

Increased U.S. fish consumption and a static domestic catch have led to heavy dependence on foreign imports.

Factors in the Fish Picture of Concern To Industry and Consumers

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INTRODUCTION

Considerable attention was focused on fishery products during the spring 1973 "boycott" of meats carried out by many U.S. consumers. Fish and shellfish sales were brisk and consumers in at least some areas formed long queues to purchase fish. No doubt these lines included some very occasional fish eaters—perhaps some new ones—but it is likely that a large number were already regular consumers of fishery products.

The fact is fish and shellfish have a traditionally important place in the U.S. food and nutrition picture. Thus, the "boycott" phenomenon likely will be recorded as a relatively minor incident in the history of fish consumption in the United States. Nevertheless, the incident did bring to the surface nagging questions regarding the outlook for fishery supplies and, of course, prices. The concern was whether the supply potential was adequate to meet the requirements of any sudden surge in demand for fish in the United States. Probably it is not, in the short run,

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although the longer run picture could be brightened by way of improved stock management, development of underutilized species, and aquaculture. Because the short run commands our immediate attention, it is useful to review aspects of the position of fish in the present food and nutrition picture.

U.S. FISH CONSUMPTION

The United States is one of the largest users of fishery products in the world. In 1972, U.S. consumers disposed of the equivalent of about 6.8

Table 1.—Per capita fish consumption in several selected countries in 1972.

Nation	Pounds edible weight
U.S.	12.2
Germany	8.9
France	17.7
Italy	13.7
Netherlands	12.9
Switzerland	9.7
Argentina	4.8
Australia	12.9
New Zealand	14.5

billion pounds of whole fish, in various product forms. Additionally, about 7 billion pounds were used in the form of feeds, pet foods, and other industrial products. Only Japan, the People's Republic of China, and the USSR consume more fish than the United States.

Consumption of fishery products in the United States, on a per capita basis, is relatively small compared with meat and poultry. A record 12.2 pounds per capita of fish consumed in the United States in 1972 compares with about 189 pounds for meat (beef, veal, pork, lamb) and about 52 pounds for poultry. Nevertheless, fish have an important role as a "change of pace" item in the general U.S. diet and, in some cases, as an essential part of special diets. It is relevant that lifting of the U.S. Catholic religious ban on eating

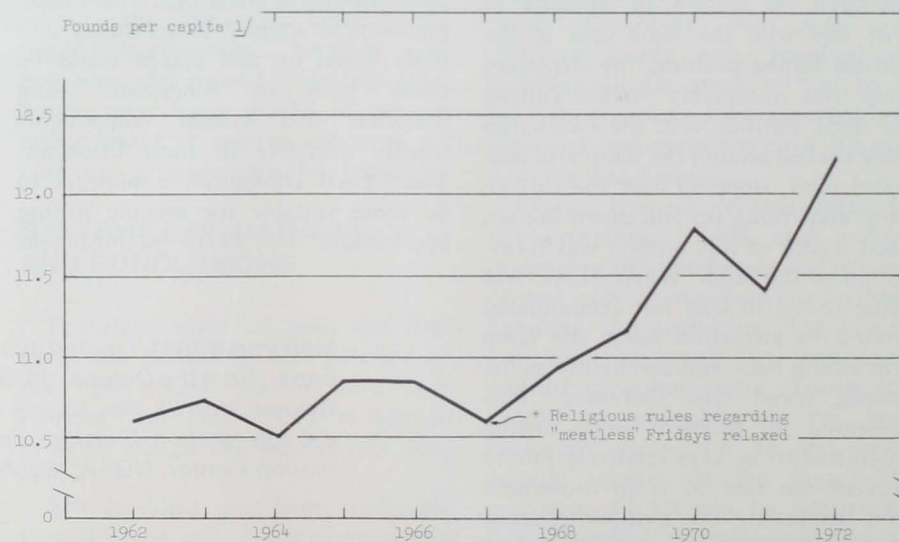


Figure 1.—Per capita consumption of fishery products in the U.S. (pounds per capita, edible weight), from *Fisheries of the United States, 1972*.

meat on Fridays, which occurred in 1967, had no discernible lasting effect on fish consumption. In fact, per capita consumption climbed steadily thereafter (Figure 1).

Per capita consumption of fish in the United States also is consistent with levels consumed in other countries where meat production is high, and with other industrialized countries where large populations are concentrated at a distance from coastal areas (Table 1).

DEMAND INCREASING FOR FISHERY PRODUCTS

Increasing consumption and rising prices are the two major factors that point to increasing demand for fishery products in the United States. Since 1960 the total quantity of fish and shellfish consumed in the United States has increased 67 percent. Representative retail prices during the same period increased about 80 percent. For perspective, it is useful to note that the U.S. population has increased only 16 percent since 1960, and the average gain in prices for all foods has been about 40 percent. The data in Table 2 summarize these comparative changes in the United States.

Table 2.—Per capita U.S. fish consumption and consumer price indexes since 1960.

	1960	1972	Percent change
Total fishery products used in U.S., (million pounds, live weight)	8,223	13,753	+67.3
Per capita consumption edible weight (pounds)	10.3	12.2	+18.4
Consumer price indexes (1967 = 100)			
Fish	85.0	152.8	+79.8
Meat	87.2	129.2	+48.2
All food	88.0	123.7	+40.6
All items	88.7	129.8	+46.3

The rise in demand for fishery products is associated with increasing incomes for, as their incomes increase, consumers seek to improve their diets. In the United States, per capita buying power ("real" disposable income) has increased over 40 percent since 1959

and the gains in per capita consumption of major protein foods shown in Table 3 were made during the same period.

Table 3.—Per capita consumption of major protein foods (in pounds) in the U.S. since 1959.

	1957-59 Average	1972	Percent change
	Pounds		
Meat	156.6	188.8	+20.6
Fish	10.5	12.2	+18.4
Poultry	33.5	51.8	+54.6
Cheeses	7.9	13.1	+65.8

DIET IMPROVEMENT IN MANY PARTS OF THE WORLD

The trend toward better eating has not been confined to the United States. Worldwide, incomes and standards of living have been rising, giving impetus to improve diets. Probably the best example is Japan, where "real" per capita income has increased more than 2.5 times since 1960. The Japanese have responded by decreasing their use of cereals, for example, and increasing their intake of such foods as meat, eggs, fish, and milk (Table 4). Similarly, diets have improved in other nations where there has been notable economic growth—Italy and Spain, to cite examples.

Worldwide, signs of diet improvement are seen in growing consumption of animal proteins with fishery products prominent in the growth picture (Figure 2). In Japan, for example, fish and shellfish provide over 50 percent of the animal protein in the average diet; in the Philippines, the figure is 48 percent. Among European countries, fish provide as much as 17-18 percent of the animal protein consumed, and the average for the continent is

Table 4.—Changes in Japanese consumption of staple foods since 1960 (in grams per person per day).

Food items	1960-62	1970
	----- Grams -----	
Cereals	410	352
Starches and other staples	185	161
Fruit	83	142
Meat	22	48
Eggs	24	45
Fish	80	88
Milk	69	137

probably around 10 percent. In the U.S. and in Canada, about 5 percent of the animal protein consumed derives from fish, while in South America the percentages run much higher—26 percent in Peru, for example.

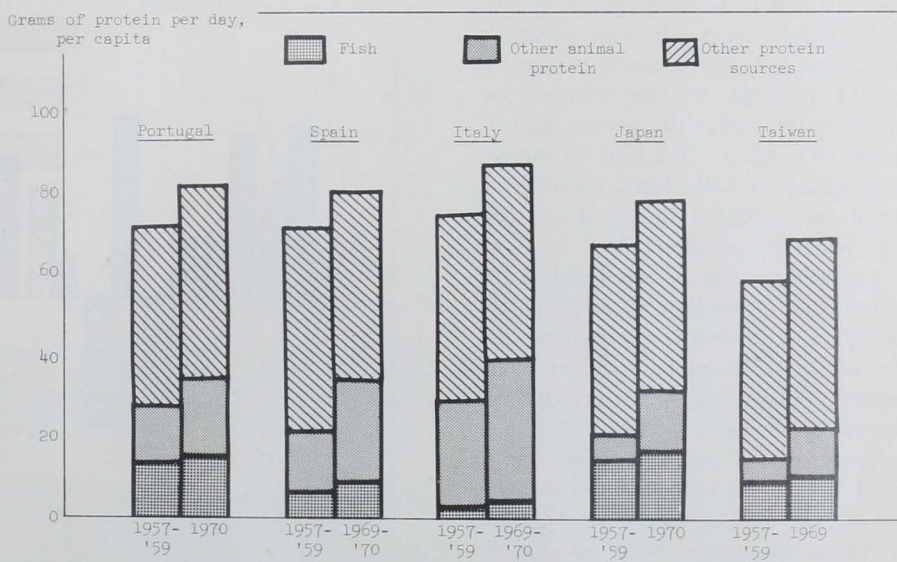


Figure 2.—Some examples of countries with rapidly developing economies where protein consumption increased substantially during the 1960's.

INCREASED INVESTMENT IN FISHERIES

The swelling demand for fish throughout the world has generated increased investment and effort in fishery enterprises in many nations, for international trade and feeding home populations, as well. Between 1965 and 1970 the number of powered vessels in the Japanese marine fleets increased 22 percent, from 217,156 to 265,652. At the same time, the number of non-powered vessels decreased by more than a third. Significantly, the increases in Japanese fishing fleets include a substantial gain in the number of large vessels capable of operating in distant waters (Table 5).

Table 5.—Increases in Japanese fishing vessels, 200 tons and over.

	Number of vessels		Change	
	1965	1970	Number	Percent
200-499 GT	824	1,251	427	51.8
500-999 GT	97	117	20	20.6
1000 GT and over	156	208	52	33.3

In the United States there has also been some expansion of fishing fleets. The number of powered vessels increased 13 percent during 1965-1970 from 76,139 to 86,400. Much of the gain has been in small craft, under 5 gross tons, and there has been only a modest increase in the number of larger vessels. Over the 5-year period, about 98 vessels, 200 tons or more, were added to U.S. fleets, whereas in Japan about 500 of the larger vessels were put into operation.

The differential between the U.S. and Japan, in number of large vessel additions to fishing fleets, underscores the essential characteristics of U.S. fisheries operations, which are carried out in fairly close proximity to our national shores, by relatively small-sized vessels. In U.S. fleets, about 17 out of every 1,000 vessels are 200 tons or more, compared with 60 out of every 1,000 Japanese fishing craft in this size class. This is consistent with

the fact that 75 percent of the U.S. catch is taken in waters within 12 miles from U.S. shores. An additional 13 percent comes from "offshore" fisheries, and only 11 percent from distant waters, off foreign coasts. In contrast, 40 percent of the Japanese sea fisheries catch is from "distant" waters.

FISHERIES GROWTH IS DECLINING

Increased fishing effort has resulted in heavier catches, by various countries. The world catch increased 30.5 percent from 1965 to 1971. Large gains were made by the leading three fishing nations: Japan (43%); USSR (44%); and Peru (39%). The U.S. catch during the period increased only 2.6 percent. (The U.S. ranks 6th in the world in total fish catch, down from 5th place in 1965.)

The trend in world catch, however, shows a declining growth rate. For the period 1960-1966 the annual compound percentage growth was 6.1 percent. Over the ensuing 5 years—1966-1971—growth averaged 4.1 percent. The best description of the U.S. catch since 1960 would be that it has been relatively stable. Over

1960-1966, there was a slight decline of about 2 percent per year, compound rate, which was offset by a yearly gain of 2.7 percent from 1965 to 1971. There was, however, slippage in 1972, when there was a 5 percent drop in landings from a year earlier.

The disparity between changes in the U.S. and world catch of fish (Figure 3) has caused the U.S. contribution to world catch to slip from 5.6 percent in 1960 to 3.2 percent in 1971, as shown in Table 6. The more pronounced

Table 6.—U.S. contribution to world fisheries catch since 1960 (million pounds).

	1960	1971
World catch	88,000	153,000
U.S. catch	4,942	4,969
U.S. percent of world catch	5.6	3.2

changes in the world fish catch relate to species processed for industrial or other nonfood uses (particularly animal feeds). The gains in catches for human food have been modest worldwide and this part of the U.S. catch has been declining.

In 1971, the world catch for human food comprised 60 percent of the total, compared with 79 percent in 1960. The U.S. catch in 1960 was

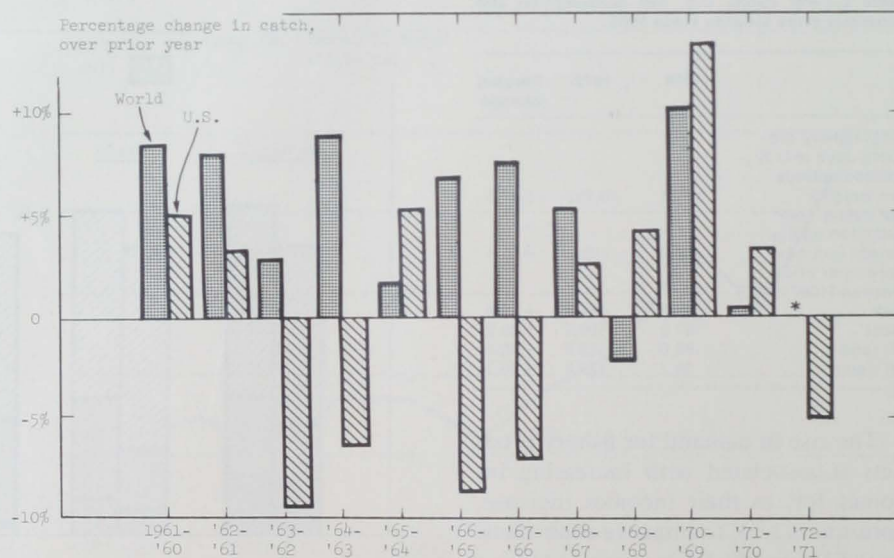


Figure 3.—The U.S. has not matched growth in world catch (world catch data for 1972 not available). Source, United Nations Food and Agriculture Organization, *Yearbook of Fishery Statistics, "Catch and Landings,"* 1971, Vol. 32.

divided about evenly between "human food" and "other" purposes. The latest recorded U.S. catch (1972) shows a slight edge for quantity landed for other than human food (Tables 7 and 8).

Table 7.—Compound annual growth rate (percent) in U.S. and world fish catch since 1960.

	1960-66	1966-71	1971-72
World catch for:			
Human food	+ 3.3%	+ 1.8%	N/A
Other purposes	+ 13.8%	+ 8.3%	N/A
U.S. catch for:			
Human food	+ 0.5%	- 1.5%	- 3.7%
Other purposes	- 5.0%	+ 7.4%	- 6.6%

Table 8.—Actual change in composition of U.S. and world fish catch since 1960 (million pounds).

	1960	1971	Percent change
World catch for:			
Human food	69,080	91,800	+ 33
Other purposes	18,920	61,200	+233
U.S. catch for:			
Human food	2,498	2,400	- 4
Other purposes	2,444	2,569	+ 5

CONCENTRATION IN U.S. FISH CONSUMPTION

The U.S. appetite for fish and shellfish extends over a multitude of species, but there is heavy concentration in a few products. Canned tuna and shrimp, for example, account for 35 percent of fishery food products consumed in the U.S. (24 percent tuna, 11 percent shrimp). Add in canned salmon, and sticks and portions, (the latter manufactured from frozen blocks of fillets which are mostly cod) and 61 percent of U.S. consumption of fishery products is accounted for.

Consumption patterns follow the mix of U.S. landings wherein the traditional leading species are tuna, salmon, and shrimp. The three species account for nearly half the U.S. catch of fish sold for human food. The remainder of the catch includes a large variety of fish and shellfish, among which the leaders (in terms of quantity) generally are crabs, clams, flounder, and oysters.

IMPORTANCE OF IMPORTS

There has been little change in the quantity of U.S. landings of fish over the past several years, although demand and consumption have increased steadily. Imports have made up the discrepancy, and the United States is the world's heaviest importer of fishery products (Figure 4). Between 1960 and 1972 the quantity of "edible" fishery products in the U.S. has more than doubled, and their value has quadrupled. Over the same period, the U.S. "edible" catch has decreased slightly, while the value of the catch has about

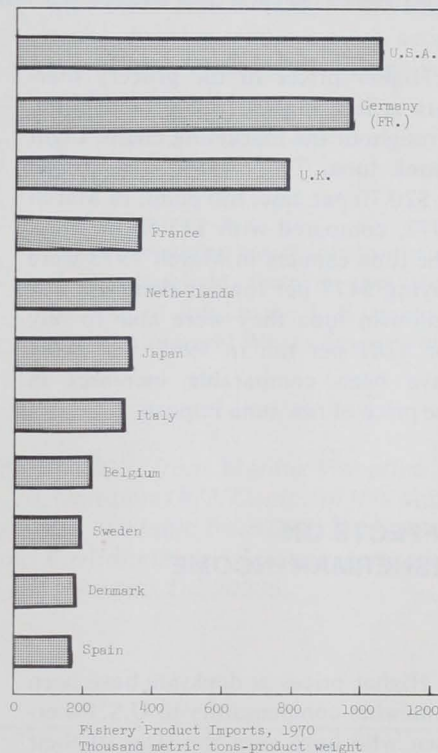


Figure 4.—The U.S. is the world's leading importer of fishery products, including those for human food and other purposes. Source, FAO Yearbook of Fishery Statistics, "Fishery Commodities," 1970.

doubled. As a result of these events, imports now supply about 66 percent of our "edible" fish and shellfish requirements, compared with 41 percent in 1960.

Imports of raw fish are highly important in domestic production of leading fishery products consumed in the United States. For many years imports have supplied well over half the raw tuna that goes into the U.S. canned tuna pack. During the 1960's the ratio of imported raw tuna to domestic-caught tuna in the pack has been about 1.2 to 1.0. There was, however, a surge of imports in 1972 and the ratio climbed 1.68 to 1.0. Thus, the equivalent of three out of every five cans of tuna on supermarket shelves were processed from imported raw fish. U.S. tuna landings over the last 5 years (1968-1972) have averaged considerably higher than the prior 5-year average (1963-1967), but the gains have not kept pace with increased requirements (Table 9).

Table 9.—U.S. tuna landings and tuna imports, 1968-72 (five-year averages), in millions of pounds.

5-year average	U.S. Landings	U.S. Imports
1963-67	368	382
1968-72	459	514
Percent increases	+24.7	+34.6

A somewhat similar picture exists for shrimp. Regularly, over half the shrimp consumed in the United States represents imports. However, domestic landings have been increasing significantly, and growth has even outpaced the growth in imports. Thus, the ratio of imports to domestic catch has moved in a direction favoring domestic. In 1971, for example, domestic landings made up 54 percent of the U.S. shrimp supplies, but the proportion dropped to 48 percent in 1972. The 5-year averages compare changes in domestic shrimp landings with imports (Table 10).

Table 10.—Comparative 5-year average changes in U.S. shrimp landings and imports, in millions of pounds.

	Domestic landings	Imports
1963-67	154	182
1968-72	215	227
Percent change	+39.6	+24.7

Across the board there is a growing dependency on imports among fishery products consumed in the United States. In this connection, it should be noted that 95 percent or more of the raw fish requirements for fish sticks and portions production comes from imports. The volume of U.S. landings of the species that go into sticks and portions—namely, cod, flounder, haddock, ocean perch, and pollock—do not meet the production requirements for sticks and portions. Much of the U.S. catch of these species is channeled into the higher-priced fresh and frozen fillet markets. Moreover, the U.S. landings of these species have dropped precipitously over the years—a statement that can be made for a large number of U.S.-caught species (Table 11).

Table 11.—U.S. landings of some marine fish in millions of pounds.

Species	Landings			Record Landings	
	1965	1970	1972	Qty.	Year
Crabs	335.4	277.2	281.1	372.4	1966
Flounder	180.1	168.5	168.8	180.1	1965
Cod	46.2	56.2	56.6	294.4	1880
Ocean perch	83.6	55.3	58.8	258.3	1951
Oysters	54.7	53.6	52.5	152.0	1908
Jack mackerel	66.9	47.7	52.8	146.5	1952
Whiting	82.6	44.5	26.7	133.0	1957
Haddock	133.9	26.9	11.7	293.8	1929
Pacific halibut	39.7	34.5	26.8	66.7	1915

INCREASING FISH PRICES

The inevitable outcome of growing demand for fishery products in the U.S. in face of tightening supplies has been higher prices (Figure 5). According to price indexes computed by the Bureau of Labor Statistics, consumers paid \$1.75 for purchases of frozen fish in retail markets that cost \$1.00 in 1967. Similarly, \$1.46 was needed this past March to buy shrimp that cost \$1.00 back in 1967. The pinch, of course, has not been felt only by consumers.

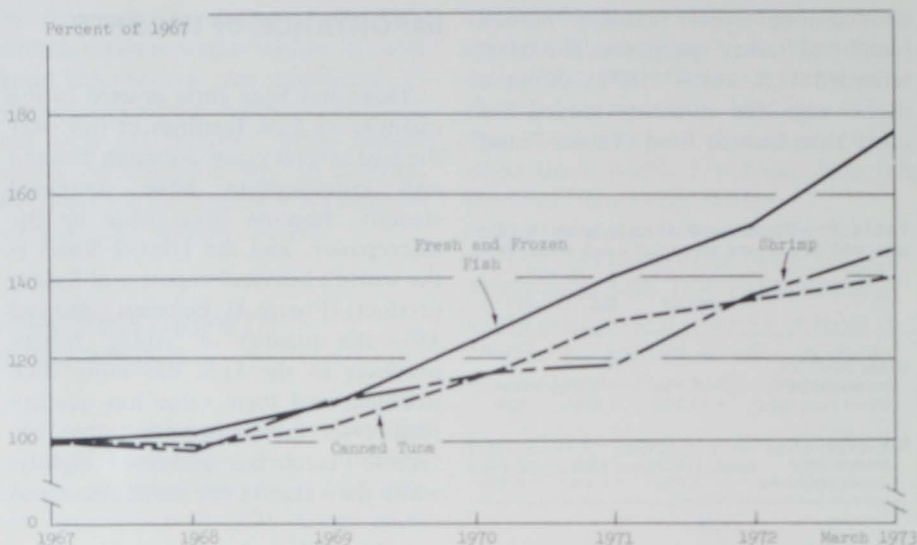


Figure 5.—Fish and shellfish prices have been increasing but rate of change has not been uniform among products (Bureau of Labor Statistics, BLS, Index of Fish and Shellfish retail prices, 1967-100).

Higher prices in the grocery markets reflect higher prices (and costs) throughout the marketing chain. Light chunk tuna, 7½ oz/48's, was quoted at \$20.70 per case, fob plant, in March 1973, compared with \$13.50 in 1967. The tuna canners in March 1973 were paying \$477 per ton for domestic raw yellowfin tuna they were able to buy for \$281 per ton in 1967, and there have been comparable increases in the price of raw tuna imports.

EFFECTS ON FISHERMAN INCOME

Higher prices at dockside have been somewhat compensatory to U.S. fishermen who have seen the sizes of their catch shrink or remain stable (Tables 12 and 13). Also, where domestic catches have increased, prices have gone up even faster. Tuna is a good example of the latter case.

Overall, there has been a strong upward trend in the value of the U.S. catch which has been the result of relatively stable landings and uninterrupted gains in price. Between 1965

Table 12.—Increase in landings and dockside prices of tuna and flounder.

	1965	1972	Percent change
Tuna			
Landings (million pounds)	318.9	377.6	+ 18.5
Average dockside price (cents per pound)	13.1	23.8	+ 81.7
Flounder			
Landings (million pounds)	133.7	168.8	+ 26.2
Average dockside price (cents per pound)	10.9	14.2	+ 30.3

Table 13.—Pacific halibut landings and revenues.

	1965	1972	Percent change
Halibut landings			
(million pounds)	39.7	26.8	- 32.5
Value (million dollars)	9.0	13.2	+ 46.6
Average price (cents per pound)	22.7	49.2	+ 116.7

and 1972 the value of the U.S. catch rose 58 percent (Table 14). While total revenues from fishing have been increasing sharply, there has been only a modest increase in the number of fishermen, and almost no change in the number of persons employed in processing and wholesaling (Table 15).

Table 14.—Increase in value of U.S. catch between 1965 and 1972.

	1965	1972	Percent change
Value of catch (million dollars)			
For food	409	658	+60.9
Other purposes	37	46	+24.3
Value per pound (cents per pound)			
For food	15.8	28.5	+80.4
Other purposes	1.7	1.9	+11.8

Table 15.—Persons employed in fishing, and processing and wholesaling in 1965 and 1970.

	1965	1970	Percent change
U.S. fishermen employed	128,565	140,300	+9.1
Processing and wholesaling	86,865	86,813	—

Table 16.—Commercial fish catch and value by geographical region in 1965 and 1972.

	Catch (million pounds)		Value (million dollars)		Percent change	
	1965	1972	1965	1972	Catch	Value
New England, Mid-Atlantic	1,058	728	99.5	136.2	-31	+37
Chesapeake	592	731	40.2	44.3	+23	+10
South Atlantic	357	284	26.8	44.3	-20	+65
Gulf of Mexico	1,463	1,585	113.5	223.4	+8	+97
Alaska	491	390	70.2	80.7	-21	+15
Washington, Oregon	196	213	27.3	62.5	+9	+129
California	458	640	50.7	91.9	+40	+81
Great Lakes, Miss.	141	124	13.7	15.1	-12	+10
Hawaii	20	15	3.6	5.1	-25	+42

REGIONAL VARIANCE

The fortunes of commercial fishery enterprises have varied considerably with geographical regions (Table 16). The data indicate that, since 1965, Gulf of Mexico fisheries—supported mainly by shrimp—have been prosperous in terms of gross earning. Pounds landed of all fish at Gulf ports during 1965-1972 increased a modest 8.3 percent, but the value of these landings was up 96.8 percent. In New England, where landings dropped more than 30 percent over 1965-1972, the value of the catch rose 37 percent. Among the less fortunate areas were Alaska and the Chesapeake Bay region. Compensatory price increases in Alaska were modest by comparison with other regions, and in the Chesapeake, heavier landings were accompanied by a decrease in average value per pound landed.

SUMMARY

The foregoing has pointed out some of the highlight features that shape the role of fish in the U.S. food and nutrition picture. What comes through

clearly is a less-than-favorable supply picture. Demand is increasing for fishery products in the United States, but there have been no parallel increases in the domestic catch. Dependence on imports is increasing, and even here, the picture for the United States is not so bright owing to increasing demand for fishery products in other countries, and a slowdown in growth of the world catch.

Fishery products are a small, but nonetheless, important part of the U.S. diet. Consumers have expressed their preferences in their willingness to pay increasingly higher prices for fishery products.

It would be idle speculation to attempt an estimate of how high fishery prices can go. It is probably accurate to state, however, that consumers and the fisheries industry together would welcome an increase in supplies which would dampen the sharp price upturn. How to increase supplies is a complex, but not hopeless, problem and one that the combined efforts of technology and business can cope with through development of underutilized fisheries, better management of developed fisheries, improved utilization of developed species, and aquaculture.

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