

SOCIAL GOALS, PROBLEM PERCEPTION, AND PUBLIC INTERVENTION: THE FISHERY

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I. INTRODUCTION

Actually very little analysis is required to show that an ideal world is better than a state of *laissez faire*, unless the definitions of a state of *laissez faire* and an ideal world happen to be the same. But the whole discussion is largely irrelevant for questions of economic policy since whatever we may have in mind as our ideal world, it is clear that we have not yet discovered how to get to it from where we are. A better approach would seem to be to start our analysis with a situation approximating that which actually exists, to examine the effects of a proposed policy change and to attempt to decide whether the new situation would be, in total, better or worse than the original one. In this way, conclusions for policy would have some relevance to the actual situation.¹

Those of us involved in the economic aspects of natural resource use are laboring in the realm of applied welfare economics. That is, we are analyzing various social policies and institutions to determine their appropriateness for certain, often elusive and contradictory goals of society.² To help us in this task, we employ economics, biology, social psychology, and various other aids. Unfortunately, and in spite of a large body of literature in economics, political science, and philosophy, it is usually agreed that we have no *general* criteria by which we can determine whether or not a certain social or economic configuration leads us to an "optimum social state."³ The

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1. Coase, *The Problem of Social Cost*, J. LAW & ECON., 43 (Oct. 1960).

2. When economists use the term "institutions" it generally refers to the administrative dictates, laws, traditions, and organizations of a society. The web of relationships among these factors and the relations within any one of them (say organizations) are relevant.

3. Two recent and very articulate expressions of this view are found in Coase, *supra* note 1, and Stigler, *The Economist and the State*, AM. ECON. REV. 1 (1965).

nonexistence of a social welfare function—a unique ordering of individual preferences summed over all people—precludes the precise definition of this “optimum.”

Thus by necessity, we must depend *in part* on the political process to synthesize group preferences, articulate social goals, and specify the appropriate areas for public intervention. Implicit and explicit budget allocation, project ranking, or legislative ranking formulae are widely used in government. In the economist’s analytical framework these can sometimes be interpreted as decision rules derived from a constrained maximization process. But, as will be seen below, social objectives are not unambiguously conceived nor maximized and this fact leaves considerable room for political maneuvering.

We are of the opinion, however, that a rudimentary social decision model can be conceived to aid in the above process. Such a model should possess at least the following attributes which we borrow from our colleague Irving Fox.

1. For a given problem or opportunity, the process should develop the best practicable information about the options available and their consequences which are of interest to various individuals and groups affected by the potential decision.
2. Individuals and groups affected should have a reasonable opportunity to be apprised of information about available options.
3. The process should provide reasonable opportunity for those affected by a decision to influence those who make the final decision.
4. The process should operate so that the products and services produced serve a range of preferences (not inconsistent with majority preferences) rather than a single set of preferences.
5. The decision-making process should function with reasonable dispatch and efficiency in generating information, evaluating it, and in reaching a final decision.
6. Implementing machinery must be responsible to the decisions made and be capable of integrating the components of interrelated activities so as to take into account their impact upon one another and achieve the degree of coordination envisaged by the decision.
7. Information generated in the course of operating experience should feed back into the decision-making system so

that initial decisions can be modified, if necessary, in response to such new information.⁴

To relate this concept to the fishery, we must recognize the various components in the chain from ocean to consumer, elucidate the ramifications of alternative social policy, and enlighten affected persons of these ramifications. Examples of components are natural wealth (fish stocks), physical yield, fishermen's incomes, incomes of fishing supplies firms, processors' incomes, retailers' incomes, incomes of all laborers engaged in the above activities, and consumer preferences.

To trace through the various components, consider fish stocks. Ideally, one can express current levels of fish stocks (biomass) as a function of recruitment, growth, and natural mortality. As long as fishing does not occur, these three primary influences will govern the size of the population and its weight. All three variables are in turn a function of the biomass and its relationship to its environment. Recruitment refers to the process of young fish successfully joining the adult (breeding) population. Recruitment is low at very low populations for obvious reasons. Recruitment may also be low at very large population levels (in relation to environment) because the fish are not healthy, and there is severe competition for food. At some intermediate population level, the ability of the population to recruit progeny is at a maximum. Growth rate of individual fish is likewise dependent upon relative density; at low population levels the growth rate of the individual is at a maximum, decreasing as a function of the standing population. Natural mortality, on the other hand, is low for very low population levels, but increases as a function of the fish population.

The next component is fish catch and several influences can alter the magnitude of this catch. Fishing technology, weather, other physical parameters, and fishermen's expectations (and actions) are several which enter here. The magnitude of the catch has implications for two components: 1) quantity of fish to be processed; and 2) the level of fishermen's incomes. The first has implications for the level of income to processors, and the sale of supplies to processors (which in turn has implications for income

4. Address by I. Fox, North Central Region Research Project (NC-57) Technical Committee Annual Meeting, Jan. 14, 1969.

levels of those selling supplies to processors). The final step before the consumer is that of the retailer. This component influences the level of retailer's incomes, the quantity of retailing supplies sold, and hence the income of those firms supplying the retail component with goods and services.

Going back to the level of fishermen's incomes, this influences the quantity of fishing supplies sold, and in turn the net income level of those firms supplying fishermen. Also, the level of household consumption items sold to fishermen is influenced by their income and this in turn affects the net income of other businesses quite unrelated to the fishery.

It should be obvious that the impacts which can emanate from a change in the institutional constraints on the fishery can be significant, both in magnitude, and in extent. Before turning to a discussion of an actual legislative act to alter existing fishery institutions, we digress to a brief discussion of several popular goals for domestic fisheries. This digression is by no means exhaustive; it is intended merely to specify some possible social goals, and to briefly discuss some of their advantages and disadvantages. Also, we will later discuss the nine-mile contiguous zone within the context of these social objectives.

II. THE CRITERIA PROBLEM

One of the interesting aspects of social policy in the fishery is the multiplicity of possible goals which could be pursued. In this section we will briefly discuss eight of them. These are: 1) maximization of sustained physical yield from the sea; 2) production of a certain quantity annually into perpetuity; 3) maximization of fleet profits; 4) maximization of the nation's long-range fishing capability; 5) minimization of total cost devoted to producing fish; 6) minimization of costs for total food production (from both land and sea); 7) the use of the sea as a source of protein for foreign trade; and finally 8) counteract economic decline of fishing communities.

Maximize Sustained Yield

The maximization of sustained yield from the fishery was, and may remain a significant force in fishery management. Its drawbacks have been adequately summarized by many

economists, starting with Scott Gordon.⁵ It is unnecessary to repeat all of the reasons why this goal is irrational from a social point of view but two paramount considerations, one on the demand side, and one on the supply side will be discussed.

Perhaps the most obvious shortcoming of maximizing sustained yield from the fishery is that it ignores completely any notion of consumer demand for fish. In an idealized market economy, consumer sovereignty holds sway and consumers "vote" with dollars. To commit the nation to such a policy could be considered senseless without consideration for the preferences of consumers.

On the supply side, producers respond to signals they receive from consumers ("votes") concerning the kinds and quantities of products desired. The cost of producing an additional unit is important to the firm since it must stop production short of the point where the return from that last unit is less than its cost. When sustained yield of the fishery is maximized at the complete disregard for the costs of producing that quantity, society may be paying more to catch fish than it should since some of the resources committed to fishing could produce greater value in other productive activities. Without clear indication of both demand and supply (cost) conditions, the setting of policy on physical terms is quite unsound.

An interesting enigma is found here, however, and was recently articulated by Frederick W. Bell of the Bureau of Commercial Fisheries.⁶ He found that by using the notion of producers' and consumers' surpluses to represent economic benefits from the Bureau's programs,⁷ efforts to reduce harvesting costs through investments in gear research, fish forecasting

5. Gordon, *The Economic Theory of a Common-Property Resource: The Fishery*, J. POL. ECONOMY 124-42 (1954).

6. Bu. Comm. Fish., Working Paper No. 31 (Oct. 1969), *Benefit-Cost Analysis as Applied to Commercial Fisheries Program*.

7. Consumer's surplus is defined to be the excess of what a consumer would be willing to pay for an item over that amount which he has to pay; the vertical distance from the price line to the demand curve. The total consumers' surplus is merely the sum of all of these individual increments—the definite integral under the demand curve, above the price line, and to the left of the intersection of the demand and supply curves. Producers' supply is defined as the excess of actual earnings from a given quantity of product over the minimum amount the firm would accept to produce it. It is reckoned as the definite integral above the supply curve, below the price line, and to the left of the intersection of the supply and demand curves.

techniques, and vessel design would result in positive economic benefits for domestic fisheries currently producing at less than maximum sustained yield, and negative benefits if they are producing at or beyond maximum sustained yield. The implication is that while maximizing sustained yield is the wrong criterion, its implications for certain policy cannot be completely ignored; it can provide a rough guide for some decisions.

Produce a Given Quantity Annually into Perpetuity

A variation on the above objective is to catch a specified quantity of fish each year. This suffers from the same disregard for supply and demand characteristics and we shall dismiss it as an analogous objective to that of producing the maximum sustained yield.

Maximize Fleet Profits

The traditional literature on the fishery treats each small fishing ground as the focus of attention and advocates the maximization of group profits on this ground. This profit is called "rent to the resource" and is equated with some desirable social goal. To achieve this, some fishermen are excluded so that others may enjoy surplus profits. While this is not the place for an extensive discussion of the shortcomings of this traditional approach,⁸ we will raise several important questions concerning its desirability as a social objective.

The first issue to be raised concerns the traditional assumption that each small fishing ground is a separate and independent part of the ocean complex, and that "rent" should be maximized on each ground.⁹ Since the many subparts of an ocean ecosystem are not ecologically independent, neither are they economically independent. To construct economic optimizing

8. Since science is a dynamic and recursive process, the innovator, while getting credit for his breakthrough, also is subject to much criticism from those who follow him—criticism that would not have been possible had not the innovator made his discovery. We applaud the early work of Gordon [*The Fishery: The Objectives of Sole Ownership*, J. POL. ECONOMY 116 (1955)], and others and in no way are demeaning their contributions to the understanding of the economics of fisheries.

9. For a different interpretation of this "rent" and other issues see Bu. Comm. Fish., Econ. Research Div., Working Paper No. 28 (July 1969), Bromley, *Economic Efficiency in Common Property Natural Resource Use: A Case Study of the Ocean Fishery*. Also, for other writings displaying varying degrees of criticism of the traditional approach see Bu. Comm. Fish., Econ. Research Div., Working Paper No. 12 (Mar. 1969), Carlson, *Bio-*

models on interrelated subsets of a larger biological complex is to beg the ultimate question of desirable management of the total ocean resource; optimizing with respect to each subsystem could very well be inappropriate for the entire ocean system. This being the case, one solution would be to treat the ocean complex as one large biological "enterprise" and devise a social harvesting scheme which can lead to the attainment of those goals specified by society. But to argue that some fishermen should be excluded to increase profits of those allowed to stay would seem to show disregard for those forced out, and may treat them in isolation from the social problem of their alternative occupations and earning power (which reflects their contribution to society outside of the fishery).

The ultimate question concerns the appropriate degree of aggregation necessary to correctly analyze the fishery. The traditional literature treats the *ground* as the "decision unit" and advocates maximizing return to it. Ordinarily we would talk of the fishing firm as the appropriate decision unit and judge the performance of the industry in more conventional terms. Because of the common property aspects of the fishery, the usual guidelines for performance have not been attempted but we would suggest that this may be a potentially useful endeavor for economists experienced in market performance studies.

A second issue concerns the level of capital investment in the fishery. Most writers have concluded that investment in a common property fishery is excessive, and hence inefficient. Yet a recent article by Vernon L. Smith, which is written in response to a "need for generalization, explication, and integration of this previous work"¹⁰ states that, "It does not follow from the models of the present paper that capital requirements are greater or that output (sustainable yield) is unambiguously either larger or smaller under competition than under sole ownership."¹¹ Later, he concludes: "These results, insofar as they stand in contrast to the earlier literature, are due to the explicit hypothesis

Economic Model of a Fishery; Schaefer, *Some Considerations of Population Dynamics and Economics in Relation to the Management of the Commercial Marine Fisheries*, J. FISHERIES RESEARCH BD. OF CAN. 669 (1957); and Bu. Comm. Fish., Econ. Research Div., Working Paper No. 21 (May 1969), Van Meir, *An Economic Analysis of Policy Alternatives for Managing the Georges Bank Haddock Fisheries*.

10. Smith, *On Models of Commercial Fishing*, J. POL. ECONOMY 181, 182 (1969).

11. *Id.* at 191.

that population reduction increases operating cost, while at first increasing, then decreasing, sustainable yield."¹²

All of the above merely point to the fact that even a social goal which seems to find considerable favor in the literature does not lead unambiguously to the attainment of efficient resource use. The presence of considerable uncertainty in a fishery, and the lack of perfect knowledge on the part of biologists and economists, places the conclusions of traditional writers—who favor maximizing fleet profits—alongside other possible conclusions as candidates for acceptance. We would conclude that much serious economic analysis is in order before we can make sweeping conclusions about efficiency, or the lack thereof, in a common property fishery.

Maximize Long-Range Fishing Capability

Those people who worry about national prestige and physical comparisons with other nations suffer considerable disutility from the nature of our fishing fleet. They envision the appropriate goal as that of "fielding" the largest, fastest, and most modern fishing fleet in the world, capable of outdistancing, outlasting, and outfishing any other present or potential competitor. While these people often are members of Congress, their position is probably explained by a vociferous constituency and hence it may be worthwhile to briefly explore this social objective.

Not unlike the goal of maximizing sustained yield from the fishery, the commitment to maximize catching capability is made in isolation from the demand (present or future) for fish and fish products, and in isolation from the costs of achieving this goal. Put another way, the decision would be made in isolation of any considerations as to alternative sources of food supply and would require the assumption that the nation would be able to either consume or exchange the entire quantity of fish caught.

The other consideration to be given such a commitment is that it would require government operation, or at least government franchising. This objective would obviously conflict with established mores concerning the value of competitive businesses, but would find company in present franchising of various public utilities such as telephone and electric services.

12. *Id.* at 194.

Minimize Cost Devoted to Catching Fish

This goal perhaps seems more defensible than any of the preceding ones but suffers from not considering the demand for the product. The objective is to catch a certain amount annually, yet without proper regard for consumer preferences, this makes suboptimization a potential hazard. Nonetheless, the goal makes sense if the political decision is made to catch a certain quantity of fish, although problems arise in implementation. It may require government harvesting through a public fishing enterprise, or the franchising of a private corporation. Under either alternative it would imply the demise of the competitive fishery and in spite of those who would welcome this solution, we merely caution that this is in direct conflict with other social objectives, at least one of which we will discuss momentarily.

Minimize Cost Devoted to Total Food Production

Fish are but one aspect of the nation's food supply and many would argue that it should not be treated in isolation from the larger issue of total food production. Consider the nation's need for protein and assume this is somehow manifest as a demand for a given quantity per unit of time. It is possible to express this need as some given quantity per year and conceptualize the situation depicted in Figure 1.

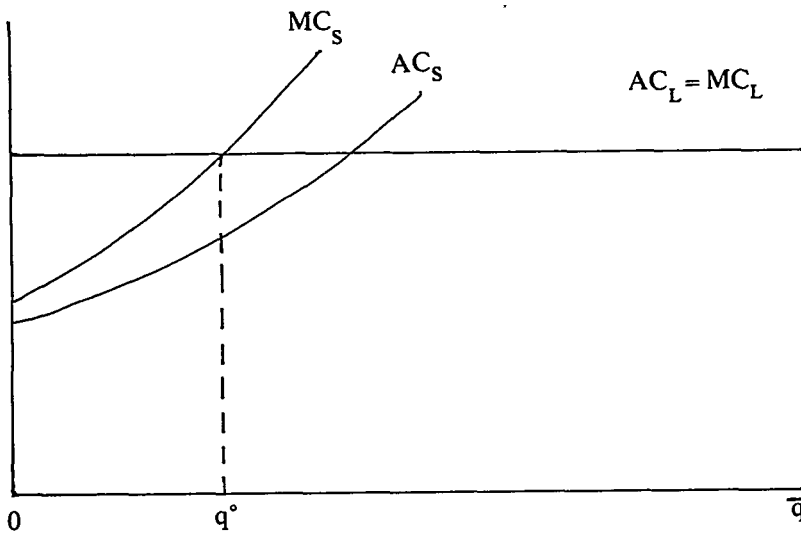


Figure 1. Ideal allocation of protein production between land and sea sources.

Imagine that since the sea produces protein in a form that is easily converted to a useful state, small quantities of it can be produced more cheaply than is possible with land-based agriculture. There, protein production is rather inefficient and initially costs more per unit (ACL) than for protein produced from the sea (ACs). However, because of the finite nature of fish stocks in any one season, as the population diminishes through harvesting it becomes more expensive to catch the remaining fish. As a result, the total costs of the group of vessels pursuing fish rises at a rate proportionately greater than group output. This implies increasing per-unit costs (ACs) and increasing marginal costs (MCs).

Meanwhile, in land-based food production, assume the cost of producing a unit of protein per time period is constant as the quantity produced increases. To talk about the "ideal" combination of protein from land and sea requires that costs be minimized and the relevant functions to ascertain this desideratum are MCs and MCL. The cost-minimizing combination is to produce Oq^0 from the sea, and $q-q^0$ from land.

While this model can be helpful in allocating protein production between land and sea, its utility is not generalizable to comparing fish with red meat. One must have specific information about the demand for these two commodities and be much more sophisticated than we have been here. However, when talking of a homogeneous commodity such as pure protein, the above model would appear helpful.

Implementation may be another matter. Supposedly, producers in each of the two areas would receive signals telling them how to behave, but given that land-based food production is so fraught with artificial signals (commodity price supports, subsidized management advice, institutional rigidities, etc.), and that sea-based protein production has its own set of built-in problems (biological constraints, uncertainty), it is quite unlikely that anything workable could be conceived in the immediate future.

Use Fish as Source for Foreign Trade

A slight variation of maximizing our long-range fishing capability, tainted by a trace of selfishness or benevolence depending upon one's views, would be the catching of more fish

than we annually consume to sell to nations with underdeveloped fishing capabilities, or with total food supply problems. The proponents of such a policy argue that the rich nations have a moral obligation to help feed poorer nations, and besides, we reap some gains in the transaction to stimulate our fishing industry.

Cynics would argue that this bespeaks colonialism and that what we should do is assist these countries to develop their own harvesting capabilities with the eventual goal of permitting them to be self-sufficient.

In either case, the objective would require considerable thought as regards efficiency and equity to be certain about its desirability.

Counteract Economic Decline of Fishing Communities

The final objective for fisheries management to be discussed here might be phrased in terms of enhancing the relative position of the poorer coastal communities. As this nation has developed, and transportation has improved, certain "growth centers" have evolved to capture the majority of increases in economic activity. Because the towns which now are part of the "communities left behind" had little to offer in the way of favorable location, natural resources, or human resources, they have lost ground in their struggle for a piece of the economic action, and correctly so. However, it is becoming increasingly obvious that people are dissatisfied with what economists would label as the epitome of the principle of comparative advantage and have joined forces to counteract this trend.

The initial efforts take the chamber-of-commerce approach which relies on the hypothesis that their community is lagging due to ignorance; ignorance on the part of consumers and producers as regards that community's attributes (its comparative advantage). When this approach fails to reach satisfactory fruition, the next step is to organize support at the "grassroots" for intervention into the normal workings of the economic system. Various "area redevelopment" programs are of this nature and seek to correct what people perceive to be a dissatisfaction with the results of the market.

Thus, it may be that one objective of fishery policy could be to counteract the demise of coastal communities that service the

fishing industry. This is water-based Jeffersonian agrarianism at its best and if carried to its logical conclusion would discourage the development of modern harvesting equipment, improved refrigeration facilities, and better modes of transportation. Instead, there is impetus on keeping as much raw product in the immediate area for processing; processing raw commodities generates considerable value-added for local communities and although leakage of this money is inevitable, the more times it can be spent locally before leaving the area the greater will be the multiplier effect.

In the foregoing we have listed eight possible objectives for fisheries management, none of them necessarily mutually exclusive, and several of them internally inconsistent. They are presented merely to set the stage for our discussion of a legislated institutional change—the nine-mile contiguous zone. We will then do two things: 1) relate the objectives of the legislation to the above possible goals for fisheries management; and 2) discuss the entire process of change in the context of our social decision model.

III. PERCEIVED PROBLEMS AND PUBLIC ACTION: THE NINE-MILE CONTIGUOUS ZONE

An Act:

To establish a contiguous fishery zone beyond the territorial sea of the United States.

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled, that there is established a fisheries zone contiguous to the territorial sea of the United States. The United States will exercise the same exclusive rights in respect to fisheries in the zone as it has in its territorial sea, subject to the continuation of traditional fishing by foreign states within this zone as may be recognized by the United States.

Sec. 2. The fisheries zone has as its inner boundary the outer limits of the territorial sea and its seaward boundary a line drawn so that each point on the line is nine nautical miles from the nearest point on the inner boundary.

Sec. 3. Whenever the President determines that a portion of the fisheries zone conflicts with the territorial waters or fishery zone of another country, he may establish a seaward boundary for such portion of the zone in substitution for the seaward boundary as described in Section 2.

Sec. 4. Nothing in this Act shall be construed as extending the jurisdiction of the States to the natural resources beneath and in the waters within the fisheries zone established by this Act or as diminishing their jurisdiction to such resources beneath and in the waters of the territorial seas of the United States.¹³

On October 14, 1966, the 89th Congress passed the above legislation¹⁴ and within seven months the State Department had negotiated treaties with Russia¹⁵ and Japan¹⁶ that would allow commercial fishing within portions of the nine-mile contiguous zone off the Alaska, Washington and Oregon coasts. We now turn to a discussion of this legislation in the context of problem perception.

The improvement of human well being or welfare is the single objective of government action, legislation, or expenditure in a completely open, nondictatorial and rationally governed society. In an idealistic sense this objective is without argument. The problem arises when one realizes there is no direct measure of welfare. One can conclude that the welfare objective, by itself, does not offer useful guidance to the decision-maker for choosing among alternative expenditure or legislative choices.

Welfare can be viewed as composed of many separate benefits such as increased income, education, improved health, flood control, etc. The decision process becomes more complex with the elucidation of multiple objectives, although it also becomes more meaningful because the objectives are defined operationally. Cruel choices between competing ends now arise. It is clear that the identification of the multiple benefits which compose welfare also does not provide the necessary guidance for choice among alternatives. Rather than become involved in an extended discussion of the analytical tools which may be utilized by decision-makers we will attempt to show the complexity of the benefits associated with governmental action as regards the commercial fishing industry. The nine-mile contiguous fisheries

13. 16 U.S.C. § 1091-1094 (1966).

14. *Id.*

15. Agreement with U.S. and U.S.S.R. signed in Washington, D.C. Feb. 13, 1967, 18 U.S.T. 190, T.I.A.S. No. 6218.

16. Agreement with U.S. and Japan signed in Tokyo, May 9, 1967, 18 U.S.T. 1309, T.I.A.S. No. 6287.

zone will offer an excellent case study of governmental action since we can point to some obvious implications which were not considered for the industry.

Before beginning a short historical statement on the events which led to passage of the nine-mile contiguous zone legislation, it would be useful to discuss governmental action. Governmental action can be stated simply and ideally as a response by government to constituents and the problems perceived by these constituents. A danger in this idealistic statement is the assumption that the problem perceived by the constituents is passed to Congress and governmental agencies unencumbered by a new perception of the problems as it moves through the process. It would seem that this is necessary so that action (solutions) generated reflects and solves the constituents' initial problems. Also there is a danger that the problem as it is perceived by constituents is not the real problem, but merely a statement of the symptoms of a larger problem.

It is most often the case that a single objective for increasing welfare to a group of constituents will run headlong into the multiple objectives for increasing the welfare of society as a whole. Additionally, there is no guarantee that the choices made by governmental bodies will maximize the single objective of the group of constituents through the solution-generating process. Frequently, the solution generated treats the symptoms of the problem rather than the problem itself, or it creates a set of new problems.

The problem as perceived by a group of constituents which culminated in the nine-mile contiguous fisheries zone grew out of the presence of Russian fishing trawlers along the Washington and Oregon coasts at a distance estimated to be 20-30 miles. It should be noted that Russian deep sea fishing operations are characteristically a factory-ship operation and are capable of spending months at sea moving from fishing ground to fishing ground harvesting fish. The commercial fishermen of Washington perceived this action as a two-fold problem: 1) foreign fleets were fishing in international waters which were thought to be traditional United States fishing waters, and 2) the foreign fleets were more technologically advanced and efficient than the domestic fishing fleets—they posed the threat of reducing the fishable biomass to be exploited by U.S. fishermen. It was clear

to this group of constituents that they were at a comparative disadvantage relative to foreign fleet operations.¹⁷

The original problem can thus be thought of as one of a regional nature. The constituents expressed concern to their elected representatives in Congress. Representatives Thomas N. Downing of Virginia and Thomas M. Pelly of Washington, and Senators F. L. Bartlett of Alaska and Warren G. Magnuson of Washington perceived the problem as a national issue, however, with regional implications and sponsored the nine-mile contiguous fishery zone legislation in the House and Senate, respectively.¹⁸ Two major arguments were presented in these bodies as justification for the legislation: 1) the United States had fallen from second to fifth in total pounds of fish landed per year among fishing nations of the world; and 2) the legislation would act as a conservation measure to protect the species of fish subject to exploitation by foreign fleets adjacent to U.S. shores.¹⁹ One can readily see that the problem set suddenly became a *national* issue rather than a *regional* issue.

The Department of Commerce, after being informed by the U.S. Department of the Interior that there was no significant exploitation in the nine-mile contiguous zone,²⁰ concluded that the establishment of such a zone would not reduce the importation of fish and fishery products, and thus would not aid the balance of payments deficit.²¹ The Department of Commerce also stated that there would be no direct benefit to the commercial fishing industry on economic grounds, and therefore recommended against the enactment of the legislation.²²

The Department of the Navy expressed no opposition to the legislation because it did not conflict with the freedom-of-the-seas doctrine relative to warships and aircraft.²³

The Department of the Interior pointed out that prior to the legislation, U.S. fishermen were almost exclusively the only commercial fishing activity in the nine-mile zone.²⁴ However, with

17. *Hearings on Fisheries Legislation Before the Committee on Merchant Marine and Fisheries*, 89th Cong., 2d Sess., Ser. 89-24 at 225 (1966).

18. *Id.*

19. *Id.*

20. *Id.* at 245.

21. *Id.*

22. *Id.*

23. *Id.* at 246.

24. *Id.*

the growth of large-scale fishing operations by foreign fleets, the demand for exclusive rights by segments of U.S. commercial fishermen had grown and the legislation offered a measure through which a portion of this demand could be met. Approximately eleven percent of the average of 5100 million pounds of fish caught by U.S. fishermen between the years 1959 and 1963 was caught in the nine-mile zone under consideration,²⁵ and passage of the legislation would guarantee approximately the same ratio if exclusive rights were given to U.S. commercial fishermen.²⁶

The U.S. Department of the Interior also expressed the possibility of reprisal by foreign nations on U.S. fishing fleets fishing near their shores.²⁷ From a fisheries standpoint, the U.S. Department of the Interior did not object to the legislation because the advantages were balanced with the disadvantages.²⁸ However, the nine-mile contiguous fishery zone would be of little value to the fisheries conservation problem because of the migratory nature of fish.²⁹

The U.S. Department of State offered no objections to the fishery zone,³⁰ nor did the Treasury Department.³¹ The Treasury Department, which at the time of the hearings had jurisdiction over the U.S. Coast Guard, pointed out that there were no penalties for violation of the zone by foreign fleets. Even without penalties, patrol by the Coast Guard would likely deter violation of the zone but would necessitate additional operating expenses.³²

As pointed out earlier, Congressional advocates argued on the grounds of conservation and a need to enhance the international position of the U.S. fishing industry. However, the segment of the commercial fishing industry most directly concerned with the legislation argued from the position of the technology gap, and sought protection. *They couched their argument, however, on the basis of conservation and found sympathetic ears among members of Congress.* In summary, the

25. *Id.* at 247.

26. *Id.*

27. *Id.*

28. *Id.* at 248.

29. *Id.* at 247.

30. *Id.* at 248.

31. *Id.* at 249.

32. *Id.*

industry message to Congress was that stocks of fish must be protected if the United States' production was to be maintained at its present level, and fish stocks not yet utilized by U.S. commercial fishermen must be harvested on a sustained yield basis to prevent their extermination.

This should not imply that the commercial fishing industry was unanimous in the above position. Two segments which disagreed with the nine-mile contiguous zone were the tuna and shrimp commercial fishing industries. The tuna industry argued that the legislation:

- 1) established a unilateral extension of sovereignty;
- 2) would create indefinite boundaries from U.S. shores;
- 3) offered a concept unsupported by existing international law; and
- 4) would have a serious impact on the Geneva convention.

The tuna industry argued that there would be a detrimental effect on the issue of territorial seas and that an undesirable precedent would be set. Also, the legislation offered no solutions to the current problems facing the tuna industry, primarily access to fishing grounds.³³

The shrimp industry pointed out that nature does not recognize imaginary boundaries, therefore the conservation effect of the legislation would be minimal. This industry also recognized that each fishery has separate problems for which separate solutions are needed. There is no universal panacea which will resolve all problems.³⁴

We now turn to a brief discussion of the implications for rational intervention in the fishery.

IV. IMPLICATIONS

Those of us involved with evaluating public intervention argue that there are certain minimal tests which must be passed before intervention is justified; that is, there are both necessary conditions, and sufficient conditions for this intervention. By necessary conditions we mean the existence of a situation where it is obvious that the present status leads to unfavorable results.

33. *Id.* at 313-15.

34. *Id.* at 319-22.

Examples are found in such areas as conservation, health care for the aged, social security, national defense, some transportation, and utilities, to name but a few. While this test can often be rather easy to conduct, the test of sufficiency is much more difficult.

By a sufficiency test we mean the following: 1) develop hypotheses regarding the performance of both the private and public sectors; 2) establish a basis for comparison of the situation both with and without intervention; 3) identify intervention alternatives with the idea in mind that public intervention may be only one of several corrective aids; 4) compile empirical evidence using the above steps as guides to insure asking the proper questions; and 5) based upon the above analysis, offer recommendations.

We have seen in the preceding case study that the sufficiency test was not applied in reaching the decision to establish the nine-mile contiguous zone. As we see it, the underlying problem in this situation was the efficiency gap between domestic and foreign fishing fleets. This problem was unclearly specified by the constituents which then led to an unclear perception of the problem by Congress. Since Congress had never articulated specific goals for domestic fisheries, it had enough latitude to transform the unclear problem into one relating to conservation and national prestige.

We earlier argued that the type of action here considered would be better conceived and implemented if it were accompanied by a social decision model similar to the one developed above. This model should present the best practicable information about alternatives and their consequences; should afford affected groups and individuals an opportunity to be made aware of these likely impacts; should offer these parties some opportunity of participation in the decision process; and should permit the feedback of information so that initial decisions can be modified. We traced through the many components of the system from ocean to consumer and argued that many of these are important enough to warrant access to information concerning impacts from many institutional changes. Upon tracing through the actual creation of the new legislation we saw how little thought was given to the likely impact upon these various components.

Without imposing the informational requirements called for in the above social decision model upon the kind of institutional

change here considered, it is difficult to discern the beneficial effects of the nine-mile contiguous zone. Certainly it is safe to say that precious little thought was given to whether or not the nine-mile zone was the *best* way to achieve some set of social goals in the fishery. That is, even if the necessary conditions for public intervention were met in this case, the sufficient conditions were not even investigated. This means that no alternatives to solve the problem were perused; it means that no hypothesis concerning likely impact from these alternatives were advanced; it means no empirical evidence was brought to bear on these hypotheses;³⁵ and it means that there was no weighing of relative benefits and costs from possible courses of action. That this is economic nonsense is clear; that it is a legislative travesty is even more clear. That we have a long way to go in implementing rational social action in the fishery is indeed most lucid.

35. Few would submit that the testimony of politicians and representatives of various government agencies comprise "bringing empirical evidence to bear" on the issues.