

U.S. FISHERIES: A View of Their Status & Potential

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In 1959, the 178 million people of the United States used about 3.8 million metric tons (live-weight basis) of commercial fishery products. By 1971, the population had increased to 207 million, and the amount of fishery products used had increased to 5.3 million tons. During those 13 years, population increased 16%, but the amount of fishery products used increased 26%.

About 60% of the total used in 1959 was landed by U.S. commercial fisheries (Tables 1 and 2). The amount U.S. commercial fisheries produced in 1971 was almost identical to that in 1959, and only 12% more than 1939. It accounted for only a little better than 40% of the total used. During those 13 years, the U.S. passed from producing well over half the fishery products it used to producing well under half (Figure 1).

Edible & Industrial Fishery Products

U.S. landings of edible fishery products have remained close to 1.1 million tons a year for many years. No recent landings have approached the 1.5 million tons of record year 1950. Imports of edible fishery products have nearly doubled since 1959, from less than a million tons to 1.6 million tons.

Domestic production of industrial fishery products has averaged about a million tons a year since 1959. Imports of industrial fishery products have doubled in 13 years, from less than a million tons in 1959 to about 1.5 million tons in 1971 (the record, 4.5 million tons, was set in 1968).

Southeastern Landings Rise

The relatively constant level of the U.S. commercial catch for 30 years or so masks major changes in U.S. fisheries. Landings in the southeastern states have been increasing

while fisheries in most other parts of the U.S. except Alaska have been decreasing. In the early 1930s, the Gulf of Mexico and South Atlantic areas produced less than 200,000 metric tons a year, about 10% of the commercial catch. As late as 1950, landings in the region were less than 400,000 tons, 20% of the total. In 1971, production surpassed a million tons, nearly half the total U.S. commercial production. A large part of the increase is due to development of menhaden fisheries in the Gulf of Mexico--from about 3,000 tons a year in the 1930s to an average of over 470,000 tons a year in 1965-71. (See "Gulf and South Atlantic Fisheries," Commercial Fisheries Review, March-April 1972.)

Per-Capita Consumption & Use

Increased utilization and importation of fishery products in the U.S. are related to increase in population. The relation between population and fishery supply is perhaps best reflected in consumption and utilization per capita (Figure 2, Table 3). Annual per-capita consumption of fishery products since 1951 has been relatively constant at about 5 kilograms. Per-capita utilization, which includes inedible industrial fishery products, increased from about 20 kilograms in the 1950s to a peak in 1968; it has remained around 25 or 26 kilograms for the last three years. The marked fluctuations in importation and utilization of industrial fishery products are closely related to demand for fishmeal, used principally as a supplement in poultry feeds. The amount of fishmeal imported is an involved function of price, domestic and foreign supply, price of other feedstuffs, prices of poultry products, etc.

Catches Rise In U.S. Waters

U.S. commercial fishery production has been stable for many years, but total catches in waters near the U.S. have increased dramatically in the last 10 years or so.

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SEFC Contribution No. 213.

MARINE FISHERIES REVIEW
Reprint No. 938

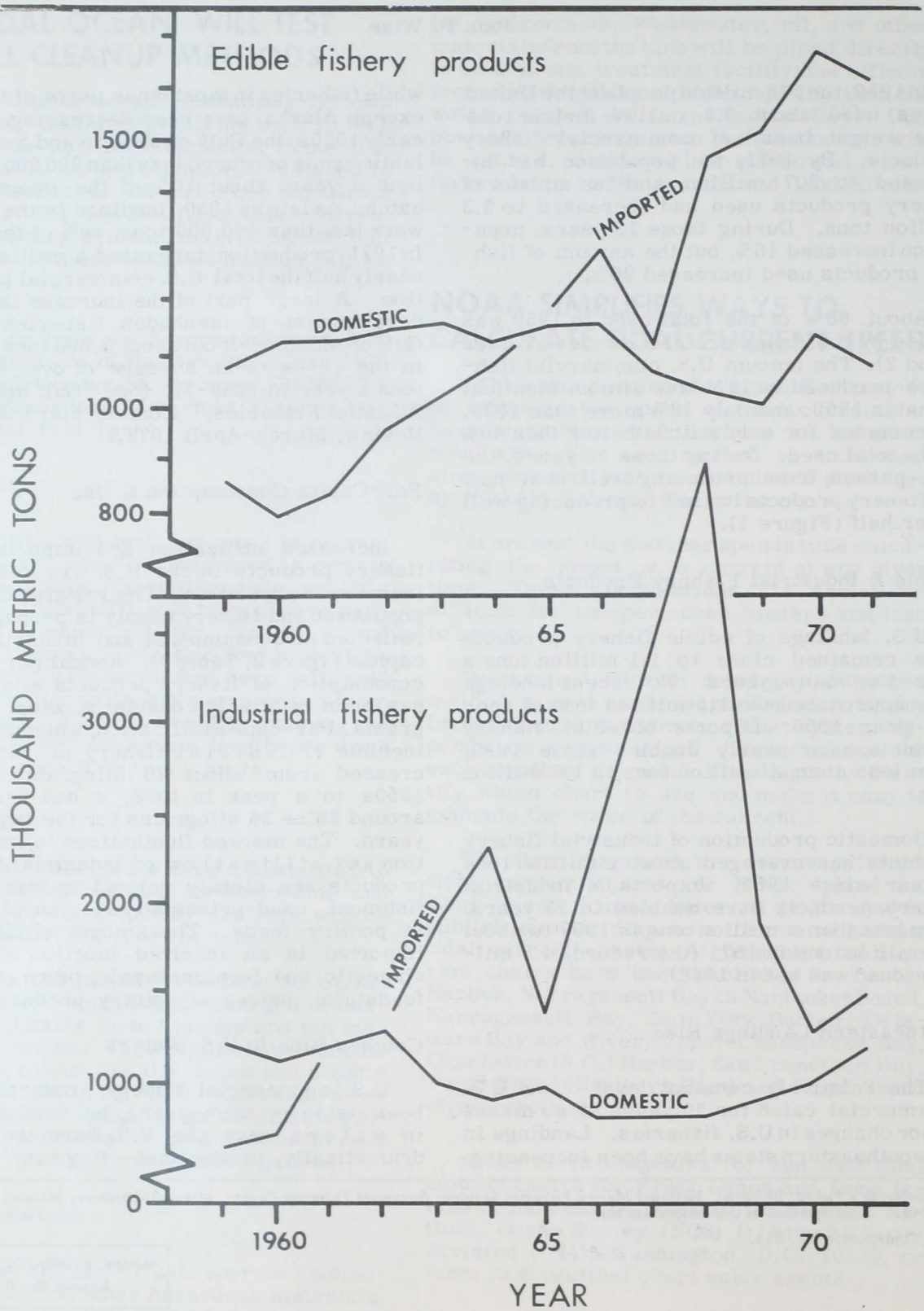


Fig. 1 - U.S. supply of edible and industrial fishery products, 1959-71.

Table 1 - U.S. supply of edible fishery products, 1959-71.

<u>Year</u>	<u>From domestic</u>	<u>Imported</u>	<u>Total</u>
	<u>sources</u>		
	- - (thousand metric tons, round fresh)- - -		
1959	1,074	862	1,936
1960	1,153	801	1,934
1961	1,129	837	1,966
1962	1,152	959	2,111
1963	1,159	1,019	2,178
1964	1,132	1,078	2,210
1965	1,175	1,168	2,341
1966	1,167	1,297	2,464
1967	1,074	1,125	2,199
1968	1,041	1,466	2,507
1969	1,019	1,521	2,540
1970	1,136	1,667	2,803
1971	1,088	1,624	2,712

All 1971 data are preliminary.

Japanese and Soviet catches of Alaska pollock, many if not all in eastern Bering Sea, increased from about 230,000 metric tons in 1961 to over 2.5 million tons in 1969. Canadian and other foreign catches of Atlantic herring in waters near the U.S. were just over 100,000 tons in 1960, but almost 700,000 tons in 1969. Japanese and Soviet fisheries for ocean perch and rockfish started only in the early 1960s; in 1965, they took over 450,000 tons in the Gulf of Alaska and off Washington and Oregon. Foreign catches of red hake off U.S. Atlantic shores were over 100,000 tons in 1965, up from nearly nothing in 1962. Soviet catches of Pacific hake near the U.S. commenced in 1966 and had reached over 150,000 tons a year by 1970. These are examples; a complete list of increased foreign fisheries would include many more.

The result of these increases since about 1960 is that the U.S. commercial catch is now

only about 35% of the total commercial catch taken in waters close to our shores (Table 4).

Decline of Haddock

In a few cases, these increased foreign fisheries close to U.S. shores have had adverse effects on U.S. fisheries. Probably the most striking example is the Georges Bank haddock. U.S. catches averaged just over 40,000 metric tons a year in 1955-60. When foreign catches rose briefly in 1965--66 to over 80,000 tons a year, the stocks were badly depleted, and U.S. catches in 1969-70 averaged less than 13,000 tons a year.

However, the cases where foreign fisheries compete directly with U.S. fisheries and can be held directly responsible for their problems are considerably fewer than asserted in the popular press. Compare the examples of increased foreign fisheries

mentioned on preceding page with U.S. commercial landings of the same species in 1960 and 1971:

Species	U.S. catch		Foreign catch
	1960	1971	
	Thousand metric tons		
Alaska pollock	negligible		2,500 (1969)
Atlantic herring	70	34	700 (1969)
Pacific ocean perch and rockfish	16	16	450 (1965)
Red hake	4	1	100 (1965)
Pacific hake	<.5	5	>150 (1970)

In three cases, the U.S. catch has remained stable or increased in spite of large foreign catches. The decrease in U.S. catch of Atlantic herring can be interpreted as the continuation of a trend that began before the foreign fisheries did--peak catches occurred in the late 1940s. The decline in U.S. catch of red hake may have been related to large foreign catches, but the magnitude of the foreign catch demonstrates that the U.S. fleet was not close to fully exploiting the resource.

Foreign Catches Reveal Resources

Discussion of foreign catches close to the U.S. often generates more heat than light. A neglected major effect of the greatly increased foreign catches off the U.S. in recent years is that they revealed in many cases

Table 2 - U.S. supply of industrial fishery products, 1959-71.

Year	From domestic	Imported	Total
	<u>sources</u>		
	- - - (thousand metric tons, round fresh) - - -		
1959	1,249	652	1,901
1960	1,108	687	1,795
1961	1,223	1,151	2,374
1962	1,276	1,333	2,609
1963	1,039	1,968	3,007
1964	927	2,319	3,246
1965	993	1,443	2,436
1966	813	2,378	3,191
1967	765	3,381	4,146
1968	825	4,530	5,355
1969	928	1,885	2,813
1970	1,090	1,307	2,397
1971	1,165	1,453	2,618

All 1971 data are preliminary.

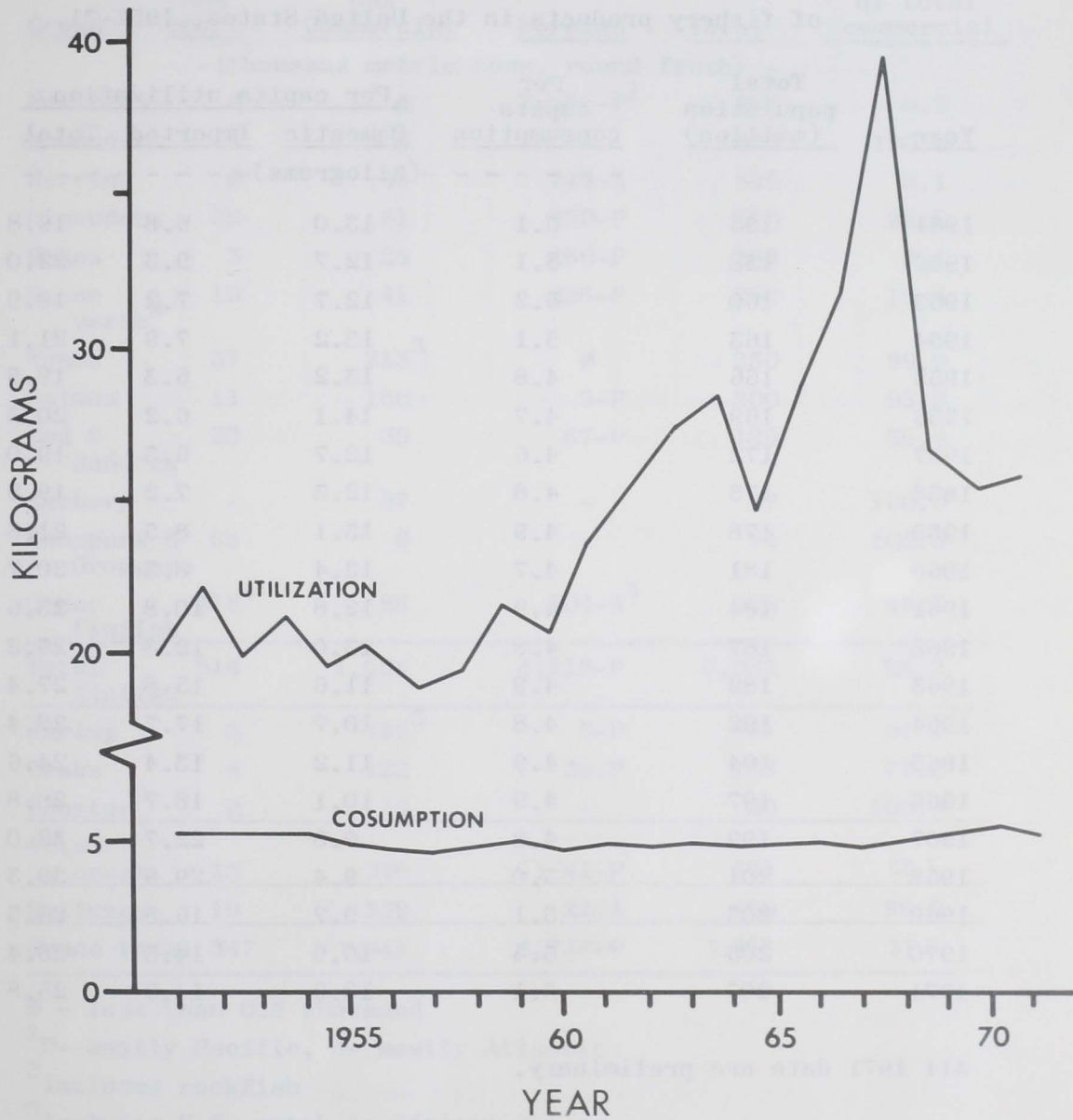


Fig. 2 - Per capita consumption and utilization of fishery products in the U.S., 1951-71.

Table 3 - Per capita consumption and per capita utilization
of fishery products in the United States, 1951-71.

Year	Total population (million)	Per capita consumption	Per capita utilization		
			Domestic	Imported	Total
--(kilograms)--					
1951	155	5.1	13.0	6.8	19.8
1952	158	5.1	12.7	9.3	22.0
1953	160	5.2	12.7	7.2	19.9
1954	163	5.1	13.2	7.9	21.1
1955	166	4.8	13.2	6.3	19.5
1956	169	4.7	14.1	6.2	20.3
1957	172	4.6	12.7	6.3	19.0
1958	175	4.8	12.3	7.2	19.5
1959	178	4.9	13.1	8.5	21.6
1960	181	4.7	12.4	8.3	20.7
1961	184	4.9	12.8	10.8	23.6
1962	187	4.8	13.0	12.3	25.3
1963	189	4.9	11.6	15.8	27.4
1964	192	4.8	10.7	17.7	28.4
1965	194	4.9	11.2	13.4	24.6
1966	197	4.9	10.1	18.7	28.8
1967	199	4.8	9.3	22.7	32.0
1968	201	5.0	9.4	29.9	39.3
1969	203	5.1	9.7	16.8	26.5
1970	205	5.4	10.9	14.5	25.4
1971	207	5.1	10.9	14.9	25.8

All 1971 data are preliminary.

Table 4 - Landings in 1970 of marine species from waters close to the U.S.

Group	USA	USA	Foreign	Total	USA commercial as percent of total commercial
	Sport	Commercial			
- - (thousand metric tons, round fresh) -					
Pollocks	4	4	2,555-P ¹	2,563	0.2
Menhaden	-	823	-	823	100.0
Herring	Ø	66	744-A	810	8.1
Flounders	39	81	250-P	370	24.2
Hakes	3	26	260-P	289	9.1
Ocean perch ²	13	41	226-P	280	15.4
Tunas	37	213 ³	Ø	250	99.9
Salmon	11	180	9-P	200	95.2
Cod & Haddock	23	39	67-P	129	36.8
Anchovy	-	87	-	87	100.0
Snappers & Groupers	66	8	-	74	100.0
Other finfish	318 ⁴	86	104-A ⁵	508	45.3
Total finfish	514	1,654	4,215-P	6,383	28.2
Shrimp	5	189 ³	5-P	199	97.4
Crabs	8	122	36-P	166	77.2
Lobster	Ø	19	-	20	100.0
Total crust.	13	330	41-P	385	88.7
Molluscs	19	559	22-A	600	96.2
Grand total	547	2,543	4,728-P	7,368	37.3

Ø - less than 0.5 thousand

¹P- mostly Pacific, A- mostly Atlantic

²Includes rockfish

³Includes U.S. catch in distant waters

⁴Over 70% mackerels, sea trouts, croakers, and bluefish

⁵Nearly 80% mackerels and halibut

Table 5 - Values in 1970 of marine species from waters close to the U.S. ("Value" is ex-vessel price.)

Group	USA	USA	Foreign	Total	USA
	Sport	Commercial			commercial
-- (millions of dollars) --					
Pollocks	1	1	448	450	0.2
Menhaden	-	32	-	32	100.0
Herring	Ø	2	26	29	7.1
Flounders	13	28	85	126	24.8
Hakes	1	4	29	34	12.1
Ocean perch	1	4	20	25	16.7
Tunas	15	89	Ø	104	99.9
Salmon	6	90	5	101	94.7
Cod & Haddock	8	12	17	37	41.4
Anchovy	-	2	-	2	100.0
Snappers & Groupers	45	5	-	50	100.0
Other finfish	98	24	21	143	53.3
Total finfish	189	293	651	1,133	31.0
Shrimp	3	158	3	164	98.1
Crabs	2	37	11	50	77.1
Lobster	1	39	-	40	100.0
Total crust.	6	234	14	254	94.4
Molluscs	3	64	6	73	91.4
Grand total	198	591	671	1,460	46.8

Ø - less than 0.5 million

See footnotes, Table 4

Note: Values of sport and foreign catches estimated on the basis of U.S. ex-vessel commercial prices.

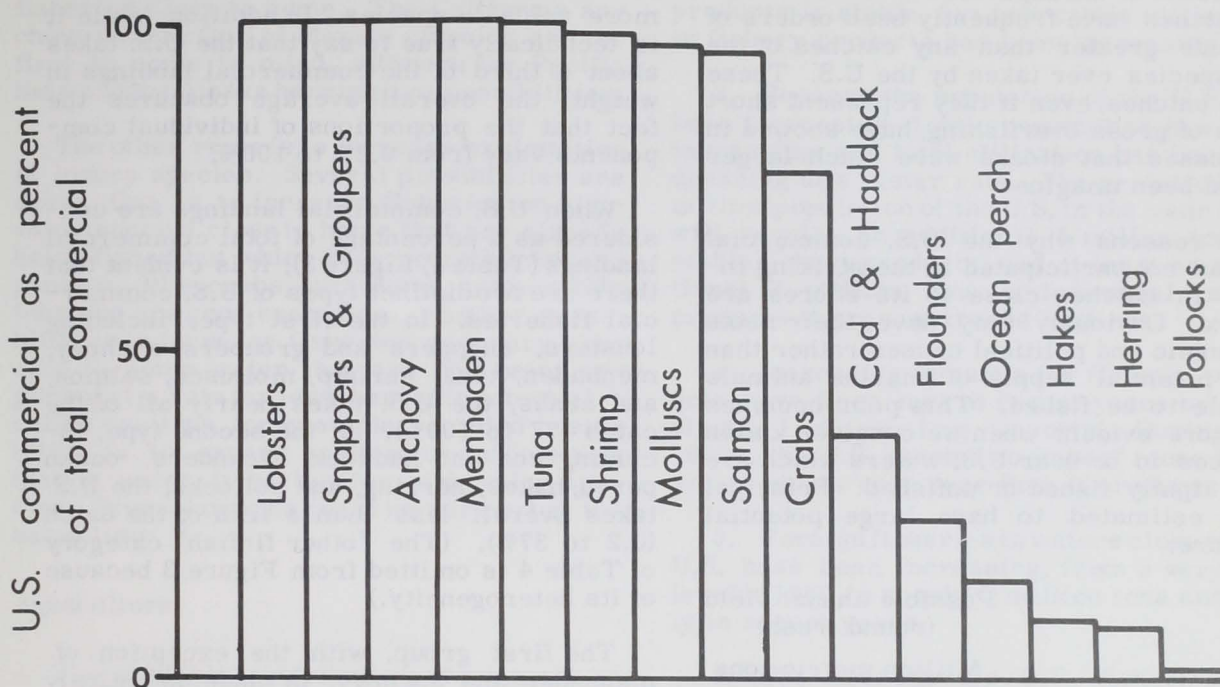


Fig. 3 - U.S. commercial catch as percentage of total commercial catch of various groups in waters close to the U.S.

Table 6 - U.S. imports of edible fishery products (product weights as imported).

<u>Item</u>	<u>1964-68 avg.</u>	<u>1969</u>	<u>1970</u>
	- - -(thousand metric tons)- - - -		
Fish fillets	178	248	270
Tuna	194	213	234
Shrimp	79	88	99
Lobster	26	30	26
Sardines	23	21	21
Halibut	9	9	8
Scallops	7	6	8
Oysters	5	8	6
Crabmeat	2	1	1
Other	<u>158</u>	<u>150</u>	<u>163</u>
Total	681	774	836

the presence of unsuspected resources. Foreign catches have frequently been orders of magnitude greater than any catches of the same species ever taken by the U.S. These foreign catches, even if they represent short periods of gross overfishing, have showed in many cases that stocks were much larger than had been imagined.

The reasons why the U.S. commercial fleet has not participated in the striking increase in catches close to its shores are complex. Obviously they have their roots in economic and political causes rather than in the potential supply of marine animals available to be fished. This point becomes even more evident when we consider known resources in or near U.S. waters which are as yet lightly fished or unfished. Principal groups estimated to have large potential yields are:

	Possible annual yield (round fresh)
	Million metric tons
California anchovy	1.8
Calico scallop	.5
Ocean quahog	.5
Gulf of Mexico clupeids	.3
Atlantic mussels	.1
Total	<hr/> 3.2

If we accept the 6.8 million metric tons now taken commercially from waters close to the U.S. (Table 4) as a reasonable estimate of sustainable annual yield from those species now exploited, and add the 3.2 million tons that could be taken from relatively unexploited resources, the total potential catch in waters near the U.S. is 10.0 million tons a year. The present catch by the U.S. fleet is about a quarter of this amount.

U.S. Landings: 1/3 Weight, 1/2 Value

The reason for the difference between the potential and the actual catch of the U.S. fisheries may be seen in the nature of our commercial fisheries and in the nature of our imports. A crude evaluation of the U.S. catch may be made by comparing volume and value (Tables 4 and 5). While the U.S. fleet takes only about a third of the total commercial landings in weight from waters near the U.S., it takes nearly half the total value. U.S.

commercial fisheries are biased toward the more valuable species. In addition, while it is technically true to say that the U.S. takes about a third of the commercial landings in weight, the overall average obscures the fact that the proportions of individual components vary from 0.2% to 100%.

When U.S. commercial landings are considered as a percentage of total commercial landings (Table 4, Figure 3), it is evident that there are two distinct types of U.S. commercial fisheries. In the first type, including lobsters, snappers and groupers, anchovy, menhaden, tuna, shrimp, molluscs, salmon, and crabs, the U.S. takes nearly all of the catch (77 to 100%). In the second type, including cod and haddock, flounders, ocean perch, hakes, herring, and pollocks, the U.S. takes overall less than a fifth of the catch (0.2 to 37%). (The "other finfish" category of Table 4 is omitted from Figure 3 because of its heterogeneity.)

The first group, with the exception of menhaden and anchovy, is made up entirely of species with high value per unit weight--"luxury" seafoods. The second group is almost entirely composed of species of low or medium value per unit weight.

Most Fishermen Stay Close

U.S. fisheries tend to operate close to home. Recently it was estimated that about 40% of the U.S. commercial catch is made within 3 miles of shore and about 80% within 12 miles. The fisheries also concentrate on high-priced products. The most important exceptions are the menhaden fishery, which exploits a very high volume of low-priced fish that can be caught close to home, and two distant-water fisheries for high-priced tuna and shrimp.

Our principal imports are low-priced fish meal, medium-priced fish fillets, and enough luxury products (tuna, shrimp, lobster) to satisfy the domestic demand not filled by our own fisheries (Table 6).

Limited Options for U.S. Fisheries

If U.S. commercial fisheries are to expand in the next few years in the face of present economic realities (assuming that these do not change), the number of options open to them seem limited. One route would

be to exploit new low-priced but high-volume fisheries close to home. The California anchovy and the Gulf of Mexico clupeids are the first to come to mind, although the Pacific hake and the Alaska herring are possibilities.

The other route is to increase exploitation of luxury species. Several possibilities are open: One is to increase fisheries on high-value species close to home that are already being fished but which have potential for expansion. Blue crabs, surf clams, and possibly lobsters are good examples. Another possibility is to increase fisheries on luxury species in home water that are now being exploited at a rate far less than their potential--calico scallops, for example. A third possibility is to expand present or initiate new distant-water fisheries for high-value species. Several options could be pursued at the same time.

Aquaculture

The possible contribution of aquaculture to U.S. fishery production in the future cannot be neglected, but neither should aquaculture be viewed as a panacea. Present commercial production is mainly a very few thousand tons of freshwater catfish annually, but technical expertise for raising many species exists or is being developed. Constraints are primarily economic: it is necessary not only to raise the animals but to sell them at a profit. It is likely that production for many years to come will be concentrated heavily in the highest-priced items. Thus it will probably be a matter of decades at least before any substantial part of the 5 kilograms consumed annually by each U.S. inhabitant will be produced by aquaculture. It will be longer still (if ever) before aquaculture makes any contribution to the 20 or more kilograms of industrial fishery products utilized per capita.

U.S. FISHERIES & THEIR POTENTIAL

It is possible at this point to summarize the principal facts about U.S. fisheries and their potential:

1. Domestic production of fishery products has been stable for many years.

2. Per-capita consumption of fishery products is stable, but per-capita utilization of fishery products has been increasing.

3. Because the population of the U.S. has been increasing, total consumption has been increasing, and total utilization has been increasing at a faster rate. The projected 300 million population of the U.S. in the year 2000 will require an additional .5 million tons of edible fishery products, and at least an additional 2 million tons of industrial fishery products if present trends continue.

4. Increasing demands for fishery products have been met in recent years by constantly increasing imports. During the 1960s, the U.S. started to import more fishery products each year than it produces.

5. Foreign fisheries in waters close to the U.S. have been increasing, from a very low level in 1960 to nearly 5 million tons annually in recent years.

6. The reasons for U.S. fisheries decreasing relative to population are more closely related to economics and politics than they are to the presence of fishable populations of marine animals in nearby waters.

7. U.S. fisheries are selective, concentrating heavily on high-priced and high-volume species in easily accessible waters.

8. Options open for expansion of U.S. fisheries in the near future seem limited to three: to exploit new low-priced high-volume fisheries in home waters, to increase catches of high-priced species in home waters, or to establish new distant-water fisheries for high-priced species.

9. Substantial contributions by aquaculture to U.S. fishery supplies still lie some time in the future. When they do come, they will probably satisfy only a small part of the demand for fishery products.

(Most of the statistical information in this report was taken from "Fisheries of the United States, 1971"--NMFS Current Fishery Statistics No. 5900, and from "The United States Marine Fishery Resource, 1971"--in press as an NMFS Circular.)