International Conflict and the Sea Fisheries

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Abstract

The threats of the Icelandic codfish war, the dispute between Japan and Alaska over the right to fish in the Shelikof Strait, the efforts of Peru to extend its territorial water up to 200 miles are just symptoms of increasing problems

threatening us by the conflict over the world's common property resources. In order to achieve the maximum benefits from the world's stock of fish, it will be necessary to work out a legal framework that is consistent with biological and economic constraints on output. Failure to achieve such legal agreement will mean that the world's fisheries are subject to competitive exploitation that will physically destroy the fish and their economic value.

INTRODUCTION

THE CENTRAL THEME of this paper can be expressed in three propositions. First, international exploitation of marine resources will continue to expand rapidly in the foreseeable future. Second, our knowledge of the basic factors involved in rational exploitation of these resources is woefully inadequate. Finally, fisheries policy is no longer a matter of national concern alone; whether we like it or not, the American fishing industry is now part of an international community, and our policies must be shaped accordingly.

The rapid acceleration of fishing activity throughout the world is a product of rapidly increasing demand and of improvements in technology that can fairly be termed revolutionary. The increase in demand is as much a product of rising incomes as of physical need. The shortage of animal protein in most underdeveloped areas has been chronic for many years; what makes the present situation different is that many of these countries are now reaching levels of income and of technical skills in processing and marketing sufficient to translate those needs into effective money demand. Even in more developed economies, where food production is no longer a pressing matter of survival, a host of new industrial uses for marine products is still in the expansion phase. Development of a cheap and reliable technique for producing fish protein concentrates would open even wider vistas.

The growth of long range fishing vessels and mother ship operations is rapidly obliterating, at least in a technical sense, the distinction between national and international fisheries. Time and distance are no longer the barriers they once were, and international competition has come to fisheries long regarded as the preserves of individual nations. Though the evidence suggests that most of the high seas operations of major fishing nations such as the Soviet Union and Japan are fully economic (in the sense that the capital and labor invested in them are as productive as in any alternative use), the fact remains that military and political considerations have spurred both research and vessel construction on the one hand and long range operations on the other. The end result of an essentially political decision to expand this type of activity has been an increased economic demand for fishery products and a striking improvement in overall technology, from fishing through retail distribution.

The Present State of Knowledge

Are we fully equipped to deal with this kind of environment in the marine fisheries? On the contrary, the very impetus to research in the marine sciences spurred by the urgency of the developing scramble for the resources of the sea is testimony to our weakness. From the purely scientific point of view, we are not yet near the point where we can provide adequate assessment of stocks. While the "inexhaustible riches of the sea" myth has been laid to rest, the theory of population dynamics is only now reaching the point where attempts can be made to quantify the enormously complex relations that determine the size and productivity of organic marine resources. In the international cases, where the

problem is frequently one of selective exploitation of biologically interrelated species, even our mathematical models need further development. Above all, we have not resolved the measurement problem — the problem of estimating the relevant magnitudes from very fragmentary data, much of it unreliable from the very source. The growing interest in cooperative international research in the marine sciences has stimulated the adoption of uniform definitions and at least a beginning has been made in standardizing data collection and tabulation. The application of mathematical programming and the incalculable assistance provided by the high speed computer offer the prospect of far better biological analysis. Nevertheless, much remains to be done before the contribution of biologists and oceanographers to the definition of the limits of available marine resources and of the functional relationships linking physical effort and short and long-term yields can be considered satisfactory. With few exceptions, notably in the case of the Pacific tuna and in the North Sea, scientific effort has rarely been centered on these crucial relations among the whole complex of interrelated fish stocks available to overlapping national fleets.

We are much farther behind in the field of economics, where both theoretical formulations and empirical studies of fisheries in operation are few and far between. The formal determination of optimal exploitation rates and methods, the study of factors accounting for major fishing and processing costs, and the analysis of the effects of different wage and demand patterns in competing fishing nations all involve difficult theoretical and conceptual problems. At the same time there is an urgent need to develop, at a fully professional level, comparative studies of actual industry performance in the fisheries. Perhaps equally important, very few studies of the economics of the fisheries have ever placed them properly in the setting of the regional and national economics of which they are a part. Yet this is the very essence of the analysis of comparative advantage which must underlie the formulation of a satisfactory framework for multi-national fishery operations.

Even if the scientist and the economist were prepared to define in physical and economic terms the ranges within which fishery operations could be considered satisfactory, there remain a host of unresolved difficulties in the field of international law. Though some progress has been made in incorporating biological concepts of conservation into the law of the sea, the present confused status of that body of doctrine suggests that no really adequate mechanism exists for the rational development of marine resources on a multi-lateral basis.

Sources of International Conflict

The potential for international conflict over marine fisheries is accentuated by the simultaneous need for development of underutilized resources in some areas and for restriction and management in others. In our zeal to rush the development of new fisheries we have rarely laid the basis, in research and data collection, that would enable us to anticipate the need for management or the means to be employed. Partly because they have usually been measures of desperation, and partly because they have usually neglected vital economic considerations, few of the existing management programs can be considered fully successful, even in the relatively simple setting of fisheries controlled by one or two nations.

In general the effective management programs have used one of two techniques: the establishment of fixed catch quotas, and regulation of gear. Since the latter technique has tended, almost universally, to drift into deliberate

restriction of efficiency, it has rarely succeeded in protecting either fish or fishermen. The former has served as the basis for several successful rehabilitation programs, but the success has been limited almost entirely to physical rebuilding of the stocks. Since quota regulations have never been accompanied by effective restrictions on entry, most of the gains in physical output have been dissipated on the economic side by excessive numbers of men and gear attracted by the very rehabilitation process.

Even if these problems could be solved — if we could move to more sensible types of fishery management which promote rather than reduce economic efficiency — there remain inherent sources of conflict in fisheries shared by many nations. Let me illustrate one group of problems by reference to a fishery (not entirely hypothetical) in which nations A and B utilize fully and manage successfully two high valued species, but leave untouched large stocks of other fish for which no profitable domestic market exists. Consumers in nation C, with entirely different consumer preferences, are eager for the very products which A and B cannot market profitably. It is suspected in some quarters that the most economical way of harvesting huge quantities of the lower valued species would damage seriously stocks of the high valued species. From the standpoint of the individual nations concerned both the "abstention" policies (advocated by nations A and B) and the desire to open the fishery (advocated by nation C, are perfectly rational. It is equally clear, however, that the optimal solution for either group alone inflects serious losses — actual or potential — on the other. Simultaneous efforts to follow these inconsistent fishery policies will result in severe losses to *both* groups. The end result must be a resolution through unvarnished political power or a compromise which offers both parties something intermediate between their own optima and disaster.

A second major source of conflict is the fact that general agreement on optimal rates and methods of exploiting a marine fishery can be reached only where the nations concerned have essentially the same pattern of costs. If labor costs are substantially lower in one country than in others exploiting the same stocks, the lower cost country would prefer to expand the level of the fishery beyond that favored by higher cost countries. The area of conflict may be widened, of course, if the relative costs of different kinds of capital and labor indicate the use of different kinds of gear which are not physically compatible. Any Alaskan can provide examples.

In some respects the most perplexing source of conflict in joint exploitation of a marine fishery is the treatment of entrants. As long as a fishery is in its early phases of development, simultaneous increases in fishing effort by the wide-ranging fleets of the developed nations and the more localized fisheries of the new nations can be accommodated. Once a level of maximum sustained yield has been reached, however, severe management measures may have to be undertaken before many of the underdeveloped nations bordering the waters involved have acquired the technical skill or capital required to participate. There is nothing in the law of the sea which permits us to deal adequately with this increasingly common situation. Yet there remains a lingering doubt as to the moral position of the developed nation fully utilizing fish stocks which are geographically and ecologically part of the resource base of less developed countries whose need for the product is as great or greater. Completely free trade would go far to resolve the situation, of course, but it lies as far in the distance as does international cooperation in the sea fisheries.

There also remain lingering doubts about the ultimate wisdom of exploiting

many sea fisheries largely for export markets despite urgent needs for protein food in countries immediately adjacent to them. If this reflects the value placed on fish by informed buyers and sellers in well developed markets (both domestically and abroad) there is every reason for such trade to continue. But in many instances it reflects the rudimentary state of market organization in the primitive economies and their resulting inability to express adequately the urgency of the need and desire for fish products in local markets. The whole process of economic development, carrying with it increasingly effective market organization and marketing skills, may be expected to bring these local countries into more and more vigorous competition with those concerned primarily with the international market. Again, the problem of providing, on a multilateral basis, access to a fishery by a country not previously participating becomes peculiarly important and peculiarly difficult.

There appears to be a general conflict between the concept of "historical right" to participate in a fishery and the requirements of rational development. A good argument can be made that urgently needed fishery potential in many underdeveloped areas is going to waste simply because the necessary technique and capital are not locally available. The logical solution would be the development of the fishery and associated processing and marketing industries from abroad. This is frequently accompanied by agreements under which the advanced nation undertakes responsibility for training of fishermen and processing-marketing employees, and ultimately provides for full control of the operation by the developing nation. Yet this sensible way of speeding the growth of solidly based fishing industries for the benefit of both investing and receiving countries has been impeded by the fear that technically skilled fishermen, once in the area, will establish "historic rights," to the ultimate detriment of the local economy. The development of an adequate framework for multilateral sharing of such fisheries would do much to further their full development while minimizing the possibility of future conflict.

Prospects for the Future

There can be no doubt that the major fishing nations and a host of lesser countries are racing to assure themselves of a place in the last remaining frontiers of the sea. It is equally clear, on *a priori* grounds and from a simple examination of the past, that the outcome of this race must be disastrous. If a fishery is valuable enough and if no protective measures are taken, the resource itself may be badly depleted or even (at least in an economic sense) completely destroyed. If we take the intermediate steps of restricting physical catch only, the productivity of the fish stocks may be maintained, but at the expense of inefficiency, excessive costs, chronically depressed earnings, and increasingly serious friction among the participating nations. Thus far, the only partially effective alternative to these gloomy outcomes is to push the concept of territorial waters to its extreme, thus providing a basis for unilateral management of the fishery in the interest of a single nation. Unfortunately, everyone cannot do this simultaneously.

It is hardly surprising, then, to find that "national fishery policies" are seldom consistent (or even national). American policy, for example, seems to depend entirely on which group is pushing hardest. If the voice of the salmon industry is raised, we seem to be pressing hard for extension of territorial waters. On the other hand, pressure from tuna and shrimp interests may produce an equally earnest argument for relatively free access to the traditionally open

sea. I have no doubt that other policies are available for use if these two seem inappropriate.

As I had indicated in a paper delivered here last year, most fishery economists have reiterated that no other outcome is possible as long as access to a fishery — domestic or international — remains completely unrestricted. The only difference is that the conflicts will be deeper and the possibility of sensible resolution smaller as technology expands the range and effectiveness of fishing gear. The greater the number of countries participating, the greater the disparity of their views as to the right pattern and intensity of fishing effort. A fish stock, like any other resource which yields valuable end products, must be conserved with an eye to future yields in order to achieve the largest value from its use over time. If it is not subject to the control of any group which can exercise effective management, economic losses are certain to result; and if the end products are high priced relative to fishing costs, fishing pressure may easily reach the point where marginal physical yields are negative — the classic overfishing case. The thought of a *world* fishery in which more yield could be obtained from less capital and labor is not comforting.

The essential point to be driven home is that individual national policies based on the desire to get the largest possible share from a "free" resource are inevitably self-defeating. One of the urgent tasks of research — biological, economic, and legal — is to quantify the alternatives available. Only then can it be demonstrated (1) that a "bargaining range" exists within which solutions reasonably satisfactory to all can be reached; and (2) that any of these solutions are superior to the results that inevitably result from completely free fishing with increasingly efficient gear. This is no small task. There remain wide areas of disagreement on some basic theoretical issues, and once these are resolved there is urgent need for detailed area studies of specific stocks and specific fishing industries. These are expensive, and they require rapid expansion in the number of skilled specialists required to carry on both basic and applied research.

Nevertheless, the stakes are high indeed. The prospect of an accelerated competitive race to develop the sea fisheries and the subsequent development of situations all over the world comparable to those which have developed in national waters is frightening. We are already at a point where national policies and some principles of international law are hardening into dogmas which will be most difficult to alter. Since these dogmas seem to bear little relationship to rational economic and physical development of one of the world's great resources, it behoves us to make the necessary effort as speedily as possible.