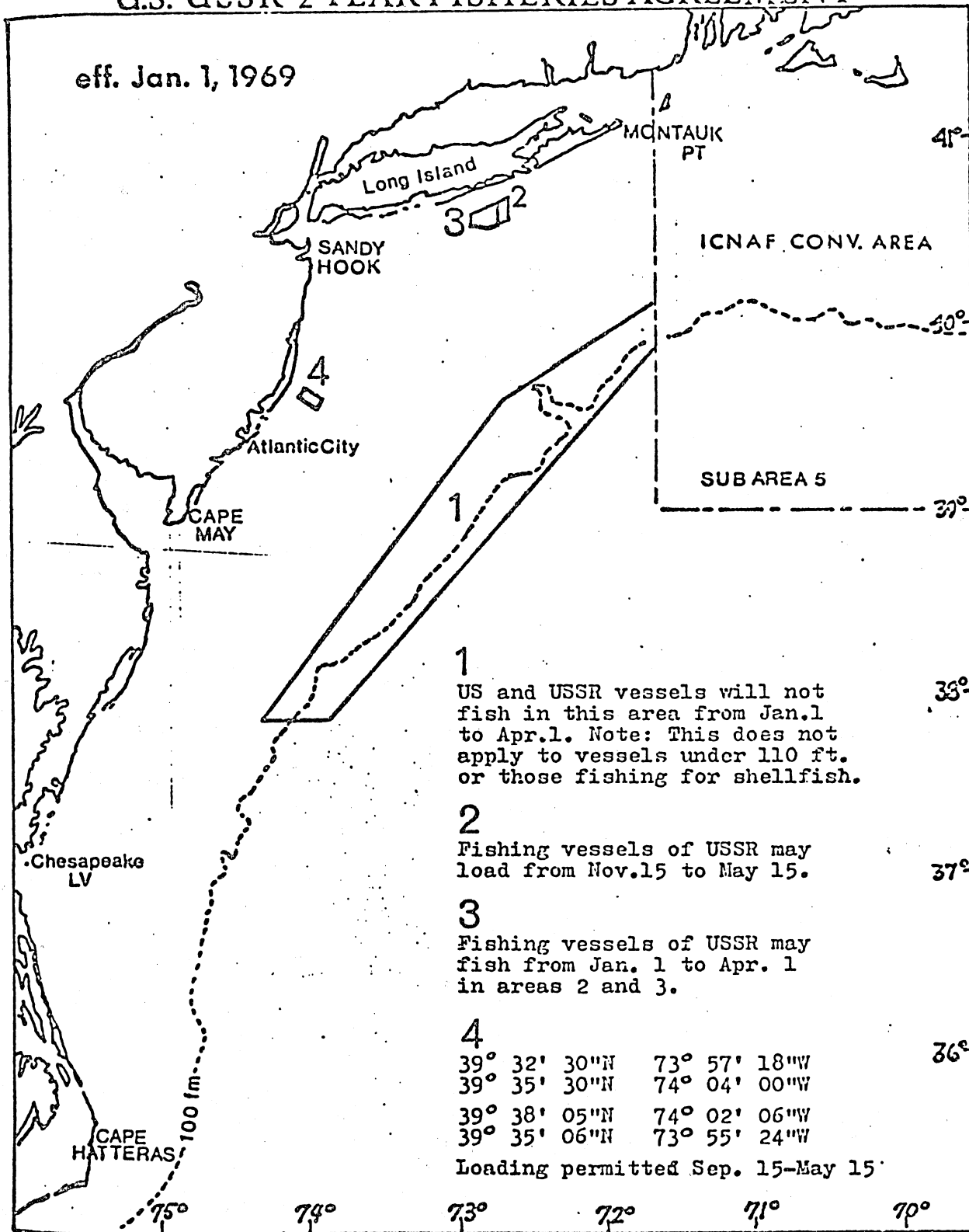


Figure 3

Source: Commercial Fisheries Review, 31(1):39, January, 1969.

to conduct fish loading operations in certain areas of the U.S. exclusive fishing zone during specified times of the year as shown in Figure 3, Areas 2 and 4.

5. Vessels of the Soviet Union were to be allowed to fish in one location, shown as Areas 2 and 3 of Figure 3, between January 1 and April 1.

6. Each government advanced certain port privileges to the others, for example taking on water and provisions and aid in cases of force majeure.

7. Rules were set up whereby representatives of fishermen's organizations of each country might visit vessels of the other operating in the northwestern Middle Atlantic.<sup>1</sup>

The spirit of cooperation and conservation in this document is notable. Also, exclusion of vessels under 110 feet in length from provisions summarized in 2. above is an important acknowledgement of the special needs of small coastal fishermen of the U.S. Thirdly, special mention should be made of the role of the U.S. exclusive fishing zone in the bargaining. Being able to offer loading and fishing privileges in the zone were probably very helpful in achieving agreement.

Poland and the U.S. completed an agreement on the

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<sup>1</sup>The full text of the agreement is TIAS 6603 in U.S., Department of State, op. cit., 19(6):7661-67, 1968.

same fisheries of the same region in 1969.<sup>1</sup> Provisions are similar to the Soviet agreement and include the same seasonally closed area and no specialized fishery for scup and flounder. Poland agreed to a catch quota of nine hundred metric tons annually of scup, flounder, red hake, and silver hake, with no more than 50 per cent of any one species. The U.S. granted landing privileges in three locations in the exclusive fishing zone. Also similar to the Soviet agreement are provisions for cooperative research, exchange of port privileges, and visits to each other's fishing vessels.

In the Pacific the U.S. has bilateral agreements with the Soviets and Japanese concerning the Alaska king crab. As was noted in Chapter 3, the United States has seen an upsurge in its crab production in recent years. Much of this increase has come from development of the king crabs off Alaska. With the U.S. claim to the continental shelf in the Truman Proclamation of 1945 and the subsequent clarification of the status of sedentary resources when the United States adopted the Convention on the Continental Shelf came the question of what to do about Soviet and Japanese king crab fishing on the continental shelf of Alaska. The result of the American claim to the resource and the economic pressure for expanding the U.S. fishery

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<sup>1</sup>This agreement is TIAS 6704.

was two sets of agreements beginning in 1964, one with the U.S.S.R. and the other with Japan, aimed at phasing out or at least greatly reducing catches by both these countries.

The agreements with the Soviet Union are based on the ratification by both countries of the Convention on the Continental Shelf. On the other hand, the U.S. recognized the long-standing Soviet fishery and the potential economic damage of abrupt cessation of operations. The U.S. and the U.S.S.R. signed an agreement in 1965 which recognized U.S. jurisdiction over the king crabs of the U.S. continental shelf and the U.S. granted the Soviets fishing rights for two years. The fishing rights were circumscribed in several ways. First, the Soviets were limited to an annual catch of 118,600 cases of crabs.<sup>1</sup> Also, the Soviets agreed not to take females, small crabs, and soft-shelled crabs and to use only pots and tangle nets with mesh sizes above a set minimum.<sup>2</sup>

The U.S. is diligently going about reducing the Soviet fishery in this area. A second two-year agreement,<sup>3</sup> signed in 1967, reduced the annual quota to 100,000 cases. A 1969, two-year extension reduces it even further to 52,000 cases. It also added tanner crabs to the agreement

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<sup>1</sup>A case of crabs is equal to 48 one-half pound cans.

<sup>2</sup>TIAS 5752 in U.S. Department of State, op. cit., 16(1):24-25, 1965.

<sup>3</sup>TIAS 6217 in *ibid*, 18(1):183-84, 1967.



and set an annual quota of 40,000 cases. All gear except pots has been eliminated. Finally, the Soviets agreed not to trawl in the crab fishing area, an important concession since trawling is a high seas fishing activity and there have been some gear conflicts between Soviet trawlers and U.S. crab fishermen in the past.

Negotiations with the Japanese were more difficult, because Japan does not recognize the UN Convention on the Continental Shelf or U.S. claims related thereto. Nevertheless, negotiations alone have yielded a very large reduction in Japanese crab fishing. Under a 1964 agreement, Japan could take 185,000 cases per year for two years.<sup>1</sup> A 1966 extension reduced this to 163,000 cases<sup>2</sup> and in 1968 this was reduced to 85,000 cases per year through 1970.<sup>3</sup> In addition, Japan agreed to conservation measures similar to those in the Soviet agreement relative to leaving females and soft-shelled crabs, taking crabs above a minimum size, and fishing only with crab pots. They also agreed to fish "prudently" for tanner crabs.

The United States has also concluded bilateral agreements covering miscellaneous fishing matters with Japan, the Soviet Union, and Mexico.

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<sup>1</sup>TIAS 5688 in *ibid.*, 15(2):2076-80, 1964.

<sup>2</sup>TIAS 6155 in *ibid.*, 17(2):2191-93, 1966.

<sup>3</sup>TIAS 6601 in *ibid.*, 19(6):7650-57, 1968.

An agreement with Japan in 1967, dealt with historic Japanese fishing in areas that had become part of the U.S. exclusive fishing zone off Alaska. It granted crab fishing near the Pribilof Islands, fishing by dragnet and longline in some of the waters surrounding the Aleutian Islands and Pribilof Islands, and apparently a small amount of tuna fishing. Some landing privileges were also granted. In return the Japanese Government agreed to limit dragnet and longlining in certain areas of the high seas off Kodiak and Unimak Islands, between September and February, and in other parts of the North Pacific off the coast of North America during the first 15 days of the halibut season. The objective of these latter provisions was to reduce gear conflict on the high seas. A new agreement in 1968<sup>1</sup> extended much of the 1967 agreement, but added important new provisions. Three new landing areas were granted to Japan. In return, Japan agreed not to fish in areas off the coast of Washington near the mouth of the Columbia River. This area of the high seas is a major sport fishing ground.<sup>2</sup> Also, Japan agreed not to fish at night on certain halibut grounds during the first twelve days of the halibut season.

A series of agreements covering miscellaneous

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<sup>1</sup>TIAS 6600 in *ibid.*, 19(6):7632-48, 1968.

<sup>2</sup>L. M. Nakuatsu, "U.S. and Japan Sign 2 Agreements," Commercial Fisheries Review, 31(1):42, January, 1969.

fishing matters was also completed with the Soviets. The conflict between fixed crab fishing gear and mobile trawls off Alaska was the subject of a 1964 agreement which closed certain areas to mobile gear during part of the year, made provisions for marking fixed gear in areas open for trawling, and had provisions for exchanging information on locations of fishing activity.<sup>1</sup> It also provided for cooperative research on better marking of fixed gear. This agreement has been extended in slightly modified form to February 13, 1971, provided neither party wishes to negotiate charges before then.<sup>2</sup>

Another agreement between the U.S. and the U.S.S.R. was signed in 1967,<sup>3</sup> extended in 1968,<sup>4</sup> and extended again in modified form to December 31, 1970.<sup>5</sup> As the agreement now stands, the U.S.S.R. is allowed landing rights in several locations within the U.S. contiguous zone off Alaska. The U.S. also conceded fishing rights in the U.S. exclusive fishing zone in the Gulf of Alaska and the Aleutian Islands where they had fished before the zone was enacted and the Soviets agreed not to increase the level of fishing above historical levels. They also agreed not to

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<sup>1</sup>TIAS 5703 in *ibid.*, 15(2):2179-86, 1964.

<sup>2</sup>TIAS 6637.

<sup>3</sup>TIAS 6218 in U.S., Department of State, *op. cit.*, 18(1):190-94, 1967.

<sup>4</sup>TIAS 6409 in *ibid.*, 19(3):3162-63, 1968.

<sup>5</sup>TIAS 6636.

fish in the area off the mouth of the Columbia River that has also been mentioned as a Japanese concession. Furthermore, the Soviets gave up the right to fish on certain halibut and king crab grounds. Both countries were concerned about the status of the Pacific ocean perch and agreed to joint conservation measures including closed areas (for vessels over 110 feet in length) and a minimum mesh size. Each government agreed to undertake measures aimed at reducing damage to the other's gear in areas of high fishing concentration and to conduct coordinated research. As in the Atlantic agreement, provision was made for fishermen to visit vessels of the other country while on the fishing grounds.<sup>1</sup>

Previous to 1966, the United Mexican States had a nine-mile territorial sea and no contiguous fishing zone. Mexican fishermen had been fishing just outside U.S. territorial waters to a small extent both in the Gulf of Mexico and the Pacific. Likewise, U.S. fishermen had fished within twelve miles of Mexico's coast. Since both countries enacted exclusive fishing zones in 1966 which extended from the margin of the territorial sea to twelve miles from the coasts, the U.S. and United Mexican States

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<sup>1</sup>Maps showing many of the areas subject to provisions of the U.S.-Japan and U.S.-U.S.S.R. agreements are found in Ronald C. Naab, "Revision of International Agreements Affecting Alaska Fisheries," Commercial Fisheries Review, 31(6):30-34, June, 1969.

found it mutually agreeable to exchange fishing rights in their respective exclusive fishing zones. The agreement applied only to the area between nine and twelve miles from the respective coasts and will be effective for a five year period beginning January 1, 1968. Nationals of each country could fish for species that had been caught during the five years preceding that date and total catches during the five years of the agreement could not exceed the total taken in the preceding five years. Recreational fishing by U.S. fishermen in the nine to twelve mile Mexican zone may continue. Annual meetings were to be held to monitor the volume of catches and other developments relative to the agreement. Finally, the United States agreed to cooperate with Mexico in studies of shrimp and other fish off Mexico to see if conservation agreements under the United Nations Convention on Fishing and Conservation may be needed.<sup>1</sup>

Very recently, a two year agreement was negotiated between Canada and the United States. If approved by the two governments, provisions include reciprocal salmon trolling, halibut fishing, and trawling privileges in the contiguous fishing zone of the other country. The agreement

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<sup>1</sup>TIAS 6359 in *ibid.*, 18(3):2724-31, 1967 and David W. Windley, "International Practice Regarding Traditional Fishing Privileges of Foreign Fishermen in Zones of Extended Maritime Jurisdiction," American Journal of International Law, 63(3):490-503, July, 1969.

excludes fishing for herring, clams, scallops, crabs, shrimp, and lobsters and no new fisheries may be established without prior approval. Fishery regulations will be applied equally to the fishermen of both nations.<sup>1</sup>

The short-term bilateral agreements which have been discussed here are an interesting approach to control of international competition. On the one hand they combine flexibility and mutually agreeable arrangements to make both sides better-off. They enhance the value of the United States exclusive fishing zone by using concessions there to gain reciprocal concessions on the high seas. On the other hand, they lack the permanence of the more traditional type agreements and leave both conservation and distribution subject to the winds of short-term international politics. This may eventually introduce some undesirable instability into the economic picture, but this remains to be seen. The last fishing convention to be discussed here is a more traditional type agreement and involves the tuna resources of the Atlantic Ocean.

The International Convention for the Conservation of Atlantic Tunas took effect in 1969. Members include the U.S., Japan, Ghana, Republic of South Africa, France, Canada, and Spain. The convention will last until

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<sup>1</sup>Commercial Fisheries Review, 32(3):50, March, 1970.

March 21, 1979 or thereafter until it is voted out by the Commission for the Conservation of Atlantic Tunas which it established. The commission is to undertake research on the tuna and tuna-like species of the Atlantic and other species taken in tuna fishing. The commission has regulatory power, but any nation that objects to a regulation need not follow it.<sup>1</sup>

It appears that there are a number of potential problems with this convention. In the first place, as noted above, any member-nation that disagrees with a regulation need not follow it. Hence, members really give up no power to the commission and, like ICNAF, it will serve mainly to carry out scientific investigation and facilitate agreement on issues which benefit all. There are likely to be problems if stringent regulations which influence future distribution of the catches become necessary. Secondly, there are many nations that fish the Atlantic tunas. At least seventeen participated in original negotiations of the convention. Securing participation of a sufficient number of states to make regulations effective may prove difficult. Finally, a number of underdeveloped states are involved, so that problems of the type faced by the Inter-American Tropical Tuna Commission may develop. Nevertheless, the accomplishments of such agencies as

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<sup>1</sup>TIAS 6767.

ICNAF and IATTC indicate that the International Commission for Conservation of Atlantic Tunas will serve a useful social function.

An Economic Appraisal of U.S. Fishery Agreements

The fishery agreements discussed here are undoubtedly contributing to fulfillment of the dual policy objectives of the United States, conservation and satisfactory distribution. Most of the agreements discussed have conservation as a primary objective. With the possible exception of the Whaling Convention, substantial progress has been made toward achieving this goal. On the distribution side, more difficulties have been encountered as in the Northwest Atlantic and the North Pacific Agreements. Still, in many cases, from the Fraser River salmon fishery to that for tropical tunas in the eastern Pacific to recent agreements with the Soviet Union, important and mutually agreeable compromises on catch distribution have been reached. It must be concluded that while the present method of solving international fishery problems does not provide solutions to all difficulties, it is a step in the right direction and its economic contribution should not be minimized.



## Chapter 7

### CONCLUSIONS

Ample evidence has been presented in this thesis to indicate that all is not well in the fisheries. Production has remained static, employment has fallen, and the fleet is aging in spite of favorable markets. Imports have expanded rapidly. Some segments of the fleet are beginning to feel the economic strain that accompanies increasing foreign activities on the fishing grounds. The fishing industry is being forced to bear part of the costs of economic development through habitat destruction. In Latin America, U.S. fishermen are being barred from important fishing areas.

It has also been shown that public policy is contributing to these difficulties in many ways. Vessels must be built in the U.S. Aids for vessel construction have been small. Little is being done to modify the tremendous number of constraints on methods of production. The U.S. extended its exclusive fishing zone only after many years of debate and then only to twelve miles. Tariff policies have been highly unfavorable to U.S. fishermen. So far, there is no sign of a solution to the problem of extended national jurisdiction in Latin America.

However, it must also be concluded from what was

said in this thesis that the U.S. is doing much to ameliorate the results of an inherently difficult situation. The fugitive status of the resources creates the potential for problems in conservation and catch distribution and the U.S. has done much in both areas. In conservation, the international agreements do a great deal to protect the resources from depletion. Nationally, both the states and the federal government are working to conserve resources. On the distribution side, it has been noted that, while gear regulations do impair the competitive position of U.S. producers, they also serve an important social function by distributing the catch among a large number of producers. Many international agreements provide for measures to control distribution.

Concerning the criticism that the United States does not limit entry, the conclusion here is that this argument is largely irrelevant. Given the small amounts of resources involved in fishing, conservation and distribution objectives must be more important than that of achieving an efficient allocation of resources between fishing and the rest of the economy. Also, limitation of entry would usually conflict with distribution objectives. This is why limitation of entry is not currently a part of U.S. policy.

More important than noting the satisfactory aspects of U.S. policy is to suggest some approaches for improving it. Several suggestions follow from this thesis. First of all, it is worthwhile to reiterate the fishermen's

arguments in favor of buying vessels abroad. After all, U.S. fishermen are in something of a pinch in this respect. On the one hand, they bear part of the social costs of obtaining trade concessions and also of the U.S. policy to maintain freedom of the seas. It hardly seems equitable that they should also be forced to pay twice as much for vessels in order to protect the domestic shipbuilding industry from foreign competition.

Changes in gear restrictions should also be considered. Research on how much these constraints inhibit the domestic industry is desirable, since more information on this topic would be a definite aid to policy-makers. It is one thing to outlaw a type of gear in order to conserve the resource, while distributing income in a certain way, and quite another to strangle the industry by inhibiting its ability to meet foreign competition. A thorough analysis of this question would probably show many such restrictions which are doing more harm than good.

One cannot study fishery problems very long without becoming aware of the great need for scientific information about fishery resources. Sound management must be based on sound scientific knowledge. The importance of maintaining a safe minimum standard of conservation was brought out in Chapter 4. The practice of conservation in so many fisheries indicates that, in general, agreement can be reached both nationally and internationally to institute conservation measures, provided the problem is defined in

time. With intensified fishing, the use of technologically-advanced methods of production, and continued destruction of habitat through nonfishing activities, primary emphasis in conservation must be placed upon knowing in advance when there is a threat of irreversible damage to fishery resources.

Finally, the fishery policy-makers of the United States and other countries might find it in the social interest to pay more direct attention to distributional problems created by the fugitive status of fishery resources. It is too often assumed that if conservation is achieved, everything else will take care of itself. In point of fact, distribution of catches is a major source of unresolved controversy, especially internationally, and may impede conservation.

Standards of international equity are not easy to define. Perhaps the equity of distribution of world catches could be improved by recognizing the special needs of the poorer countries. Such nations require special protection not only because of their great need, but also because their fishing equipment is usually less efficient than that of the high seas fleets with which they must compete. Secondly, equity might be improved by special recognition of the needs of established fishermen. This could be accomplished by recognizing historic rights on a short-term basis in order to allow gradual transitions to new competitive situations.

While long-term historic rights, as, for example, in the principle of abstention, are not equitable for managing an international resource, short-term historic rights would ease the burden of shifts in competitive positions.

There are several possible institutions to change the distribution of the catch. As was shown in Chapter 6, international agreements can sometimes be used for dividing the catch. However, such redistribution usually involves taking part of the catch of one group and giving it to another. Unless there is some method to compensate the losers in other ways, both sides will not be better-off after redistribution. Thus, agreements are of limited value in solving these problems. Beyond agreements there are at least two possible alternatives: United Nations action and extensions of national jurisdiction. The poor showing of the Convention on Fishing and Conservation, a relatively weak measure in terms of redistribution, indicates that the U.N. will not soon have the power to effect even minor changes in the distribution of world catch. Thus, outside of those instances where international agreements are feasible, most of the redistributions of catch, in the next few decades at least, will come in the form of increases in the breadth of national jurisdiction of coastal states. This process is already in progress in Latin America and will probably spread to other parts of the underdeveloped world.

So long as such extensions include only exclusive control over fishing, they should not be cause for great

concern. For one thing, while there will be inequities, the net result is likely to be in favor of the poorer countries. The losers will be the richer countries that can afford distant-water fleets. Also, it is probable that bargaining between the coastal states and other countries will result in inclusive use of many fisheries, despite their being under control of the coastal state. This was seen to be occurring on a small scale already in the U.S. contiguous fishing zone and its continental shelf. U.S. policy-makers and those of other countries might find it beneficial to work to improve such bargaining processes.

## Appendix A

### TARIFF POLICY AND UNITED STATES FISHERIES: TWO CASE STUDIES

High labor costs and various institutional constraints on the technology of production have placed U.S. fishermen at a disadvantage in many domestic markets. One way to remedy this situation would be to institute high tariff barriers. The U.S. has chosen not to erect such barriers. The reasons for and results of this policy in two important U.S. fisheries, that for groundfish and for tuna, are the subject of this appendix.

#### Groundfish

The majority of the U.S. groundfish catch has always come from New England. Foreign competition is not new to the fishermen of this area. During the early part of this century competition wiped out the once substantial trade in salt cod and then took a large share of their domestic market despite tariffs equivalent to 25 per cent ad valorem.<sup>1</sup> During the period between the two World Wars, great strides in the technology of filleting, preserving, and transporting groundfish plus the discovery of new and

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<sup>1</sup>Donald J. White, The New England Fishing Industry: A Study in Price and Wage Setting (Cambridge, Mass.: Harvard University Press, 1954), p. 125.

substantial markets for ocean perch, led to industrial expansion which continued through 1951. Imports became increasingly important after 1939. In that year 95 per cent of the groundfish consumed were produced by U.S. flag vessels. By 1951, this had fallen to only 62.5 per cent.<sup>1</sup>

Historically, groundfish fillets have received tariff protection since they entered U.S. markets in large quantities. The Tariff Act of 1922 provided for a rate of 2.5 cents per pound and this rate was reaffirmed in the Tariff Act of 1930. An agreement with Canada in 1939 reduced the rate to 1.875 cents per pound on annual imports of 15 million pounds per year or 15 per cent of average annual consumption for the three preceding years whichever was larger. All imports above this quota were dutiable at the old rate of 2.5 cents per pound.<sup>2</sup> Despite the fact that rising prices reduced the ad valorem rate from 32.9 per cent in 1939 to only 12 per cent in 1946,<sup>3</sup> the U.S. bound itself to these rates as a concession in the General Agreement on Tariffs and Trade effective in 1948.

The so-called "escape clause" of the Trade Agreement Act of 1951 specified that any industry of the U.S., which thought it was being seriously injured by GATT concessions

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<sup>1</sup>U.S., Tariff Commission, Groundfish: Fishing and Filleting (Washington, D.C.: Tariff Commission, 1957), p. 112.

<sup>2</sup>White, op. cit., p. 126.

<sup>3</sup>Ibid., p. 127.



could petition the Tariff Commission to investigate its plight. The Tariff Commission could then recommend whatever action it thought desirable to the President, who was empowered to take actions to limit trade when economic damage was present or in the offing.<sup>1</sup>

Soon after this act was passed, the New England groundfish industry took its concern over increasing imports to the Tariff Commission and an intensive investigation followed. In a report filed a year later, the Tariff Commission recommended that the President not increase the rate of duty on groundfish fillets.<sup>2</sup> They reasoned that imports were contributing much to the expansion of U. S. markets. "Any attempt to supply a domestic market of the present dimensions exclusively from domestic sources would be foredoomed to failure," the Commission predicted, "for the reason that such additional sources would have been forthcoming only at substantially higher costs and prices than those which have in fact prevailed, and hence consumption would have been at a significantly lower level."<sup>3</sup> This is so, they argued, because of the limited resources in close proximity to the U.S. Having been fished intensively for many years, these fishing grounds could not be expected to supply the

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<sup>1</sup>The escape clause is section 7 of PL 83-50.

<sup>2</sup>U.S., Tariff Commission, Groundfish Fillets (Washington, D.C.: Tariff Commission, 1952).

<sup>3</sup>Ibid., p. 13.

huge increases in U.S. consumption. Furthermore, they noted, the U.S. industry had expanded considerably and seemed economically healthy. The domestic catch had increased from 100 million pounds in 1939 to almost 150 million pounds in 1951. Prices were much higher in the post-World War II years than before. Incomes of the various workers in the industry had also been rising. Wages for fishermen were 50 per cent higher than before the War. Employment in the industry had expanded, at least until 1948. Profits to vessel owners were found to be positive as were those for processors.<sup>1</sup>

Three of the five members of the Tariff Commission felt that these observations were sufficient to show that no harm had been or was about to be inflicted on the industry as a result of U.S. tariff policy. The two dissenters concentrated on very recent trends. Imports had been rising very sharply since 1947. Total numbers of fishermen had declined since 1948. The aggregate tonnage of the fleet had declined by 15 per cent between 1948 and 1950. Domestic inventories of frozen fillets were increasing. Iceland, Norway and West Germany were showing increasing interest in U.S. markets and Canada, the major source at that time, was expanding its facilities. U.S. fishermen were having to greatly enlarge the geographic outer limits of fishing activity and had recently been forced to go as

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<sup>1</sup>Ibid., p. 12-21.

far north as Nova Scotia in search of ocean perch. Domestic producers had successfully developed a market for ocean perch fillets and the post-War expansion of U.S. catch was almost entirely due to larger markets for this product. In 1950, Canadian ocean perch began to enter the U.S. market and in 1951 imports of ocean perch had already increased to 30 per cent of the U.S. catch.<sup>1</sup> The two dissenting members of the Tariff Commission believed that these factors "presaged continued deterioration of the domestic industry under present customs treatment."<sup>2</sup>

Unfortunately for the groundfish industry, this prediction came true. Production declined from 149 million pounds in 1951 to only 106 million pounds in 1955. The total number of filleting plants decreased from 98 in 1950 to 79 in 1955. The new and expanding market for fish sticks went mostly to foreign competitors as the imports of fish blocks and slabs rose rapidly. By 1955, the domestic fishermen held only 43 per cent of the total groundfish market including blocks and slabs. U.S. prices either declined between 1950 and 1955, as for haddock and ocean perch, or rose more slowly than the price indices for all commodities, all processed foods, and fish and shellfish products. Wage rates in the filleting plants rose less

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<sup>1</sup>Pre-1950 imports were almost totally cod and haddock.

<sup>2</sup>Ibid. pp. 24-36, quotation from p. 36.

than for other manufacturing industries operating in the same area. The filleting industry as a whole incurred losses in 1953, 1954, and 1955, although some firms did show a profit. The number of job opportunities ("berths") on large and medium trawlers (the backbone of the fleet) fell by 17 per cent and this resulted in outright unemployment and work spreading through rotation of crews. No direct data were available on fishermen's incomes. However, a rough estimate is the "net share." Since the fishermen are paid on a share basis, it is possible to divide total crew share for each vessel by the number in the crew and get a rough estimate of the income of the crew. The net share fell from \$7,378 in 1952 to \$4,964 in 1955. These figures overstate actual individual incomes because crewmen generally make fewer trips per year than do the boats they work on. Vessel earnings vary greatly from vessel to vessel and year to year, but on the average vessel owners lost 9, 11, and 12 cents per hundred pounds landed in 1953, 1954, and 1955 respectively.<sup>1</sup>

These facts were learned by the Tariff Commission's second and third escape-clause investigations in 1954 and 1956. On both occasions, the Commission reversed the 1952 decision and recommended that President Eisenhower take

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<sup>1</sup>U.S. Tariff Commission, Groundfish Fillets (1956) (Washington, D.C.: Tariff Commission, 1956), pp. 5-28.

action to increase the barriers to trade in groundfish fillets. More specifically, they voted in 1954 to recommend an absolute quota of 37 per cent of the preceding five years aggregate annual consumption, the quota being allocated between countries on a predetermined basis. They also voted to recommend increasing the tariff on fillet imports.<sup>1</sup> This recommendation was rejected by President Eisenhower in July, 1954. In 1956, the Tariff Commission voted unanimously to recommend that the inquota rate of duty be raised to 2.8125 cents per pound (from 1.875 cents) and on overquota imports to 3.75 cents per pound (from 2.5 cents). Again the President rejected the Tariff Commission suggestions.

In a letter to the Senate Finance Committee and the House Ways and Means Committee, the President defended his 1954 decision by noting that a new product, fish sticks, had been introduced, which would increase the consumption of groundfish substantially. He said,

It would be a disservice to the entire groundfish industry to limit the imports of groundfish fillets in these circumstances. It would hamper and limit the development of the market for the product and jeopardize present prospects for the increase in per capita consumption of fish, which is the real solution of the industry's problems.<sup>2</sup>

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<sup>1</sup>Jurate E. Micuta, "Pertinent U.S. Trade Barrier Information by 'Master Plan' Fisheries," U.S. Department of Interior, Bureau of Commercial Fisheries, Division of Economic Research, Working Papers, No. 39, Jan., 1970, p. 11.

<sup>2</sup>Quoted in the New York Times, July 3, 1954, 17:4.

The President's explanation in 1956 used different arguments and did not mention fish sticks. Rather, he emphasized that the President must not only be concerned about the welfare of an industry, but about all the other aspects of the situation which bear on the security and well-being of the nation as a whole. Three main factors were given as explanations for his ruling. First, it was the policy of the U.S. to foster the security and economic growth of the United States through "beneficial trade among the free nations of the world." Trade barriers should be imposed, the President noted, only when they will yield "positive productive results to the benefit of the domestic industry in question. . . . It might well be, in fact, that the proposed duty increase would only further complicate the industry's basic problems." What the industry needed, said the President, were not restrictions on trade, but "bold and vigorous steps to provide root solutions to the industry's problems." His administration, he reminded everyone, had already taken several steps in this direction, including increased research, market development, education grants, and a \$10 million revolving loan fund to aid fishermen. Second, the President predicted that rising demand would exceed domestic production and imports. "This is the encouraging prospect," he said, "that the domestic industry should prepare to exploit." Finally, the President noted that the countries involved were not only close friends, "but their economic strength

is of strategic importance to us in the continuing struggle against the menace of world communism."<sup>1</sup> A closer examination of these points yields some interesting insights into the U.S. tariff policy on fish products.

To begin with, the domestic industry did suffer from some real disadvantages as compared to its main competitor, Canada. An extensive comparison was made by Lynch, Doherty and Drahiem,<sup>2</sup> who divide the major aspects into geographic factors, historical factors, and structural differences between the industries of the two countries. The Canadian industry, which is located in the Atlantic provinces, is close to almost all the major groundfish areas of the Northwest Atlantic. New England is much farther from the Grand Banks, the Gulf of St. Lawrence, and the coast of Labrador. Also, the grounds exploited by New Englanders are farther away than those regularly exploited by Canadians. In some cases, the Canadians can reach the fishing grounds in as little as three to six hours, while U.S. vessels must sail for three or more days before they can fish at all.<sup>3</sup> As a result, the average large trawler in Canada made three to five more trips in

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<sup>1</sup>Quoted in New York Times, December 11, 1956.

<sup>2</sup>Edward Lynch, Richard Doherty and George Drahiem, The Groundfish Industry of New England and Canada: A Comparative Economic Analysis, U.S. Department of Interior, Fish and Wildlife Service, Circular 121 (Washington, D.C.: U.S. Government Printing Office, 1961).

<sup>3</sup>White, op. cit. p. 129.

1956 and 1957 than did their Bostonian counterparts. For the medium trawler the difference is 15 to 25 trips depending on the U.S. home port. Grounds frequented by the Canadian fleet allow more diversity of catch, while the New Englanders are highly dependent on haddock and ocean perch.<sup>1</sup> This is important because of the natural fluctuations in the various populations. Land transportation is such that Canadian fishermen are not much farther away from major U.S. markets in the Midwest and South than the New Englanders. Historically, Canada developed around the production of frozen fillets and blocks. Lynch, Doherty, and Drahiem believe that this gives them a cost advantage over the U.S. producers whose facilities were built to produce fresh and salt fish.<sup>2</sup>

The most important problems in these authors' minds, however, come under structural differences between the two industries. The New England industry is composed of a large number of small firms engaged in either fishing or processing, but usually not both. The industry in the Atlantic provinces, on the other hand, consists of a few large vertically-integrated firms which are able to exercise considerable control over the input markets. This monopsonistic tendency is re-enforced by the fact that the Atlantic provinces tend to be less economically developed

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<sup>1</sup>Lynch, Doherty, and Drahiem, op. cit. p. 75.

<sup>2</sup>Ibid., p. 76.



than New England and hence have large pools of unemployed and underemployed labor. Wages are higher in New England because of many job opportunities and strong fishermen's unions.

All of these factors add up to make Canadian costs substantially lower than U.S. costs. Lynch and his coauthors estimate that U.S. costs on large trawlers were 30 to 40 per cent higher. A more recent study, the results of which are shown in Table A-1, shows that the cost disadvantages for medium trawlers are even more dramatic.

It is also important to note that monopsonistic tendencies together with an oversupply of labor must contribute to lower costs in filleting and other processing than would be found in the U.S. A 1956 survey showed that cutters at Canadian processing plants earned from \$.93 to \$1.11 in Canada and \$1.84 in the U.S. Wages to other workers showed similar differentials.<sup>1</sup>

The result of all these factors is that the U.S. groundfish industry has not been able to compete with imports. The average wholesale price of U.S. produced groundfish fillets and steaks in 1967, for example, was \$.37 per pound as compared with \$.28 for imports.<sup>2</sup>

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<sup>1</sup>U.S. Tariff Commission, Groundfish: Fishing and Filleting, pp. 99, 147.

<sup>2</sup>U.S. Department of Interior, The Effects of Imports on the United States Groundfish Industry (Washington, D.C.: n.n., May, 1969) pp. 58-59.

Table A-1

Comparison of Costs of Catching Fish by United States  
and Canadian Side Trawlers, 1966

Overall length of trawler	Days		Fish landed		Cost of fish in dollars		Cost per ton in Canada as % of U.S. cost
	At sea	Fishing	tons	\$ (U.S.)	Total	Per ton	
U.S.							
120'	271	203	1,756	385,000	360,838	205.49	
Canadian							
120'	261	189	2,373	198,946	187,849	79.16	38.5
141'	287	250	2,324	261,507	221,490	95.31	46.8

Source:

U.S. Department of the Interior, The Effects of Imports on the United States Groundfish Industry (Washington, D.C.: n.n., May, 1969).

Canadian imports make up 70 to 80 per cent of the total and the next most important source is Iceland with 15 to 25 per cent. Like Canada, Iceland is close to fertile fishing grounds and has lower wage rates than the United States. In addition the Icelandic government subsidizes fishing in order to increase exports.<sup>1</sup>

With its industry facing increasingly overwhelming competition, U.S. policy-makers had three alternatives. First, they could raise the tariff barriers to more effective levels. This President Eisenhower refused to do. Second, they could have subsidized the industry to keep it going. The aid programs President Eisenhower mentioned in his 1956 statement had little chance of helping the industry. Even the loan program was of little aid, since the fishermen could hardly be expected to earn enough to repay the loans. In addition, the program only amounted to \$10 million for the entire U.S. fishing industry. The last alternative, and the one chosen, was to sacrifice the domestic industry. In 1969, 90.0 per cent of the groundfish consumed in the U.S. came from imports and U.S. production fell to only 47 million pounds, a full 100 million pounds less than the output in 1951.<sup>2</sup> Let us examine why this course of action was chosen.

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<sup>1</sup>U.S. Tariff Commission, Groundfish: Fishing and Filleting, pp. 159-69. Canada also has a subsidy program which is discussed below.

<sup>2</sup>Fisheries of the United States, 1969, p. 44.

The Eisenhower Administration was known to favor free trade and perhaps part of the explanation lies here. It must be pointed out to the contrary, however, that in 1954, Congress passed and the President signed a bill which erected a tariff barrier to the importation of fish sticks, which has been strong enough to virtually eliminate foreign made fish sticks from the U.S. market for the past fifteen years.<sup>1</sup> Evidence indicates that fish sticks are directly competitive with the products of the domestic fleet. Fish sticks were introduced in 1953 and output jumped from 7.5 million pounds in that year to 65.4 million pounds in 1955. Over the three years of 1953 through 1955, the population of the U.S. increased 5.2 per cent and the consumption of groundfish increased 8.7 per cent, while the consumption of conventional groundfish fillets fell by a full 14.9 per cent.<sup>2</sup> This trend has apparently continued. In 1969, the total supply (domestic catch plus imports) of groundfish including blocks and slabs was 474 million pounds. Imports of slabs and blocks were 267 million pounds, leaving around 200 million pounds for consumption as fillets. In 1952, the year before fish sticks were introduced on a large scale, the total supply of fillets was 240 million pounds.<sup>3</sup>

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<sup>1</sup>This situation may now be changing as a result of Kennedy Round concessions which cut the rates of duty on fish sticks in half.

<sup>2</sup>U.S. Tariff Commission, Groundfish Fillets (1956).

<sup>3</sup>Fisheries of the United States, 1969, p. 48.

In spite of considerable population growth, consumption of fillets has actually declined since the introduction of fish sticks.

In fact, the rapidly growing market for fish sticks was probably a major influence in the Eisenhower groundfish tariff decisions. Had the duty on groundfish fillets been increased in the mid-1950's, the next logical step would have been to increase the duty on fish blocks. This would have raised the cost of the raw materials of domestic fish-stick producers. Both the fish-stick tariff and President Eisenhower's explanation for refusing similar protection for fillets support the hypothesis that U.S. policy-makers must have been concerned about maintaining inexpensive imports of fish blocks.

Also, much political pressure against tariff increases came from the major sources of supply, Canada and Iceland.<sup>1</sup> Canada's Atlantic provinces were heavily dependent on extractive, export-oriented industries. Incomes in this region of Canada were lower than elsewhere. The region had been heavily dependent upon salt-cod exports. This source of demand weakened during the depression and never recovered thereafter because the importing areas,

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<sup>1</sup>See, for example, Canada's warning of the "serious implications" of increased tariffs in the New York Times, July 21, 1953, 6: 4, and the reassurances of the State Department which followed, New York Times, Aug. 13, 1953, 28: 1.

including the Mediterranean and Caribbean countries, had since developed their own fleets and because rising incomes had turned consumers toward other products. At the same time the expanding U.S. market for fillets and later for blocks provided a new market and the Canadian industry became increasingly dependent on this single market.

In the post-World War II years Canada relaxed a long standing ban on large otter trawlers of the kind used in New England since 1905. This move was prompted by recognition of the need to raise local incomes through increasing labor productivity. A number of such vessels were acquired by financially stronger processors and by 1956 were contributing 63 per cent of the Canadian catch of groundfish for the frozen fish market. Canada also attempted to increase the incomes of its fishermen by subsidizing construction of draggers and longliners of relatively small size. Some of the Provinces also add to the federal subsidies.<sup>1</sup> While these programs were not far enough along in the mid-1950's to contribute to the initial success of Canada in the U.S. market they are no doubt important in the maintenance of its position today. At present Canada has an extensive fishery subsidy program including vessel construction subsidies, low interest loans, price supports, and grants for some types of gear.<sup>2</sup> Much

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<sup>1</sup>Lynch, Doherty and Drahiem, op. cit., p. 75.

<sup>2</sup>U.S. Department of the Interior, The Effects of Imports on the United States Groundfish Industry, pp. 71-72.

of this has been built over the years on the basis of the U.S. market and the success of these programs has depended upon continued access to that market. Hence, the U.S. would have incurred considerable ill-will from Canada had it granted tariff protection to the New England groundfish industry.

As noted above, Iceland also has a large stake in a subsidized groundfish industry. In 1966, the U.S. was Iceland's number one export market for this commodity, taking 27.2 metric tons. Her next most important customer was the U.S.S.R. which purchased 12.5 metric tons.<sup>1</sup> In the 1950's a major U.S. air base was located in Iceland and the government of that country requested that the U.S. move the base. Only a few days before President Eisenhower formally announced the 1956 groundfish tariff decision, Iceland withdrew this request and some felt that the two decisions were related.<sup>2</sup>

To summarize this discussion, the United States has to a large extent sacrificed its New England groundfish industry in order to maintain inexpensive sources of fish blocks for the domestic production of fish sticks and to maintain good relations with Canada and Iceland. Let us now turn to the tuna case.

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<sup>1</sup>Ibid., p. 78.

<sup>2</sup>See the New York Times, December, 1956, 1:3 and 35:2.

Tuna

The tuna industry is much younger than that for groundfish. The first albacore were canned in San Pedro, California, in 1903. As the industry expanded, it was found that the runs of albacore were erratic and, while this species dominated the catch for many years, supplies were being augmented with yellowfin and skipjack beginning in 1915. The first bluefin tuna were canned a year later. In 1920, the pack reached the one million pound level. In 1926 albacore made one of its natural temporary disappearances from the California coast and the industry made a rapid shift from "white meat tuna" (i.e. albacore), to the "light-meat" of yellowfin, skipjack, and other tunas. This involved an expansion of the fishing grounds south into the eastern tropical Pacific. During the period 1926 to 1938, domestic fishermen were able to supply canners with light-meat tuna, but the U.S. became more and more dependent on Japan for white meat tuna. Albacore reappeared in the years just prior to World War II and were canned for the first time in Washington and Oregon in 1937. Local fishermen of that region have caught some albacore ever since, tuna fishing being somewhat complementary to other operations such as salmon and halibut fishing. Supplies have varied considerably however and Pacific Northwest canners are often heavily dependent on imports for their raw tuna. Some tuna is also canned on the Atlantic coast, in Puerto Rico, and in Hawaii, but the industry continues



to be dominated by the California based firms.<sup>1</sup>

Tuna first received explicit tariff treatment in the Tariff Act of 1930, where "tuna fish, fresh or frozen, whether or not packed in ice, and whether or not whole" was added to the list of duty-free goods. Canned tuna came under two headings depending on whether it was packed in oil. Fish canned in oil was dutiable at 30 per cent ad valorem, while fish not in oil was taxed at 25 per cent ad valorem. Increasing imports of tuna in oil caused the rate on that commodity to be raised to 45 per cent in 1934, by Presidential proclamation.<sup>2</sup> Tuna was only canned in oil prior to 1950 and this tariff was sufficient to keep foreign canned tuna out of the market in the years preceding World War II.<sup>3</sup>

During the Second World War, the U.S. signed an agreement with Mexico lowering temporarily the duty on tuna in oil to 22.5 per cent. Also, an agreement was reached with Iceland lowering the U.S. rate of duty on all canned fish, not in oil, to 12.5 per cent ad valorem. While this act had no impact on tuna at the time it was

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<sup>1</sup>U.S., Department of Interior, Fish and Wildlife Service, Survey of the Domestic Tuna Industry, Special Scientific Report: Fisheries No. 104, (Washington, D.C.: n.n., 1953), pp. 12-20.

<sup>2</sup>U.S., Tariff Commission, Tuna Fish (1953) (Washington, D.C., Tariff Commission, 1953) pp. 1-6.

<sup>3</sup>For more details see U.S. Department of Interior, Survey of the Domestic Tuna Industry, p. 23.

signed it, became important in the post-war period.<sup>1</sup>

Production and imports fell during the war. Relevant data on the post-World War II tuna activities are shown in Table A-2. Domestic production rose rapidly between 1947 and 1950, and then fell into a slump so that the 1950 level of output was not reached again until 1967. Imports increased rapidly and have exceeded 50 per cent of the market in most years since 1958. Prices seem to have declined slightly or remained constant.

A large part of the rapid increase in imports came from Japan. Rebuilding Japan's fisheries was an integral part of plans to rehabilitate the economy of that country. The rapid increase in imports in 1950 was partially due to the fact that the U.S.-Mexican agreement was to expire in 1951. This meant that the rate of duty on tuna canned in oil would revert back to 45 per cent ad valorem and the market was temporarily glutted to beat the deadline. Imports of canned tuna in oil fell from 36 million pounds in 1950 to only 4 million pounds in 1951. Imports of fresh and frozen tuna continued to rise.<sup>2</sup>

It was around this time that several of the countries exporting tuna to the United States began to notice that the duty on all canned fish, not in oil, was

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<sup>1</sup>U.S., Tariff Commission, Tuna Fish (1953), pp. 1-6.

<sup>2</sup>Ibid., p. 119.

Table A-2

## Major Economic Trends for Tuna, 1947-1969

Year	Quantity		Imports as a % of total supply Percent	Value		Ex- vessel price index 1957-1959 = 100	Whole- sale price index 1957-1959 = 100	U.S. per capita consump- tion, lbs.c/	U.S. fisher- men number	U.S. vessels and boats number
	U.S. land- ings <sup>a/</sup> million pounds <sup>b/</sup>	Imports		Landings	Imports					
1947	263	9	3.3	43.6	4.5	125.2	135.9	0.78	n.a.	n.a.
1948	329	14	4.1	61.1	6.4	142.0	141.6	0.89	n.a.	n.a.
1949	345	14	3.9	55.9	5.1	124.4	120.1	0.89	n.a.	n.a.
1950	403	80	16.6	63.4	22.1	119.8	112.0	1.13	n.a.	n.a.
1951	335	72	17.7	50.4	12.1	114.5	109.4	1.22	n.a.	n.a.
1952	333	93	21.8	51.3	18.0	116.8	110.0	1.27	n.a.	n.a.
1953	321	131	29.0	49.8	28.5	118.3	116.5	1.37	n.a.	n.a.
1954	346	159	31.5	56.6	34.5	126.0	115.1	1.37	n.a.	n.a.
1955	292	200	40.7	42.8	32.9	111.5	110.4	1.43	n.a.	n.a.
1956	355	198	35.8	47.2	30.3	100.8	106.1	1.57	6,610	2,229
1957	323	234	42.0	41.4	33.8	96.2	101.2	1.58	6,141	2,317
1958	345	309	47.2	46.1	42.3	103.8	101.2	1.77	6,646	2,303
1959	308	368	54.4	40.2	51.4	99.2	97.7	1.88	5,924	1,946
1960	317	357	52.8	40.2	50.6	94.7	99.3	2.05	4,858	1,535
1961	357	328	47.9	46.1	52.2	98.5	105.5	2.08	4,535	1,520
1962	341	421	55.2	48.9	68.4	110.7	108.3	1.97	4,859	1,798
1963	359	378	51.3	43.9	58.7	96.2	106.9	1.98	4,823	1,872
1964	354	434	55.1	44.4	74.0	97.7	107.8	2.01	4,014	1,552
1965	373	430	53.5	47.8	68.8	99.2	112.8	2.32	4,817	1,847
1966	334	511	60.5	57.6	109.3	126.7	118.7	2.20	5,455	1,978
1967	426	452	51.5	55.0	96.6	97.7	116.6	2.32	n.a.	n.a.
1968	402	483	54.8	n.a.	104.6	122.9	116.6	2.29	n.a.	n.a.
1969	419	488	53.8	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

(Continued)

Table A-2 (Continued)

a/ Includes Puerto Rico

b/ Round weight

c/ Canned tuna, edible weight

Sources:

Richard K. Kinoshita and Frederick W. Bell, "Major Trends in Selected U.S. Master Plan Fisheries: A Graphical Survey," U.S. Department of Interior, Bureau of Commercial Fisheries, Division of Economic Research, Working Papers, No. 37, (December, 1969).

U.S. Department of Interior, Fish and Wildlife Service, Bureau of Commercial Fisheries, Fisheries of the United States, 1969, Current Fishery Statistics No. 5300 (Washington, D.C.: n.n., March, 1970).

12.5 per cent pursuant to the agreement with Iceland discussed above. Japan, Peru, and Chile all experimented with tuna packed in brine and in 1951 the U.S. imported 9 million pounds of this tuna as compared with only 381 thousand pounds in the preceding year. In 1952 such imports reached 19 million pounds. Thus, with the increase in the tariff on tuna in oil, some of the foreign tuna suppliers shifted to tuna in brine<sup>1</sup> and this has been an important commodity in the U.S. market ever since. Tuna in brine sold for 25 to 30 per cent less at the retail level.<sup>2</sup> This price differential was due entirely to tariff policy, since the production process for the two products is practically the same.<sup>3</sup>

The agreement with Iceland came under the General Agreements on Tariffs and Trade and the domestic tuna industry attempted to counter increasing imports by requesting an escape clause investigation. The investigation that followed concentrated on the competition on the canning segment of the industry only, since this was the market directly affected by the agreement with Iceland. The tariff commission concluded that the economic hardships suffered by the domestic canners were of a temporary character caused by post-war adjustments in the international

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<sup>1</sup>Ibid., p 122.

<sup>2</sup>Ibid., p. 144.

<sup>3</sup>See W. M. Chapman, "Tuna--In Brine," Pan-American Fisherman, 6(5): 14-19, 29, December, 1951.

economy and by the market glut that occurred just before the duty on tuna in oil reverted to 45 per cent. It further concluded that tuna in brine was of such inferior quality to tuna in oil that the two goods were not competitive in the U.S. market. For these reasons, the Commission voted three-to-two not to recommend a change in tariff treatment of tuna in brine.<sup>1</sup>

The dissenting voters argued that tuna in brine was directly competitive with tuna in oil and thus could not help but be damaging the domestic industry, since it sold at much lower prices. Decreases in the number of canneries, decreasing prices, decreasing employment and increasing imports were cited as symptoms of the problem. In addition, the domestic production of tuna-like species, especially bonito, had been virtually discontinued because of increased imports of tuna and tuna-like species.<sup>2</sup>

Tuna interests were also active in Congress. The bill which came closest to passage was the Camp Bill,<sup>3</sup> which proposed a temporary tariff of three cents per pound on fresh and frozen tuna in order to protect the industry while both the Tariff Commission and the Department of Interior investigated the problems of the industry. This

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<sup>1</sup>U.S., Tariff Commission, Bonito, Canned in Oil; and Tuna and Bonito, Canned, Not in Oil (Washington, D.C.: Tariff Commission, November, 1952).

<sup>2</sup>Ibid.

<sup>3</sup>H.R. 5693, 82nd Congress.

bill did pass the House, but got bogged down in the Senate. Studies were never-the-less carried out by both agencies and it is interesting to compare the resulting reports.

The Tariff Commission report was in close accord with its conclusions in the escape clause case just discussed. Its point of view was summarized when it stated,

The difficulties confronting the domestic tuna fisheries and domestic tuna canneries in recent years have been similar to those confronting many other industries that have been obliged to make postwar adjustments to the resumption or expansion of competition from abroad.<sup>1</sup>

While the Commission did not make any recommendations it did review some of the potential shortcomings of alternative courses of action. It feared that tariffs would encourage the industry to overexpand and have difficulties on this account in the future. Furthermore, foreign governments might simply absorb the import tax for their fishing industries. The alternative of import quotas would leave the diplomatically touchy job of allocating the quotas to different countries. The Commission emphasized the interrelationships between tariffs on fresh and frozen tuna, tuna in oil, and tuna in brine. A duty on fresh and frozen fish without compensating adjustment in the tariffs on the other two products would leave canners in a worse position. It also emphasized the dependence of many canners

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<sup>1</sup>U.S., Tariff Commission, Tuna Fish (1953), p. I-60.

on foreign sources of supply due to erratic catches by domestic fishermen.<sup>1</sup>

By contrast, the Interior Department<sup>2</sup> saw the problems of the industry as being more long-term in nature and noted seven problem areas: (1) the need for and recent lack of satisfactory levels of income for domestic fleet; (2) the need for dependable supplies of raw tuna for domestic canners; (3) the problem of providing full employment on a long-term basis for cannery workers; (4) the needs of domestic packers for a fair share of the domestic market in order to continue operations; (5) the problem of supplying consumers with canned tuna at a fair price; (6) the need for additional sources of supply to satisfy rising consumption due to increasing population and rising per capita consumption; and (7) the need for international management of tuna resources.<sup>3</sup> The Interior Department was much more concerned than the Tariff Commission about the future of the industry and said, "These problems, left unsolved; could reduce the domestic tuna industry, as we know it now, to an insignificant operation in so far as fishing, processing, and a substantial part of the distribution function are concerned."<sup>4</sup>

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<sup>1</sup>Ibid.

<sup>2</sup>U.S. Department of Interior, Fish and Wildlife Service, Survey of the Domestic Tuna Industry.

<sup>3</sup>Ibid., pp. 425-429. <sup>4</sup>Ibid., p. 425.



The Interior Department made several proposals.

First, it suggested that consideration be given to forming an international commodity agreement on tuna patterned after the International Wheat Agreement of 1949. Second, Interior believed that there was no logical relationship between the duties on oil-packed, brine-packed, and frozen tuna and that these rates should be "properly related." Also, it endorsed further research on scientific topics, exploratory fishing, fishing gear, marketing, and economic topics as well as educational and market development programs. Fourth, it recommended that the services of the Bank of Cooperatives in the Farm Credit Administration be opened up to fishery cooperatives. Such cooperatives had been active in the tuna industry for some time. Finally, Interior exhorted the U.S. to satisfactorily solve problems related to the territorial seas and fishery jurisdictions of other countries.

While several bills were introduced to raise the tariff on tuna, even the Camp Bill, which involved only a temporary tariff on fresh and frozen tuna, did not gain Congressional approval. The Camp Bill failed in the Senate for at least three reasons. The State Department was very much opposed to the Bill. There was some concern that such a tariff would encourage Japan to trade with the USSR. At any rate, it was felt that a tariff on fresh and frozen tuna would be highly detrimental to relations with Japan and

Peru.<sup>1</sup> Second, the industry was by no means united in support of the measure. Substantial canning interests voiced vociferous objections to the measure because of their dependence on foreign tuna.<sup>2</sup> Finally, to some extent, there were substantial forces at work in those days which favored "trade, not aid."<sup>3</sup>

Other bills to increase the duty on fresh and frozen tuna and on tuna in brine met with even less success.<sup>4</sup> Although the political activities must have contributed to the passage of some of the major fisheries legislation of the decade such as the Fisheries Loan Program and the establishment of the U.S. Bureau of Commercial Fisheries, Congress stood pat on the tuna tariff issue. At one point, industry representatives even spoke to the President of the United States but with no direct success.<sup>5</sup>

Finally in 1955 a change in the tariff structure did come, but it was a long way from what the industry had hoped for. As part of GATT negotiations, a differential-tariff quota was placed on tuna in brine, the quota being

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<sup>1</sup>W. M. Chapman, "The Tuna Tariff Situation" Pan-American Fisherman, 7(1):15, August, 1952.

<sup>2</sup>See Pan American Fisherman 6(7):8, February, 1952 and 6(8):24, March, 1952.

<sup>3</sup>See Pan-American Fisherman 7(9):10, April, 1953.

<sup>4</sup>See various issues of the Pan-American Fisherman 1953 through 1955.

<sup>5</sup>W. M. Chapman, "The Tuna Tariff Situation," pp. 13, 15.

20 per cent off the preceding year's domestic pack of canned tuna. The rate of duty on the inquota imports was bound to the old rate of 12.5 per cent ad valorem and that on overquota imports was set at 25 per cent. This was a rather liberal quota, historically speaking. The quota in 1955, for example, would have been 43 million pounds,<sup>1</sup> while actual imports of tuna in brine in that year were only 35 million pounds.<sup>2</sup> The quota has been exceeded only twice since 1956 (in 1958 and 1959) and such imports are often substantially below the quota.<sup>3</sup> The rate of duty on tuna in oil was reduced to 35 per cent ad valorem during the same session of GATT. This was viewed with some apprehension by the industry, but so far has not proven to be of much importance. In fact, imports of tuna in oil were 586 thousand pounds in 1956 and only 158 thousand pounds in 1969.<sup>4</sup> Lastly, the duty-free status of fresh and frozen tuna was not changed.

Strangely, the most important constraints on U.S. imports of tuna have come, not from the U.S. government, but from the government of Japan. At least partially as a

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<sup>1</sup>See Pan-American Fisherman, 9(12):10-11, July, 1955.

<sup>2</sup>U.S., Department of Interior, Report of the Secretary of the Interior to the President and the Congress on Fresh and Frozen Yellowfin, Skipjack, and Bigeye Tuna (Washington, D.C.: n.n., May 1958), p. 61.

<sup>3</sup>Fisheries of the United States, 1969, p. 31.

<sup>4</sup>Ibid.

result of the clamor in the United States over imports in the early 1950's, Japan instituted a program of export quotas and floor prices on tuna exports. When the U.S. import quota on tuna in brine went into effect in 1956, Japan set the export quota at the same level.<sup>1</sup> Annual quotas have also been set for frozen raw tuna and these have apparently been effective in reducing U.S. imports from Japan.<sup>2</sup>

An important meeting between Japan and the United States occurred in 1959. Cannerymen of the Northwestern U.S. opposed any discussion of import controls and the State Department officially banned such discussions on grounds that negotiated voluntary controls would be at odds with the policy of the U.S. Government to encourage "free competitive enterprise, both domestically and internationally."<sup>3</sup> Nevertheless, the topic of imports was discussed and Japan agreed informally to guide its industry so as to only fill demand that U.S. fishermen could not meet. No formal controls were instituted.

The U.S. tuna industry has not gone the way of the groundfish industry for several reasons. While there is some evidence of economic hardship, Table A-2 shows that catches in the 1960's have increased somewhat in spite of

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<sup>1</sup>U.S., Tariff Commission, Tuna Fish (1958) (Washington, D.C.: Tariff Commission, May, 1958), pp. 84-85.

<sup>2</sup>Ibid., p. 81.

<sup>3</sup>Quoted in Pacific Fisherman, 57(11):5-6, Oct. 1959.

constant or declining prices. This is partly due to a transformation in technology from bait boat fishing to purse seining.<sup>1</sup> A number of new vessels have also been constructed under the impetus of newly designed all nylon purse seines, Purctic power blocks, and improved refrigeration equipment. At least on the purse seiners, wages are high<sup>2</sup> and profits generally good.<sup>3</sup>

In addition to gaining a hand from technology, the tuna industry has some other advantages including ready access to the rich resources of the Eastern Pacific. Tuna fishermen have not faced the same kind of stiff competition as has the New England groundfish fleet. American tuna vessels are beginning to exploit new grounds off the coast of Africa and this is another sign of economic viability.

During the decade of the 1960's the tuna situation has thus stabilized on the basis of voluntary controls by the Japanese and growing economic strength of the domestic

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<sup>1</sup>See Richard Marasco, "The Organization of the California Tuna Industry: An Economic Analysis of the Relations Between Market Performance and Conservation in the Fisheries," U.S. Department of Interior, Bureau of Commercial Fisheries, Division of Economic Research, Working Papers, No. 45, March, 1970, pp. 8-9 and Richard L. McNeeley "Purse Seine Revolution in Tuna Fishing," Pacific Fisherman, 59(7): 27-58, June, 1961.

<sup>2</sup>U.S., Department of Interior, Bureau of Commercial Fisheries, Division of Economic Research, "Basic Economic Indicators-Tuna," Working Papers No. 61, May, 1970, Table I-2.

<sup>3</sup>Ibid., Table I-1(a) and Roger E. Green and Gordon C. Broadhead, "Costs and Earnings of Tropical Tuna Vessels Based in California," Fisheries Industrial Research, 3(1):29-45, December, 1965.

fleet. What the 1970's will hold is another matter. Two factors are of concern. First, Kennedy Round concessions include a reduction of about 50 per cent in the rates of duty applicable to tuna canned in brine and tuna loins. For the first time in several years 1969 imports of tuna in brine approached the quota and this situation bears watching as full implementation of the concession will not occur until 1972. Secondly, international competition on the fishing grounds is likely to increase in the future. Japan is showing increasing interest on the grounds that have always been dominated by U.S. interests and several Latin American countries are hoping to develop stronger tuna fleets. Competition on the fishing grounds is likely to be an important factor in the future.

### Conclusions

Since World War II both the tuna and groundfish industries have suffered economic hardships because of rapidly rising imports. In both cases, imports were allowed to rise because of the demand of processors for cheap sources of raw materials and the desire of the United States to maintain good relations with the exporting countries. These countries are known to be very interested in maintaining and increasing fish exports and this added fuel to pressures on the U.S. not to raise the tariffs. Fishermen have so far been able to overcome this policy. Similar forces must have led to Kennedy Round concessions which

will figure prominently in the future of U.S. fisheries.

Trade policy is only one variable in the economic milieu of an ocean fishery. Geographical, historical and structural factors in the groundfish case have combined with tariff policy to create a very adverse set of economic circumstances for that industry. In the tuna case, on the other hand, the industry has found the strength to partially overcome adverse tariff treatment and other disadvantages.

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