Madre in Northern Tamaulipas, and a contract has been granted for the construction of an adequate dredge for the purpose, to be delivered for operation in January, 1963.

All of these measures have been approved, and they comprise the program for the present year. It is however considered as a "minimum program" because of the urgency of time, but sufficiently adequate to serve as the basis for the immediate expansion of the industry. However, the Commission is charged with the obligation of preparing and approving a program of action for succeeding years.

This program has a budgeted cost of approximately $28,000,000.00 Pesos, only for those projects directly in charge of the Commission. The largest items in the budget are for the Institute for Biological Research and for the publicity and promotional campaign.

In closing, the industry, fishermen, cooperatives and all concerned are 100% in support of the Commission, the program it has approved and its Chairman, General Abelardo L. Rodríguez, the pioneer of our fishing industry.

What is the United States' Position in the World's Fisheries?

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WHAT IS THE UNITED STATES' POSITION in the world's fisheries? That story is quickly told. It is bad and getting steadily worse both absolutely and relative to the rest of the world. I should like to comment on that and make some suggestions as to how the trend might be changed.

The total catch of fish and shellfish in the United States as recorded by the Bureau of Commercial Fisheries (Fisheries of the United States 1961, CES no. 2900, April, 1962), has remained remarkably stable for a very long while. It exceeded four billion pounds in 1934, and reached very nearly five billion pounds in 1936. It has moved between those two limits with very few exceptions for the past twenty-five years.

This has not been the case with other countries of the world. According to the Food and Agriculture Organization of the United Nations (Year book of Fishery Statistics, 1960) the world catch of fish and shellfish in 1960 (83.2 billion pounds) was approximately double what it was in 1938 and 1948, just before and after World War II. Furthermore it was up by 6% over the record of the previous year (1959: 78.5 billion pounds) and a third more than it had been in 1955 (62.4 billion pounds). While the statistics will not be available for some time, it is obvious from trade information and preliminary reports that the total catch of fish and shellfish in the world has continued this rapid increase during 1961 and 1962. For instance, Peru alone, which is listed by FAO as having a catch of 7.8 billion pounds in 1960, will exceed 12.0 billion pounds of fish catch in 1962, and may reach 13.0 billion pounds.

The incidence of fish catch is far from even among the countries of the world. Out of the more than one hundred independent countries in the world, the top ten fishing countries caught 69.4% of the total world fish production

in 1960, and the five leading fishing countries of the world produced 54.7% of the catch. It seems likely that this disproportion will be even greater in 1962, as three of the five leading fishing countries in 1960 (Japan, U.S.S.R., and Peru) have continued the rapid expansion of their fisheries in the past two years and there has been no startling increase of fish yield among the remaining countries.

Communist China is listed as the second fishing country in the world by FAO in the 1960 yearbook, with a catch of 11.1 billion pounds (1959 data). All economic statistics from Communist China are suspect, and this one is perhaps to be doubted more than most. That there has been a substantial increase in the fresh water fish production in Communist China in recent years seems to be likely. This would stem primarily from the increase in cultivated or pond reared fish and not from natural waters, although there apparently has been an increase in production from fresh-water lakes as well.

What increase in production there has been from sea-fisheries is not known beyond what the Communist Chinese say. It can be stated, however, that in distinction from the other principal fishing countries, fishing vessels of Communist China are not seen elsewhere in the world ocean except in such places as Hong Kong, Macao, and Taiwan, where they have escaped with refugees and stay. Even the Taiwan Chinese who stood twenty-fourth in the 1960 list of fishing countries have fishing vessels that are seen in the tropical Pacific, the Indian, and the Atlantic Oceans. I personally do not think that the Communist Chinese caught as much fish in 1959 as they said they did, or that they are a factor of any great importance in the world ocean fisheries.

The situation of the other three principal fishing countries, Japan, Peru, and U.S.S.R., is different. Their progress in sea fisheries in recent years has been astounding, verifiable, and is continuing. Furthermore, to a substantial extent, these enormous increases in yield can be attributed to causes.

The dominance of Japan in world fish production has been quite consistent during this century. It shrank during the latter part of the Pacific War as fleets were destroyed and areas available for activity were continuously circumscribed by American military action. Directly after the war the industry rebuilt itself swiftly. By 1950 production exceeded that of pre-war years and since 1955, in particular, the geographic expansion of the Japanese fishery has been as phenomenal as has been its increase in production.

Japanese fishermen now fish in practically all the world ocean where it is practical to fish commercially, and in those areas where they are not so active they have well laid plans to become so. Their tuna fishermen fish wherever tuna occur in the Pacific, Indian, and Atlantic Oceans. Their whalers dominate in the Antarctic. Their overseas trawlers are increasing their activity sharply throughout the North Pacific, off East Africa, off West Africa, and are beginning just now in the North Atlantic. Japanese fish along the Equator around the world. They fish up to the pack ice in the Antarctic and the Bering Sea, and will soon be doing so in the North Atlantic. They fish most places in between where a commercial fisherman can make a living, and in many places where those of no other nation can.

The vigor, persistence, and ability of the Japanese fishermen and industry is notorious, and without these characteristics of its men that nation's fisheries could not have expanded as they have. But the activities of the Japanese Government cannot be divorced from any phase of the Japanese fish business.

It is a matter of national policy that the Japanese fisheries expand as an important element of the national economy, as a provider of critically needed animal protein food at home and foreign exchange from abroad, as an employer of Japanese citizens, and as an instrument of foreign policy on the high seas and abroad. The role of the fishing industry as an element of the national military posture has not been evident since the war, as it was so powerfully in the 1930's and during the war, but I venture that somewhere in Dai Nippon some body of men dealing with national policy has this aspect under constant view.

The general policy of Japan in respect to its fishery can be expressed under three compatible headings: To maximize the production of fish by Japanese; to maximize the accumulation of capital in and by the Japanese fishing industry; and to maximize the employment of Japanese by the fishing industry. The Japanese Government is well equipped to carry out this policy and it does so with vigor and high adaptability. In the Ministry of Agriculture and Forestry there is a large and vigorous Fishery Agency; in the Ministry of International Trade and Industry there is an important fishery section; in the Ministry of Foreign Affairs overseas fishery matters get prime attention. Official committees from these three Ministries have Japanese fishery problems under constant review. Committees combining government and industry elements exist for overall policy and for keeping particular problems under constant review. There is freedom for an individual or a company to make a million or to go broke, but if a considerable segment of an industry stands in economic danger credit facilities are available from a variety of government sources to tide over the emergency, and flexibility of tactical policy is available to correct quickly, or mitigate, the cause of the trouble.

As a matter of fact, an outsider is struck by the fact that from Prime Minister to the lowest fisherman the Japanese Government and fishing industry is a remarkably flexible and resilient machine designed and equipped to carry out the above noted three pronged national policy. While competitiveness amongst its elements is as vigorous and throat cutting as in the United States fish business, or even more so, unlike here it is not only permissible for elements of the fishing industry to combine on ventures of all sorts but if excess competitiveness gives evidence of slowing down the growth of a segment of the industry, the government has no hesitancy whatever to step in and force collusion and cooperation in the most intimate and critical details of a firm's or individual's business.

It would be easy to remark contrasts between the U. S. and Japanese systems, such as the elaborate fishery educational system, the research vessels that roam the world to put fishermen on fish, the solid support of its fishermen and marketers abroad, and the integration of industry, science, technology, foreign and domestic policies to constantly improve the industry's economic situation vis-a-vis the rest of the world. The sum and substance of the matter is that Japan is the dominant factor in the world fish business, has been for a long while, and has enormous strength in variety and depth.

Although Peru in its first mad dash may overreach Japan in a year or two temporarily, and Russia also is evidencing remarkable power in the development of high seas fisheries, I venture the opinion that ten years from now Japan will be the top fish producer in the world as it was ten years ago, twenty years ago, and twenty years before that.

It has been known for a very long time that the near shore ocean off Peru was remarkably productive. I remember my freshman instructor at the College of Fisheries dwelling upon that subject thirty-five years ago. Prior to World War II Peru's fisheries were scarcely beyond a subsistence level. By 1948 they were producing 36,000 metric tons a year only. By 1955 production had increased to 213,000 metric tons. By 1960 they had increased productivity to 3,551,000 metric tons. In 1962 the production of one species of fish alone in Peru, anchovy, will exceed 6,000,000 metric tons and may reach 6,500,000. The industry at this moment is expanding at an enormous rate. It is obvious that the total production of fish in Peru in 1962 will exceed that produced by the leading fish country of the world (Japan) in 1960. Such a remarkable expansion of a nation's fishery, or a fishery for one species by many nations, is without reasonably close parallel in the history of the world.

While the primary productivity of the seas immediately off shore Peru is remarkably high, the recent phenomenal development of fish production there has not abeen entirely due to geographic chance. The Government of Peru has also played a vital role in this development. An industrial development of this sort cannot, in an industrially underdeveloped country, take place so spectacularly without foreign know-how, capital, and a stable and favorable economic and governmental climate. The Government of Peru during the decade of the 1950's and so far into this decade has provided that climate and that encouragement to both foreign and domestic entrepreneurs.

While the role of the Japanese Navy in the pre-war development of the Japanese fishery is well known and the role of the Russian Navy in the present rapid development of the Russian fishery is suggested, the important role of the Peruvian Navy in the development of the Peruvian fishery is not so generally recognized. It can be stated without elaboration that the role of top Peruvian naval officers in creating the favorable governmental climate, in managing the fishery at sea, in furthering the attraction of foreign know-how to Peru, in securing the establishment of solid ocean research programs in the area, and in providing the legal apparatus by which these things could be done, has been of critical importance to these developments.

It may be noted that when conflict of interest over use of this resource arose in Peru, the Peruvian Government resolved that conflict in favor of a broadly based commercial fishing industry; when world market conditions threatened the industry's economy in 1960-61, the Peruvian Government proceeded internally and internationally to provide the governmental machinery to resolve the problem; when the rapid expansion of production gave rise to worries about stability of the stock of fish, the Peruvian Government obtained international scientific assistance adequate to inform it as to what should be done to safeguard the resource.

As soon as it became solid governmental policy in Peru for the commercial fishery to expand, that policy was implemented and the fishery grew. In the absence of shipyards, it built a thousand modern purse-seiners in vacant lots and backyards. In the absence of processing machinery, it imported old plants until it could afford to buy the best. In the absence of trained masters and crewmen for its vessels, it brought down Indians out of the Andes who had never seen the ocean, and trained them. It improvised, it gambled, it cut corners, and it has grown with amazing speed and sturdiness. It is presently growing more rapidly than the fishing industry of any other country of the world.

It is not easy for Russia to go out upon the sea. In the Pacific nearly all its ports are closed by ice for considerable periods of the year, as is its northern coast line. Its Baltic ports are a long distance from the productive waters of the North Sea and North Atlantic. Its Black Sea ports are removed by the distance of the fish-poor Mediterranean from good fishing grounds.

Russia has been known for centuries as the epitome of a land power with little sea-going ability. Yet in the past five or six years Russia has become the third or fourth fishing power of the world (depending on where you put Communist China) and leads the United States, which as late as 1955 was the second fishing country in the world, by a substantial margin. Furthermore the expansion of the Russian high seas fishery appears to be just nicely getting under way while that of the United States is still standing still, or retrogressing.

I will leave it to intelligence officers and political commentators to iterate the military significance of Russia's expanding high seas fishing ventures. I can only say that what I have read about it, what I have seen of it, and what my colleagues in other countries tell me about it persuades me that the Russian fishery expansion has been ably planned and is being skilfully carried out simply as a fishery venture.

It is always easy for us in the United States to say of socialist ventures that there is no possibility for us to compete because we have to watch costs and they do not. A recent paper by S. C. Mikhailov (Okeanologiia 2(3): 385-392, 1962) entitled "On the Comparative Efficiency of Production of some Products of the Land and the Sea" begins as follows:[1]

> "For a socialist society with its planned economic system and scientific analysis of production, it is far from being a matter of indifference at what cost in labor and materials expended one or another product is obtained."

Professor Mikhailov continues to examine the costs in labor and capital (both invested and working) involved in the production of meat (beef and pork) on the Russian state farms and the production of fish (including whales) by Russian vessels. He sums this up in his table 2 where he shows that to produce 100,000 tons of meat requires the capital investment of 2 to 2.5 billions of rubles whereas to get the same yield of fish requires a capital investment of only 1.5 to 1.7 billions of rubles; he estimates that it would require production costs of 600 millions of rubles to produce this much meat and only 200 millions of rubles to produce that weight of fish; and finally concludes that to produce this much meat on the State farms would require 5.4. millions of man-days whereas that weight of fish could be produced by a labor expenditure of only 1.35 millions of man-days.

No matter what one thinks of the efficiency of Soviet agriculture, or high seas fisheries for that matter, such a set of figures would lead an American capitalist to put his money on fish production as quickly as it would a Soviet bureaucrat. At any rate it is not at all safe to assume that the Russian high sea fishery venture has any other motivation than that Russia requires animal protein for the diet of its human population, it will require greatly additional volumes of this as its economic standards continue to improve, and its planners are convinced that this can be had from the sea more cheaply than from the land. That large, long-range fishing vessels are useful militarily is only a plus

[1]Translated from the Russian by W. G. Van Campen, Bureau of Commercial Fisheries Laboratory, Honolulu.

factor that our Navy is wealthy enough to ignore.

At any rate I assume that the Russian fishing effort is solidly based in nutritional need and economic justification, and that it is going to be with us for a long time.

The expansion of the Russian fishing effort is an enormous undertaking. The educational system has been geared to produce the required personnel; the scientific apparatus has been geared to provide scientific assistance on a scale we do not contemplate in our fisheries and that our fishermen are neither trained nor habituated to use; while Russian shipyards and those of other Soviet countries turn out a great variety of fine modern vessels, many of which in size and seaworthiness completely overshadow our best and biggest, great fleets of fine big vessels have been purchased from British, German and Danish yards. It has recently been reported (Minato Shimbun, 26 October, 1962) that Russia has offered to buy $100,000,000 worth of fish processing and carrier vessels from Japan.

The FAO reports the following production of fish by the Union of Soviet Socialist Republics, in thousands of metric tons, for recent years.

1948	1,485.0
1952	1,888.0
1953	1,983.0
1954	2,258.0
1955	2,500.0
1956	2,620.0
1957	2,530.0
1958	2,620.0
1959	2,760.0
1960	3,050.0

A doubling of fish production in ten years time is not as spectacular as Peru's achievement, but Russia has had to do it the hard way. Its planners have said what they were going to do, their statisticians have later said what they have done, and this has matched up pretty well. Unlike the contentions of the Communist Chinese, no alert person involved in the sea fisheries of the Northeast Atlantic, the Northwest Atlantic, West Africa, South Africa, Antarctica, Northeast Pacific, or Bering Sea questions that the Russian fleets are out in force catching fish in those areas with magnificent vessels of which we are all jealous. The Russian planners say they are just getting a good start. As long as the production of beef and pork in the Soviet Union remains so inefficient it can be guessed that they are correct.

Having examined all of this activity in other countries one may look coldly at whether it is in the interest of the United States to join the parade of high seas fishing expansion and if so how this might be accomplished.

It is a matter of considerable congratulations amongst the sellers of fish in the United States if the per capita consumption of fish goes up two or three tenths of a per cent, and of heart rending pessimism if it goes down as much. The fact is that when the per capita consumption of fish in the United States is plotted on a scale suitable to illustrate the per capita consumption of meat and poultry in the United States not the slightest wiggle is seen in the fish line from 1930 to the present day. Since 1935 the per capita consumption of meat and poultry in the United States has risen from about 120 pounds per annum to about 178 pounds. During this period of time the per capita consumption of fish did not reach 11 pounds per annum.

Furthermore the proportion of the domestic catch used for human con-

sumption has been declining rather steadily since 1920 as the portion of the catch used for making industrial products increased. The absolute amount of the catch used for human consumption reached its peak in 1950 and has been declining rather steadily since then. The amount of the catch used for industrial use has trended up steadily since 1920, reaching a peak in 1959, which was not much greater than in 1961. In two out of the past three years more of the catch has been used for industrial products than for human food.

Additionally, since 1950 while the catch of fish for human food by U. S. fishermen has steadily declined (from 3,307 million pounds in 1950 to 2,479 million pounds in 1961) the import of edible fishery products has risen steadily (from 640 million pounds in 1950 to 1,067 million pounds in 1960). During the same period of time the export of edible fish from the United States has halved (from 122 million pounds in 1950 to 61 million pounds in 1960).

From these statistics the following harsh conclusions can be reasonably drawn:

1. The elasticity of meat and poultry production in the United States use of fish is declining sharply and steadily relative to that for meat and poultry in the United States.
2. The trend in the United States is to use fish for industrial purposes not as human food.
3. Of the amount of fish used for human food in the United States the trend is toward the use of imported products.
4. While imports of food fish have steadily increased the export of edible fish has just as steadily decreased (during a period when the use of fish in the world totally has approximately doubled).

There have been two notable exceptions to this trend. The per capita consumption of tuna has a little more than trebled since 1940 and nearly doubled since 1950. Also the per capita consumption of shrimp has a little more than doubled since 1940 and has increased by nearly 50% since 1950. It does not follow from this that the increase in use of tuna and shrimp has been from U. S. production. The percentage of U. S. tuna pack made from the domestic production declined from 73% in 1950 to 43% in 1960. The percentage of the shrimp supply from domestic production declined from 76% in 1951 to 43% in 1961.

The strong suspicion in my mind, for which a considerable amount of data is available but for which there is not space here to develop, is that most of these trends adverse to the U. S. fishing industry are the result of price competition. In the product among these with which I am most familiar it is not difficult to demonstrate that when the average price per can of all the tuna sold in the United States increases by a few tenths of a cent consumption levels off or declines and that when the price moves down again by a few tenths of a cent per can consumption continues its long term increase. It is also easy to demonstrate that every time the domestic fleet ties up to maintain its tuna price some other fishermen in the world (mostly Japanese) build additional tuna vessels to fill the space left in the market.

There is one other unfavorable factor to take into consideration in this gloomy picture. I have mentioned the putative effect of naval interest on the progress of the thriving fishing industries of Japan, Peru, and Russia. Substantially speaking this factor does not exist in the United States. Occasionally an officer of high or low estate in the United States Navy takes a mild interest

in the progress and fortunes of the United States fishing industry and optimists among us conclude that the Navy is about to become interested in us. This moment of budding passion always vanishes without issue when the officer is returned to duty at sea.

Furthermore, as a practical matter, this is unlikely to change. The number of vessels over five gross tons in size obtaining documents as fishing craft each year has declined steadily from a peak of 1,300 in 1947 to 432 in 1960. The total number of these in the fishery was 12,018 in 1960 having a total gross tonnage of 402,312. But of these 11,491 were less than 100 gross tons in size and could not be conceived to have much application to the problems with which the United States Navy may be called upon to contend. Another 356 of these were between 100 and 199 gross tons in size; another 83 were between 200 and 299 gross tons; 54 were between 300 and 399 tons; and only 34 were 400 gross tons or larger in size. With the size of budgets that the U. S. Navy has had in recent years it would rather get vessels of the larger size noted above out of its mothball fleet to save the expense of maintaining them, and build new when it needs. For the smaller sizes it has no use. At least this would appear to be a reasonable accounting for the Navy's attitude toward the U. S. fishing fleet.

What, then, is to be done by the U. S. fishing industry to get back into the swing of things in competition on the high seas?

Whatever is to be done, it seems plain that it must be done by the United States fishing industry itself, and through its trade associations. The situation of the industry's trade associations has deteriorated steadily during the past ten years chiefly through lack of financial support from the industry. Certainly it is not going to be easy to correct these adverse trends and one man can give no more than a few ideas calculated to stimulate further thought by others. Some that occur to me follow:

1. Highly industrialized nations prosper when they put science and technology to work to lessen the cost per unit of a product, or improve its quality, or increase the value per unit to the consumer. This works best in the resource field where there is large scale, highly efficient harvesting of resources. In our field this would look toward the use of larger vessels using more efficient gear to harvest greater quantities of resource at lower labor use per ton. This seems to be working reasonably well in the purse seine fishery for menhaden and for tropical tuna. One cannot believe that ingenuity in developing such large scale efficient harvesting methods has been exhausted. By and large, however, the United States fishing industry is suspicious, or at best contemptuous, of science and technology and their practitioners.

2. One of the more difficult problems in many fisheries is the desperate desire of the fishermen not to maximize his earnings per day, per month, or per year but instead to maximize the price per pound or the price that he rceeives per ton of his product. In the competitive society in which we live, stopping fishing to raise the unit price of raw material simply is no longer practical. In the fishery field this leads inevitably to the increase of imports with consequent loss of market and earnings to the fisherman. Where this does not happen the increase in price of end product results in consumers switching to other meat or poultry products.

3. In many of our fisheries the quite bonafide attempts to conserve one or more species of fish from over-utilization has accidentally led to the economic

crippling of the commercial fishery of a whole area. For instance regulation of salmon take by limiting the size of purse seiners in Alaska has made it almost impossible to develop larger, more efficient vessels for use in other fisheries of that region. The individual fisherman must depend so much on his seasonal earnings from salmon that he has to be able to fish for them. He cannot afford two boats so he builds an Alaska size purse seiner. This limits him from getting out on the high seas of the Gulf of Alaska in the weather normal to that area. Examples of the same sort could be enumerated ad nauseum where conservation, by increasing the inefficiency of the gear, has eliminated the commercial fisherman. In some quarters it has become a conservation fetish simply to rule out efficient gear in order to make it uneconomical for fishermen to work.

Some way must be found out of this blind channel. In the Pacific Northwest this is now being forced by the incursion of large, efficient Russian and Japanese vessels working on unexploited resources beyond the territorial sovereignty of the United States. Northwest habits and practices will change or the Russian and Japanese vessels will have the fish. Not dissimilar situations are developing off New England in the herring and other fisheries.

4. In many areas the competition between using resources for commercial fisheries or reserving the resources for recreational or aesthetic purposes is an important factor hampering the development of a commercial fishery. For instance the largest apparent fishery resource off California, anchovy, goes substantially unused from this cause.

In some instances the commercial fishery is abandoned completely because the sport fishery can use the maximum sustainable productivity, but this does not seem to be a frequent situation, nor to involve many fish stocks capable of supporting substantial commercial fisheries.

In other cases an ignorance of the natural conditions causes inefficient utilization. A good example of what biological research can contribute to the solution of such a problem is provided by the controversy between kelpcutters and kelp-bass sports fishermen off California. Competent scientific inquiry produced the unexpected information that in the most controversial area where the kelp was being cut and harvested regularly the production of kelp-bass was consistently greater than where it was being left unharvested. (University of California, Institute of Marine Resources, Annual Report, 1961-1962).

This sort of problem is the most vexing one plaguing the near shore fisheries of the United States. In a lifetime of dealing with such controversies I have never seen one solved other than by one of two methods: legislating the commercial fishery out of existence, or producing impartial scientific information with which the controversy can be settled.

5. There is a general reluctance in even the largest fisheries to provide the necessary economic data to a competent university economist, or to hire for private confidential purposes an economist, to study the economics of a total fishery. Yet it is obvious to those engaged in the fisheries that the economics of commercial fisheries are exceedingly complex and not well understood by those most intimately acquainted with the fishery.

The method of regulating the halibut fishery in the Gulf of Alaska might be felt by the casual observer not to be much connected with the economics of the albacore fishery off Baja California, but it is. Similarly there are economic relationships between the latter fishery and the yield of skipjack off southern Japan, although the species do not directly compete on the market at any point.

One cannot help but believe that competent economic analysis could provide much of benefit to the American fisheries.

6. A primary sort of controversy in the world's fishery is that between the small, local, inefficient coastal vessel and the large, highly efficient vessel from a distant port. Until recently this has not been much of a problem to United States fishermen, but it is becoming so in the northeast Pacific and the northwest Atlantic, and this will increase.

At least one of the things needed is the negotiation of a treaty laying down rules for fishermen on the high seas so that interference between different sorts of gear will be kept to a minimum.

A great many things of this sort can be suggested but the key factor is that the cost of fish must come down in the United States to compete with the imports and with meat and poultry. If the price does not come down. the fishery will.

The difficult part of this is that while the price of raw material must decrease the earnings of fishermen and boatowners must go up at the same time. The first is necessary so that boatowners can compete in the labor market for top, skilled hands; the second must happen so that competition in the capital market will provide the top fisherman with a modern, efficient boat in which to exercise his talents and skills.

This twin necessity is the true challenge we face.

If these things cannot be accomplished then the United States commercial fishery will continue to stultify or retrogress; to the extent that they can be done it will forge ahead with those of the other principal fishing countries.

As with every other part of a free economy, and in the last analysis (as Professor Mikhailov has said) in a socialist society, the capital and labor cost of a fish product must be competitive with those of products that can be substituted for it or the fishery must perish.

Whatever contributes to lowering the cost per ton of fish without lowering the earnings of fisherman or boat will cause the United States fishery to grow; whatever contributes to increasing the earnings of fishermen or boat without increasing the cost per ton of producing the fish will have the same effect. If the price of fish does not come down the fishery will not grow; if the earnings of fishermen and boat do not increase it will not grow either.

Whatever stands in the way of these movements must disappear or the commercial fishing industry will. Whether this challenge can be met without solid government support, urging and assistance as in Japan, Peru, and Russia is moot.

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