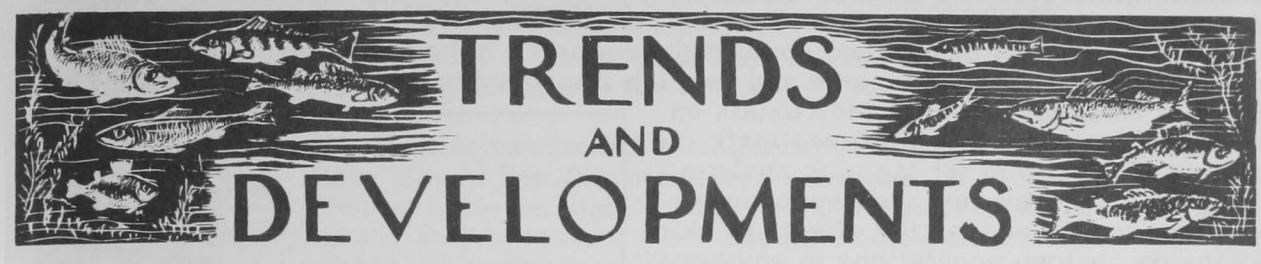


Byproducts

UNITED STATES PRODUCTION, 1958: In 1958, the United States production of fish meal and scrap was 216,510 short tons--10.4 percent or 25,246 tons under the production for 1957. The yield of oil from whole fish and waste in 1958 totaled

United States Production of Fish Meal, Oil, and Solubles, 1958

Product	Unit	January-December 1958 1/	January-December 1957 2/
		(Quantity)	
Meal and Scrap:			
Herring:			
Alaska	Tons	6,484	8,799
Maine	"	1,898	4,958
Menhaden	"	154,145	172,388
Sardine, Pacific	"	9,467	1,474
Tuna and mackerel 3/	"	21,494	25,716
Unclassified	"	23,022	28,421
Total	"	216,510	241,756
Oil, body:			
Groundfish (inc. ocean perch)	Gallons	507,108	533,120
Herring:			
Alaska	"	1,499,300	1,729,232
Maine	"	127,400	147,701
Menhaden	"	17,237,329	15,797,919
Sardine, Pacific	"	808,324	87,495
Tuna and mackerel 3/	"	659,568	738,279
Other (including whale)	"	786,391	1,141,140
Total	"	21,625,420	20,174,886
Fish solubles	Pounds	197,098,534	187,760,362
Homogenized-condensed fish	"	50,558,000	56,786,000

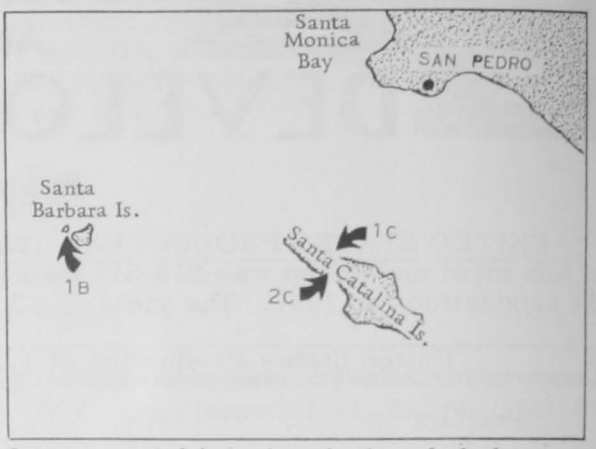
1/Preliminary. 2/Revised. 3/From market waste.
Note: Data on the yield of meal and scrap represent information from firms which usually account for about 92 percent of the total production.

21.6 million gallons, about 7.2 percent above the production for the preceding year. Production in 1958 of fish solubles increased 5 percent, but production of homogenized-condensed fish declined by about 10.1 percent in 1958 as compared with 1957.

California

INVESTIGATION OF ABALONE RESOURCES CONTINUED (M/V Nautilus and Diving Boat Mollusk, Cruise 58-N-2): Investigations of the abalone populations in waters off the coast of southern California and the Channel Islands were continued from July 7-November 13, 1958, by the California Fish and Game Department's re-

search vessel Nautilus and the diving boat Mollusk. The objectives of the cruise were as follows: (1) determine whether pink abalone are being overexploited or underexploited; (2) design and conduct experiments in habitat improvement; (3) conduct transplanting experiments and develop improved techniques; 4) determine effects of removal of senile individuals on remaining populations; (5) investigate the effects of pollution; (6) tag pink abalone for growth, movement, and reproductive studies; and (7) assess the effects of skin diving on abalone populations in southern California.



Stations occupied during investigations of abalone resources (M/V Nautilus and diving boat Mollusk, July 7-November 13, 1958).

Exploratory work was accomplished by divers utilizing SCUBA gear almost exclusively. Some diving required the use of "hard hat" or commercial diving dress.

The majority of time and effort was expended at Santa Catalina Island where considerable diving was necessary in order to locate adequate stations. Three sites were selected and over 600 abalone were tagged and distributed among these stations. New tags were designed and fabricated by the biologists and these were used to tag the 600 abalone. This was necessary because the tags used last year had proved unsatisfactory; the majority disintegrated or disappeared. Most of the 600 abalone that were tagged were shorter than the legal six-inch size limit This was done purposely to discourage the collection of these animals by skin divers and others. Improved handling techniques have increased survival rate of tagged and transplanted individuals.

A station was located at Santa Barbara Island but weather conditions prevented extensive activities. Observations showed, however, that abalone in this area had been well worked over by commercial divers and few abalone of legal size were left.

Conditions along the mainland coast were unsatisfactory for underwater observations during the portion of time scheduled for this activity. It was not practical to select definite stations at this time. However, preliminary dives were made and several tentative sites were selected. These are in areas available to skin divers and will be of value in appraising the effects of their activities on the abalone population.

California Sardines

LANDINGS IN 1958 SEASON BEST IN SEVEN YEARS: California sardine fishermen landed 101,567 short tons of sardines for canning in 1958--their best season since 1951. The season in 1958 opened on August 1 and closed December 31. The 1958 landings were five times greater than 1957's total of 20,455 tons, but were only about one-eighth the record of 791,330 tons established in the 1935/36 season. In 1951/52, fishermen landed 126,511 tons.

The 1958 landings yielded a pack of 2,256,800 cases of sardines as compared with about 0.5 million cases in 1957. The byproducts of this pack were 9,467 tons of meal for animal feeding and 808,296 gallons of sardine oil. Of the total catch, only 3,743 tons were used for pet food and other uses.

The California Department of Fish and Game said the catch would have been greater had the major canneries remained open the full season. The big canneries closed about a month before the season ended due to the poor marketing prospects for the canned pack.

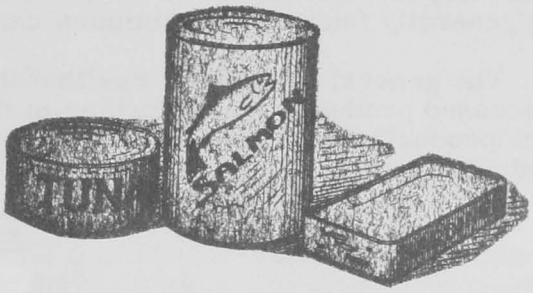
Sardines returned to California waters in 1958 from Monterey Bay to San Diego in large numbers. If each vessel had not been on a 40-ton nightly limit and the canners had accepted fish for the entire season, the landings could undoubtedly have been increased by at least 50 percent.

Early in December industry members in Monterey reported the Bay as full of sardines, but only one canner was buying limited quantities at the time.

Canned Fish Consumer Purchases, January 1959

Canned tuna purchases by household consumers in January 1959 were 849,000 cases of which 50,000 cases were imported. By type of pack, domestic-packed tuna purchases were 191,000 cases solid, 505,000 cases chunk, and 103,000 cases grated or flakes. The average purchase was 1.8 cans at a time. About 28.3 percent of the households bought all types of canned tuna; only 1.8 percent bought the imported product. The average retail price paid for a 7-oz. can of domestic solid or fancy was 35.7¢ and for a 6-1/2-oz. can of chunk 28.9¢. Imported solid or fancy was bought at 30.3¢ a can. January purchases were substantially higher than the 714,000 cases bought in December by 18.9 percent; retail prices were slightly lower.

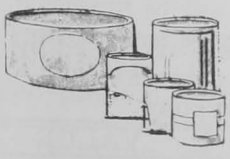
During January, household consumer purchases of sardines continued to be made more through independent outlets than through chain outlets. Canned sardine purchases in January were 126,000 cases, of which 62,000 cases were Maine, 27,000 cases California, and 37,000 cases imported. The average purchase was 2.1 cans at a time for all sardines, but 2.5 cans for Maine, 1.6 cans for California, and 1.7 cans for imported. Only 7.1 percent of the households bought all types of canned sardines; 3.8 percent bought Maine, 1.4 percent California, and 2.3 percent imported. The average retail price paid for a 4-oz. can of Maine sardines in oil was 11.1¢, for a one-pound can of California 25.0¢, and for a 4-oz. can of imported 27.8¢. January purchases were down by 3.8 percent from the 131,000 cases bought in December; retail prices were slightly lower for



domestic and higher for imported. Because of the liberal stocks of canned California sardines, there has been an increase in purchases since October 1958.

Canned salmon purchases in January 1959 were 261,000 standard cases, of which 134,000 cases were pinks and 56,000 cases reds. The average purchase was 1.2 cans at a time. About 17.2 percent of the households bought all types of canned salmon; 8.7 percent bought pinks. The average retail price paid for a 1-lb. can of pink was 56.8¢, and for red 84.6¢. January purchases were up about 25.5 percent from the 208,000 cases bought in December; retail prices were about the same.

Cans--Shipments for Fishery Products, 1958



Total shipments of metal cans during 1958 amounted to 123,600 short tons of steel (based on the amount of steel consumed in the manufacture of cans) as compared with 114,560 tons in 1957. In 1956 shipments amounted to 112,532 tons.

The record pack of tuna and substantial increases in the pack of sardines in California, and salmon in Washington and Alaska in 1958 accounted for most of the increase in shipment of cans for fishery products in 1958.

Note: Statistics cover all commercial and captive plants known to be producing metal cans. Reported in base boxes of steel consumed in the manufacture of cans, the data for fishery products are converted to tons of steel by using the factor: 23.0 base boxes of steel equal one short ton of steel.

Containers

USE OF ALUMINUM CANS FOR CANNED FISHERY PRODUCTS: After a number of years of commercial use in Europe, aluminum sardine cans are being tried out on a commercial scale by one United States fish canner. This was brought out in an address ("The Status of Aluminum For Food Cans") to the session on New Containers and Container Problems at the 52nd Annual Convention of the National Canners Association, Chicago, Ill., February 21, 1959.

In pointing out the advantages and disadvantages, the speakers stated that aluminum containers in which sulfur-bearing vegetables or products containing meats have been packed do not show any discoloration under enamel after storage. This is an aesthetic advantage over tin-plate containers. Also eliminated is the occasional but somewhat more serious problem with certain products where black iron sulfide can form in localized areas of the tin-plate containers and in some instances appears on the product itself. This problem has been encountered most usually in seafood packs, such as tuna and shrimp. For tuna, the use of aluminum containers would appear to be a happy solution, but with shrimp the benefits are exchanged for two considerably worse effects. The pinkish cast and color bands are bleached completely to turn the shrimp muddy gray and a very strong hydrogen sulfide-like odor is developed. But except in the case of shrimp, flavor and odor differences were not generally found when aluminum cans were used.

The general conclusion was that the use of aluminum cans for large volume processed products seems farther in the future. To supply and use containers for such products would require major equipment changes by can manufacturers and food packers.

Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES, JANUARY 1959: Fresh and Frozen Fishery Products: For the use of the Armed Forces under the Department of Defense, 1.5 million pounds (value $844,000) of fresh and frozen fishery products were purchased in January 1959 by the Military Subsistence Market Centers. This was less than the quantity purchased in December 1958 by 8.7 percent and 12.0 percent below the amount purchased in the same month a year ago. The value of the purchases this January was lower by 4.4 percent as compared with the preceding month and down by 10.5 percent from January 1958.

Table 1 - Fresh and Frozen Fishery Products Purchased by Military Subsistence Market Centers, January 1959 with Comparisons

QUANTITY			VALUE	
January		Jan.-Dec.	January	
1959	1958	1958	1959	1958
....(1,000 Lbs.).....			...($1,000)...	
1,489	1,692	22,511	844	943

Prices paid for fresh and frozen fishery products by the Department of Defense in January 1959 averaged 56.7 cents a pound, about 2.5 cents higher than the 54.2 cents paid in December and 1.5 cent higher than the 55.7 cents paid during January a year ago.

Table 2 - Canned Fishery Products Purchased by Military Subsistence Market Centers, January 1959 with Comparisons

Product	QUANTITY			VALUE	
	January		Jan.-Dec.	January	
	1959	1958	1958	1959	1958
	... (1,000 Lbs.) ...			..($1,000)..	
Tuna ...	385	316	5,884	192	164
Salmon .	-	695	3,336	-	378
Sardine .	12	18	253	4	6

Canned Fishery Products: Tuna was the principal canned fishery product purchased for the use of the Armed Forces during January 1959.

Note: Armed Forces installations generally make some local purchases not included in the data given; actual total purchases are higher than indicated, because it is not possible to obtain local purchases.

* * * * *

VETERANS ADMINISTRATION REQUIREMENTS FOR CANNED FISH FROM 1959 PACK: Estimated requirements of the Veterans Administration for canned fish to be procured from the 1959 pack are:

	Can Size	Dozen Cans
Salmon, red or sockeye	#1	21,954
Salmon, red or sockeye, sodium content restricted to not more than 60 mg./100 grams	#½	7,421
Tuna, light meat, chunk style in vegetable oil	4-lb.	5,400
Tuna, light meat, chunk style, sodium content restricted to not more than 50 mg./100 grams	#½	8,750

Note: See Commercial Fisheries Review, May 1958, p. 29.

Fisheries Loan Fund

LOANS APPROVED THROUGH FEBRUARY 28, 1959: A total of 287 loans for $7,321,692 has been approved through February 28, 1959, a period of almost 26 months. By areas these were divided as follows:

New England, 103--$3,069,485; South Atlantic & Gulf, 44--$1,390,873; California, 41--$1,911,882; Pacific Northwest, 56--$659,101; Alaska, 29--$184,075; Great Lakes, 7--$51,220; Hawaii, 6--$53,256; and Puerto Rico, 1--$1,800.

Under the Fishery Loan Program, loans are made for financing and refinancing operations, maintenance, repairs, replacement, equipment of fishing vessels, fishing gear, and for research into the basic problem of the fisheries. Loans at 5 percent interest are made for periods not to exceed 10 years.

Note: See Commercial Fisheries Review, February 1959, p. 17; December 1958, p. 35; November 1958, p. 35; September 1958, p. 35; July 1958, p. 24, and March 1958, p. 31.

Fish Farming

FAO LOANS EXPERT TO FISH AND WILDLIFE SERVICE: Upon request of the Department of the Interior's Fish and Wildlife Service, the Food and Agriculture Organization of the United Nations has assigned Dr. Shaowen Ling, one of the world's leading pond-fish culturists, to the Bureau of Sport Fisheries and Wildlife for a three-months period.

Dr. Ling, who has his doctor's degree in limnology from Cornell University, is a native of China. He will act as consultant for the Bureau of Sport Fisheries and Wildlife on the establishment of a research laboratory and experimental station which is to be built in Arkansas to study fish propagation problems in rice-growing areas.

His main task will be to visit possible experimental sites, recommend pond layouts and develop plans for research in the fields of warm-water fish diseases and

parasites, genetics, selective breeding, nutrition, and other physiological requirements, and to make recommendations on fish-crop rotations.

Before beginning his assignment in the rice-growing area, Dr. Ling will survey research stations and warm-water fish hatcheries in the South and will consult with one of America's leading fish culturists, Dr. H. S. Swingle of Alabama Polytechnic Institute at Auburn.

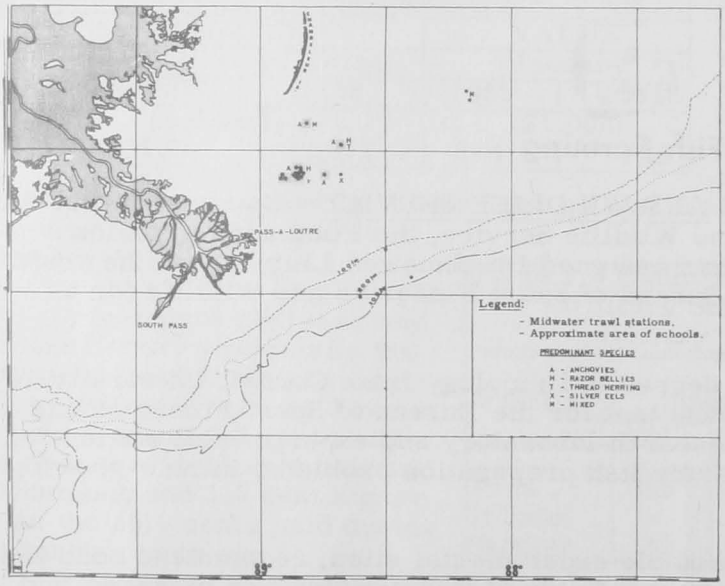
In spite of the widespread practice of fish culture in foreign countries, the idea never took hold in the United States until in recent years when the rice farmers of Arkansas became interested in fish farming almost by accident. In bringing new rice acreage into production it was customary to build levees around a tract of land, filling the resulting reservoir with water and letting it stand for a couple of years until the timber died and the decaying vegtation enriched the soil.

Following the procedure, farmers soon found that the water in the reservoirs always contained abundant supplies of the local species of fish. Presently the question arose as to whether better breeds of fish might be raised to bring a greater yield and a more lucrative cash crop to the farmer.

To find the answer to this question, the Congress has authorized the Fish and Wildlife Service of the Department of the Interior to establish a laboratory and experiment station.

Dr. Ling has just completed an assignment in Ceylon assisting the government of that country in the development of its inland fisheries. When he completes his task in America he will go to Malaya to help that newly created independent nation with its fishery problems.

Gulf Exploratory Fishery Program



M/V Oregon Cruise 56 (January 20-February 4, 1959).

EXPERIMENTAL MID-WATER TRAWL FISHING OFF THE MISSISSIPPI DELTA (M/V Oregon Cruise 56): Sampling mid-water fish schools for species composition data was the principal objective of a 16-day trip by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Oregon ending on February 4, 1959. The 40-foot square nylon mid-water trawls were used in conjunction with a newly installed telemeter. The instrument, recently developed by the Bureau, transmits depth and temperature data from the gear to the vessel via electric trawl cables, permitting very effective depth-positioning of the trawl.

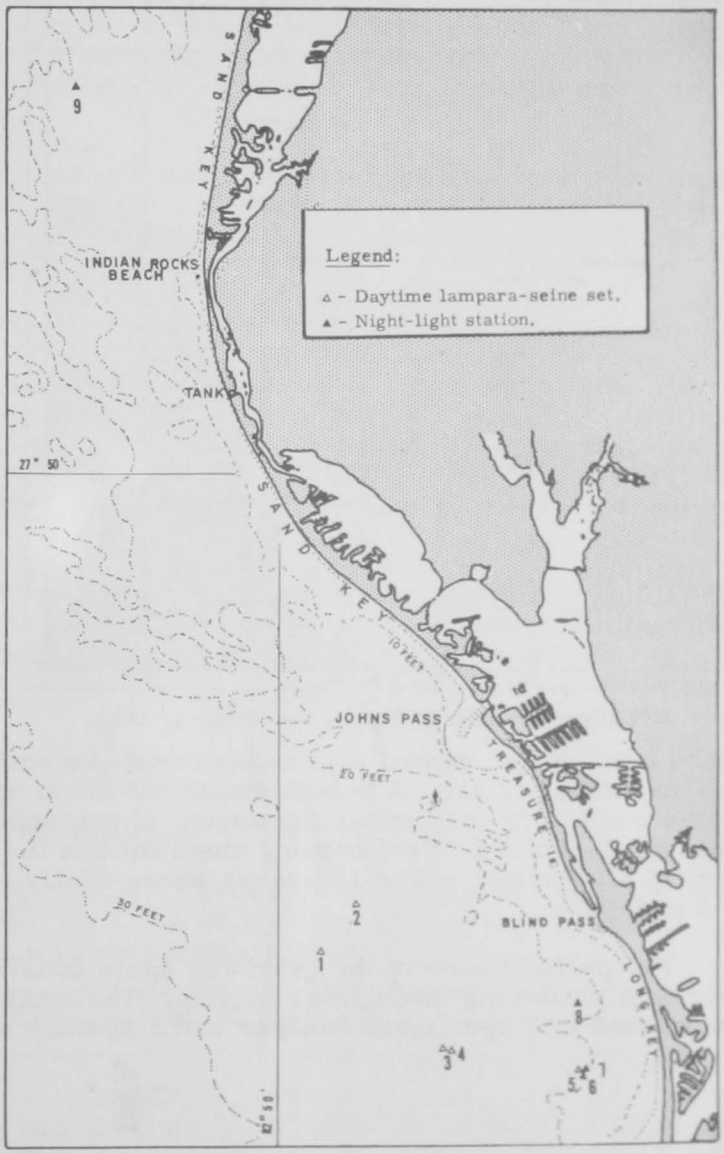
Day-and-night transects were run over the 5- to 100-fathom depth

range between the Mississippi Delta and Mobile Bay. With rare exceptions mid-water schools were seen on the recorders during daylight hours only. Schools beyond the 15-fathom curve were few and small. Scattered, unidentified schools observed on one occasion in 30 to 50 fathoms off the Delta could not be fished due to heavy seas.

Schools were most numerous in the 8- to 12-fathom zone between Pass-a-Loutre and Chandeleur Island. Half-hour tows through scattered schools yielded catches of 500 to 1,000 pounds of mixed thread herring, razorbellies, and anchovies. One afternoon of fishing this area resulted in a catch of about 6,000 pounds of mixed fish. Correlations of recorder tracing and trawl catches indicated mixed schooling by the above species.

* * * * *

LAMPARA SEINES AND HAULING EQUIPMENT TESTED OFF FLORIDA WEST COAST (M/V George M. Bowers Cruise 16): A 15-day cruise along the west coast of Florida for the purpose of testing experimental lampara seines and hauling equipment on school fishes was completed by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel George M. Bowers on February 4, 1959. A 285-fathom-modified South African lampara seine, a 150-fathom cotton bait lampara seine, and a 75 fathom-nylon seine were used. The hauling gear was a 30 hp. hydraulic-powered two-roller gurdy.



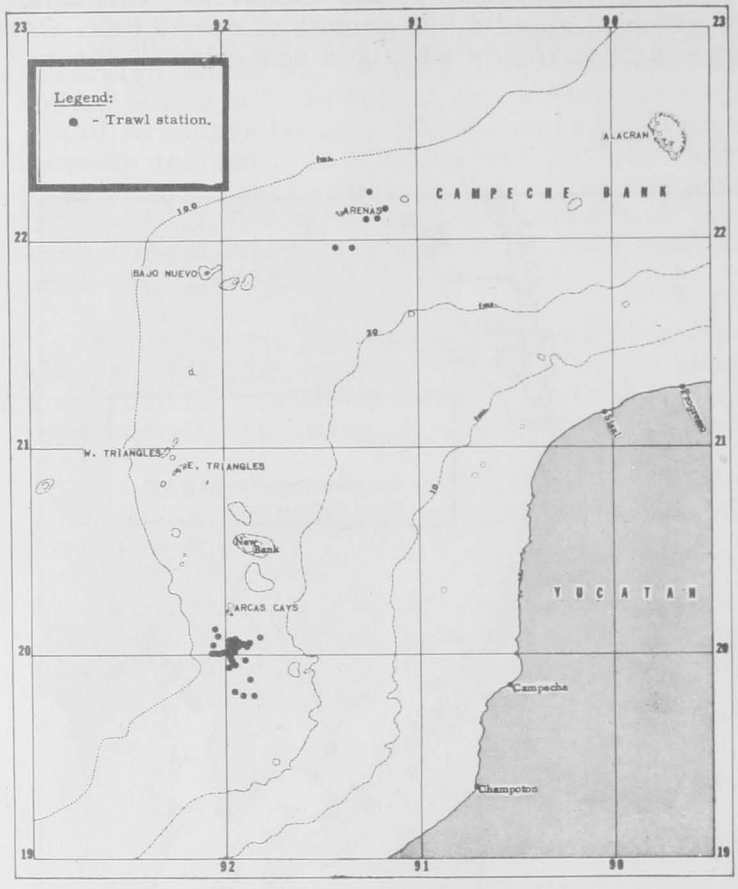
M/V George M. Bowers Cruise 16 (January 20 to February 4, 1959).

The first phase was in the Apalachicola and Carrabell Bay areas, where bad weather prevented locating school fish with aerial spotting. The vessel proceeded to the St. Petersburg Beach area, and aerial spotting was used in making sets. Results of these sets were unsatisfactory chiefly because the size and weight of the vessel created a heavy pull on the wings of the seines, lifting the chain line and creating a large opening at the head of the seine, through which most of the fish escaped. Sets made from the seine skiff using the 75-fathom seine, with hauling done by hand, indicated the use of a lighter vessel should give better results. One- to two-ton catches of thread herring were made under these conditions. Heavy concentrations of schools were observed in the St. Petersburg Beach area,

mostly thread herring (Opisthonema oglinum) with small quantities of pinfish (Lagodon rhomboides), razorbellies (Harengula pensacolae), and silversides (Membras vagrans).

* * * * *

RED SNAPPER EXPERIMENTAL TRAWLING CONTINUED (M/V Silver Bay Cruise 14): Experimental red snapper trawling was continued on Campeche Bank during January 1959 by the U. S. Bureau of Commercial Fisheries chartered exploratory fishing vessel Silver Bay.



M/V Silver Bay Cruise 14 (January 22-February 4, 1959).

A total of 45 daytime trawling stations were made on the broken bottom south and southeast of Cay Arcas in 23-60 fathoms with best fishing again encountered in the 26-30 fathom depth range. Approximately 95 percent of the total marketable catch of 7,679 pounds of snapper and 501 pounds of grouper was taken during 6 days of trawling operations, averaging 1,300 pounds a day, with individual catches ranging from 100-400 pounds. The catch was composed of approximately 30 percent large (10 pounds and over), 45 percent medium (5-10 pounds), and 25 percent small fish (1-5 pounds).

Six exploratory tows in the vicinity of Cay Arenas, in 25-58 fathoms failed to produce commercial catches of snapper or grouper.

Modified New England-type nylon fish trawls, rigged with rollers and conventional V-D rig, were used throughout the fishing trials. A 2-inch stretched-mesh cover was intermittently attached to the cod end to determine the amount of unmarketable snapper released by the $5\frac{1}{2}$-inch mesh cod end. Preliminary observations indicate that approximately 95 percent of all snapper under $1\frac{1}{4}$ pounds successfully escaped through the large mesh cod end.

The performance of the gear was again considered successful with only minor tear-ups occurring throughout the trip. The total snapper and grouper catch was comprised of 8 species of snapper and 6 species of grouper.

Marketing

EDIBLE FISHERY PRODUCTS MARKETING PROSPECTS, FIRST QUARTER 1959: United States civilian consumption of fishery products per capita in 1958 averaged close to the 1957 rate. Supplies in 1958 increased at about the same rate as the civilian population. Current supplies of processed products appear to be ad-

equate to maintain civilian consumption of these items at a slightly higher rate this winter and early spring than last. Retail prices of fishery products in 1958 were the highest on record. Prospects for the next few months are that prices will continue at a high level.

The catch of edible fish and shellfish was somewhat larger in 1958 than in 1957. There was a moderate increase for the species used for canning, and a slight advance in landings of items marketed mainly fresh and frozen. Commercial landings in the first quarter are at the seasonal low point of the year.

The pack of canned fishery products last year was well above that of 1957. Among the major items, Maine sardines and mackerel were the only ones for which a reduction occurred. The pack of canned salmon was up sharply in 1958. Production of California sardines (pilchards) was more than $4\frac{1}{2}$ times as large as in 1957 and the heaviest since 1951. The canned tuna pack reached a record level. The domestic catch of tuna in 1958 was up only a little from the 1957 total, but imports of frozen tuna for processing were considerably heavier. Supplies of canned fishery products available for consumption in the next several months are well above the year-earlier total.

Total stocks of frozen fishery products at the beginning of this year were much larger than on the same date in 1958. Stocks represent the principal source of supplies of these items until at least mid-spring when the commercial catch of fish and shellfish starts increasing seasonally.

Imports of fishery products were moderately heavier last year than in 1957. The increase was relatively larger for the canned than for the fresh or frozen products. Receipts of canned salmon and the sardines not in oil were heaviest in the first half of 1958 when domestic supplies were relatively light. Imports in the next several months will likely be less than a year earlier because domestic supplies are larger. Exports were much lower in 1958 than in 1957 because of our reduced supplies of canned fish earlier in the year. Prospects are for exports to be heavier this winter and spring than last.

This analysis appeared in a report prepared by the Agricultural Marketing Service, U. S. Department of Agriculture, in cooperation with the Bureau of Commercial Fisheries, U. S. Department of the Interior, and published in the former agency's February 25, 1959, release of The National Food Situation (NFS-87).

Menhaden

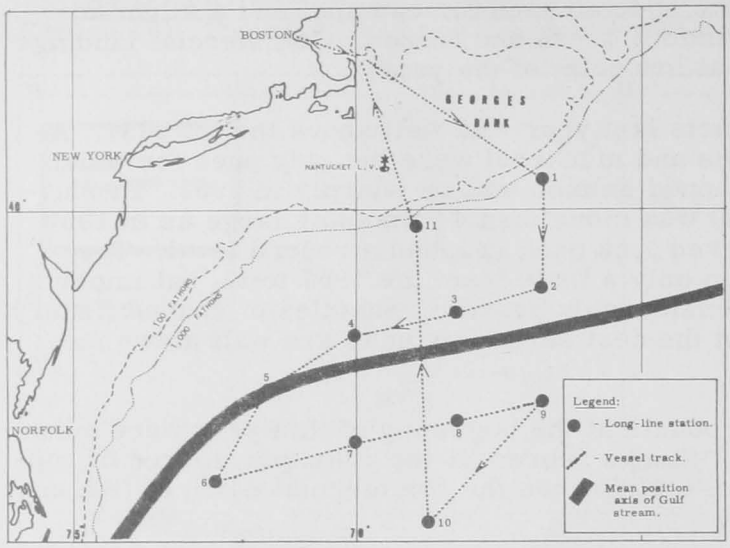
UNITED STATES LANDINGS, 1956-1958: Landings of menhaden in the United States during 1958 amounted to 1,527.2 million pounds as compared with 1,683.1 million pounds in 1957, and 2,097.2 million pounds in 1956.

U. S. Menhaden Catch, 1956-1958

States	1958	1957	1956
	(Millions of Pounds)		
Maine, Mass., and Rhode Island	12.2	41.3	78.8
New York, New Jersey, Delaware, and Virginia	837.8	1,068.6	1,144.0
North Carolina, South Carolina, & Florida East Coast	244.2	208.0	314.6
Florida West Coast, Louisiana, Mississippi, and Texas	433.0	365.2	559.8
Total	1,527.2	1,683.1	2,097.2

North Atlantic Fisheries Exploration and Gear Research

COMMERCIAL STOCKS OF TUNA FOUND IN WESTERN NORTH ATLANTIC (M/V Delaware Cruise 59-1): Commercial concentrations of bluefin tuna (Thunnus thynnus) with other tuna species were found in the Gulf Stream area of the western North Atlantic during this cruise (January 12-February 6, 1959) of the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware. This marks the first time tuna have been caught in such quantity in the winter months. The results of this cruise contribute substantially to the knowledge of the distribution of tuna species in the North Atlantic, especially at this time of the year.



Tuna exploration by M/V Delaware Cruise 59-1 (January 12-February 6, 1959).

The Delaware's most significant catch was made in the Gulf Stream area 280 miles south of Nantucket Island and 287 miles east of Cape Henry at 36°46' north latitude and 70°00' west longitude. Here, over 5 tons of tuna were caught on only 60 baskets of gear. The catch consisted of 34 large bluefin, 9 yellowfin (Thunnus albacares) and 4 albacore tuna (Thunnus alalunga). The surface water temperature was 74.2° F--the highest temperature recorded at any station. Bluefin tuna occurred in most of the areas fished. The exceptions were Stations 1 and 11, lying well to the north of the Gulf Stream, and Stations 6 and 10, lying to the east and south of the Gulf Stream. Substantial concentrations of bluefin tuna were taken at Stations 2 and 4. On 45 baskets of gear, 15 bluefin and 5 albacore tuna were taken at Station 2; while 25 bluefin, 1 albacore, and 1 big-eyed (Thunnus obesus) were caught at Station 4 using the same amount of gear.

Table 1 - Tuna Exploration in Western North Atlantic by M/V Delaware (Cruise 59-1)

Station	Position		Baskets Set	Surface Temp.	Species Tuna	Number of Fish	Approx. Wt.	Other Species
	W. Long.	N. Lat.	No.	°F.			Lbs.	
1	66°42'	40°24'	30	49.8	-	-	-	-
2	66°42'	38°57'	45	52.8	Bluefin	15	2,150	Blue shark (1), lancetfish (3)
3	68°14'	38°35'	45	58.6	Bluefin	6	365	Blue shark (1)
					Albacore	3	110	Ray (1)
					Big-eyed	1	60	-
4	70°00'	38°16'	45	57.2	Bluefin	25	3,500	-
					Albacore	1	30	-
					Big-eyed	1	50	-
5	71°33'	37°30'	45	56.4	Bluefin	2	280	Mackerel shark (1)
					Big-eyed	1	75	Lancetfish (2)
6	72°28'	36°15'	60	Bgn 66.8 End 73.6	Yellowfin	7	230	Blue shark (12), lancetfish (2)
7	70°00'	36°46'	60	74.2	Bluefin	34	10,080	Ray (1), lancetfish (1)
					Albacore	4	110	-
					Yellowfin	9	320	-
8	68°14'	37°03'	60	-	Yellowfin	1	30	Mako shark (1)
					Bluefin	2	600	Dolphin (3)
9	66°42'	37°24'	45	70.8	Bluefin	4	950	Blue shark (3), lancetfish (1)
					Albacore	1	30	Hammerhead shark (1)
					Yellowfin	1	20	-
					Skipjack	1	15	-
10	68°45'	35°39'	50	65.4	Albacore	1	30	Blue shark (3), lancetfish (1)
11	68°55'	39°45'	41	53.1	Albacore	2	60	Lancetfish (1)

Yellowfin tuna were taken at Stations 6-9, inclusive, in surface water temperatures from 66.8° F. to 74.2° F. Big-eyed tuna occurred only at Stations 3, 4, and 5 in surface water temperatures of 58.6° F., 57.2° F., and 56.4° F., respectively.

Oceanographic data was collected at all fishing stations in cooperation with the Woods Hole Oceanographic Institution. Night lighting for small specimens was conducted, in addition to the collection of biological data on the various species of tuna.

Several severe storms were encountered during the cruise. These storms resulted in very rough seas which caused extensive damage to the port life boat.

Note: Also see Commercial Fisheries Review, February 1959, p. 25.

Oceanography

WIDER STUDY OF THE SEA URGED: The Committee on Oceanography of the National Academy of Sciences - National Research Council warned on February 15, 1959, that the United States must--within the next ten years--double its present rate of deep-sea research or face serious economic, political, and military hazards.

"Action on a scale appreciably less than that recommended," the Committee declared, "will jeopardize the position of oceanography in the United States relative to the position of the science in other major nations, thereby accentuating serious military and political dangers, and placing the nation at a disadvantage in the future use of the resources of the sea."

This warning came at the head of a list of detailed recommendations released by the Committee in advance of a more extensive report to be published later. The Committee was appointed in 1957 by the President of the Academy-Research Council, and supported by the U. S. Atomic Energy Commission, U. S. Bureau of Commercial Fisheries, National Science Foundation, and Office of Naval Research.

The cost of the ten-year program, it was estimated, would total $651,410,000 over and above the present level of support.

The three principal recommendations of the Committee were that:

1. The United States government should expand its support of the marine sciences at a rate which will result in at least a doubling of basic research activity during the next ten years.

2. The increase in support of basic research should be accompanied during the next ten years by a new program of ocean-wide surveys. This will require a two-fold expansion of the present surveying effort.

3. The United States should expand considerably its support of the applied marine sciences, particularly in the areas of military defense, marine resources, and marine radioactivity.

To explain the urgent nature of its recommendations, the report points out the many benefits that could accrue from intensive oceanographic research--in the acquisition of new knowledge, the development of the oceans' vast mineral and food resources, more accurate prediction and possible control of climatological change, and the improvement of military defenses against surprise attacks by missile-launching submarines. Excerpts from the report follow:

New Knowledge: "The seas present a challenge to man which in magnitude approaches that of space. . . We know less about many regions of the oceans today than we know about the lunar surface. Yet we have learned enough to know the major features of the ocean floor--35,000-foot trenches; 2,000-mile-long fracture zones; flat-topped undersea mountains; broad ocean-long ridges; abyssal plains as flat as a calm sea--are uniquely different from anything either on the surface of the moon or on the land surfaces of the earth. How and when were these features formed and why are they so different? An answer to these questions is essential if we are to decipher the history of our planet and its sister planets. Part of the answer lies in the records of ancient earth history locked in deep sea sediments; part will come from an intensive study of the rocks under the ocean. These studies, combined with studies of the waters and the living creatures of the sea, will also tell us much about the origin and evolution of life on earth.

"During the last few years, four great subsurface ocean currents--rivers in the depths of the sea one thousand times greater in flow than the Mississippi--have been discovered using newly developed current-measuring techniques. We suspect that others exist and we need to know where the waters come from and where they go."

Ocean Resources: "On the practical side the problems to be solved concerning the oceans are at least as urgent as those of space. How many fish are in the sea? No man knows, nor do we know what determines the numbers of fishes in different regions, the quantities of plant and animal material on which they feed, or what could be done to increase these numbers. We must learn these things if we are to help solve the increasingly acute problems of providing animal protein food for the growing numbers of underfed people in the world. Given more study man can economically harvest considerably more food from the seas than

is now possible. Considering the position of the United States in the community of nations, it seems appropriate, even essential, that we lead the way in this respect."

Climate Studies: "We know that the average weather conditions we call climate can change over a few decades, and we suspect that changes in the storage of gases and heat in the oceans will profoundly influence the process. Studies of the mechanisms of interchange between the air-sea boundaries of regions where intense interchange occurs and of the slow mixing between the ocean deeps and the surface which controls storage of heat and gases are essential for further understanding, hence for prediction and possibility of control."

What is Needed: "With these problems and prospects in mind, this Committee has attempted to assess the steps which should be taken in order that the United States might possess outstanding capabilities in the oceanographic field, and in order that we might obtain sufficient knowledge in time to avert a "crash" program--which would be wasteful in terms both of money and valuable technical manpower.

"Of particular importance among the facilities are ships, which are to the oceanographer what cyclotrons or reactors are to the nuclear physicist. He simply cannot undertake adequate research without them.

"Our oceanographic research ships are inadequate for the job which must be done. Most of the ships are old and outdated. Many are obsolete and should be replaced by ships of modern design which will be more efficient to operate and from which a greater variety of scientific observations can be made. In addition, the number should be increased.

"The oceanographer also needs improved instruments if he is to penetrate the water barrier and learn in detail about conditions at great depths. Accordingly, the Committee has recommended the establishment of a program of broad scope, aimed at developing and using new instruments and devices for exploring the sea. Using new deep-diving vehicles, for example, it is now possible for man to observe directly the ocean deeps. It seems highly likely that within the next ten years men will descend through the water nearly seven miles to the deepest point on earth."

Federal Agencies Involved: "To achieve these aims in the next ten years will necessitate many agencies of the Federal Government working together both in planning and in providing the monies. Taking into account the relative degrees of interest and importance of oceanography to individual agencies, the Committee recommends:

"The Navy and the National Science Foundation should each finance about 50 percent of the new basic research activity except ship construction. The Navy should finance 50 percent of the new research ship construction with the Maritime Administration and the National Science Foundation sharing the remainder. The Navy, through the Hydrographic Office, should finance 50 percent of the deep ocean surveys, while the Coast and Geodetic Survey should finance the balance. The Navy should sponsor completely all military research and development operations. The Bureau of Commercial Fisheries should finance the greater part of the recommended ocean resources program. The Atomic Energy Commission should finance the major part of the research dealing with the problems of radioactive contamination of the oceans. The National Science Foundation and the Office of Education should sponsor jointly the proposed program for increasing scientific and technical manpower in the marine sciences. Efforts aimed at fostering international cooperation in the marine sciences should be sponsored by the Department of State, the International Cooperation Administration, and the National Science Foundation. Other agencies should take responsibility for certain aspects of the proposed program, particularly the Public Health Service, the Geological Survey, and the Bureau of Mines.

"Although the bulk of oceanographic research and survey work must of necessity be financed by the Federal Government, the value of state and private funds cannot be overestimated. Such funds are especially helpful for supporting initial exploratory basic research and for starting new laboratories. Accordingly, the Committe recommends:

"Private foundations and universities, industry, and state government should all take an active part in the recommended program of expansion."

Specific Recommendations: The Committtee advocated the broadening of educational opportunities in oceanography for graduate scientists through action by universities, the Federal Government, and the scientific community at large. This might be accomplished, the report stated, by increasing the size of oceanographic faculties, by the affiliation of oceanographic research institutions with university faculties, the development of new oceanographic centers at universities with adequate existing faculties, and the creation of long-term fellowships tenable at more than one university. The Federal Government was asked to aid in the financing of the recommended faculty increases to the amount of $500,000 a year for salaries and other costs associated with the positions. The scientific community was asked to undertake more active recruiting of prospective oceanographers among undergraduate students of physics, chemistry, biology, and geology.

Need for New Ships Cited: The report undertakes to map out a detailed program for the construction of a fleet of research ships, noting that the "conversion of vessels that were originally designed for other purposes into research, development, or survey vessels is to be discouraged."

The Committee's recommendations call for the construction of 70 ships of 500 to 2,200 tons displacement between 1960 and 1970, which would result in the modernization of the present fleet of 45 small vessels and its increase in size to a total of 85 ships of various capacities, at a cost of $213,000,000. Responsibilities for construction would be assigned to government agencies with appropriate interests, including the Navy, Coast and Geodetic Survey, Bureau of Commercial Fisheries, National Science Foundation, and the Maritime Administration.

The report also recommended that the Maritime Administration be consulted in the designing of all research ships paid for from public funds and that all noncombatant surface ships used for research, development, or surveying be manned by civilian crews.

The report further advised that the addition of each ship to research activity would result in an accompanying need for about 60 shore-based technicians, the construction of about $1,500,000 in shore facilities, and the expenditure of about $1,200,000 per year in their operation. It was recommended that these costs be divided between the Navy and the National Science Foundation.

Shore facilities will also be needed for survey ships, the report added. It recommended an initial allocation of $750,000 for construction costs and an equal annual allocation for operations be made for each new survey ship placed in operation. These costs would be divided between the Navy and the Coast and Geodetic Survey.

Engineering Needs: The Committee declared that the advancement of our knowledge of the oceans depended greatly upon the development of radically new devices, the improvement of currently available vehicles, and the working out of new research techniques. The report called for the development of manned submersibles that can operate down to and on the bottom of most of the oceans; stable, mid-ocean research platforms; anchored and drifting deep-sea buoys; and ice-breaking submarines. Need was also anticipated for assigned aircraft, up to four-engined; new engineering techniques for deep-sea drilling and bottom-sampling; and more effective instrumentation. A ten-year budget of $100,400,000 was proposed.

Radioactivity in the Oceans: The report recommended that one agency be given over-all responsibility and authority for regulating the introduction of radioactive materials into the oceans and another the responsibility for monitoring. Vigorous programs should be launched, the report continued, to study circulating and mixing processes in the oceans, inorganic transfer of radioactive elements to sedimentary deposits, and effect of radioactive elements on marine organisms. It was estimated that ten-year costs of new research in this area would cost approximately $44,130,000.

Ocean Resources: Many activities to add to our understanding of marine biological resources were recommended, including laboratory studies of fish mortality, behavior, and genetics; feasibility studies on salt-water pond fish culture, addition of nutrients to increase the productivity of marine organisms, and on marine transplantation; and surveys of ocean life.

Concerning mineral resources, the report stated: "Existing knowledge is inadequate to determine the feasibility of creating a marine mineral industry."

A ten-year budget for new research of $78,540,000 was proposed.

International Cooperation: In the field of international cooperation, the Committee recommended that the U. S. offer financial support, through the National Science Foundation, to the Special Committee on Oceanic Research of the International Council of Scientific Unions, and that additional funds be sought to support participation in the Special Committee's proposed year-long study of the Indian Ocean. The report further recommended the promotion of increased intergovernmental cooperation in oceanographic studies and the encouragement of international programs in the use of protein foods from the sea for human nutrition, particularly in undeveloped areas.

Proposed Ten-Year (1960-70) Budget for New Oceanographic Activity by Federal Agency	
Navy	$278,240,000
Coast and Geodetic Survey	78,040,000
Bureau of Commercial Fisheries	123,160,000
Maritime Administration	10,900,000
National Science Foundation	121,040,000
Office of Education	5,000,000
Atomic Energy Commission	32,430,000
Bureau of Mines	2,600,000
Total	$651,410,000

Oregon

FISH AND SHELLFISH LANDINGS, 1958: Landings of fish and shellfish by the commercial fishermen of Oregon totaled 57.8 million pounds--2.1 percent above the 1957 total of 56.6 million pounds. The landings in 1958 were sharply higher for albacore tuna (increased from 3.4 million pounds in 1957 to 9.8 million pounds in 1958). However, salmon landings were lower by 28.2 percent in 1958 as compared with the preceding year. The new shrimp fishery off the coast of Oregon yielded close to 1.6 million pounds, an increase of over 400 percent from 1957.

Oregon Landings of Fish and Shellfish, 1958		
Species	January-December	
	1958	1957
	(1,000 Lbs.)	
Salmon:		
Blueback	534	189
Chinook	6,021	6,784
Chum	163	155
Pink	-	100
Silver	1,439	4,125
Total salmon	8,157	11,353
Shad	450	339
Smelt	216	347
Steelhead	480	539
Striped bass	22	13
Sturgeon, green	43	70
white	147	183
Bottom fish[1/]	26,079	28,074
Tuna, albacore	9,754	3,277
Clams[2/]	160	173
Crabs[3/]	10,747	11,934
Shrimp	1,550	287
Grand Total	57,805	56,589

1/Includes landings of fish livers.
2/Weight in the shell.
3/Based on a weight of 25 pounds per dozen.

Pacific Oceanic Fishery Investigations

SKIPJACK TUNA MIGRATION STUDIES INITIATED (M/V Hugh M. Smith): The fishery research vessel Hugh M. Smith of the U. S. Bureau of Commercial Fisheries Hawaii Area Biological Laboratory at Honolulu returned February 11 from a 5-week cruise in waters around the Hawaiian Islands. This cruise was one in a series planned to learn more about the migration of skipjack tuna which, in varying numbers, enter Hawaiian waters each year and are important to the Hawaiian fishing industry.

The vessel worked in an area extending several hundred miles to the east, the south, and the west of the island chain. Observations included those for sea-surface temperatures and salinity, plankton, deep-swimming fishes, and the numbers of surface schools and of bird flocks. Except for scattering schools of small skipjack, few surface schools were sighted. No schools of the larger season skipjack were observed. These results suggest that the season fish migrate each winter to distant parts of the ocean which are at least 800 miles from the Hawaiian Islands--to areas as yet unknown.

The results of the oceanographic observations made aboard the vessel reveal that surface waters characterized by low salinity and high temperatures had penetrated northward to a line extending from approximately 120 miles east of the Island of Hawaii to 250 miles to the south and west of the Island of Kauai. Only isolated pockets of water of the type believed by the scientists of the Bureau to be preferred by the skipjack were found. The northward movement of the low-salinity high-temperature waters is believed to be a comparatively uncommon occurrence. The effects of this movement upon the migrations of the skipjack are anxiously awaited and will be studied during the forthcoming spring and summer cruises.

Packaging

EFFECT OF MULTIPLE PACKAGING ON SALES OF CANNED MAINE SARDINES TESTED: A test of multiple-packaging for canned Maine sardines was conducted cooperatively by the Maine Sardine Council, a large container company, a Philadelphia retail food market chain, and a Philadelphia research company about a year ago.

Eight different packaging arrangements for the canned sardines were used. Each was either a loose can arrangement, a multiple-packaging arrangement, or a combination of loose cans and multi-packs. Three-packs (three cans to the package), four-packs, and six-packs alone were tested. The multi-pack with loose cans and in combinations with other multi-packs was tested. Each variation lasted two weeks in each store. No publicity or advertising was used; no price cuts were offered.

The results showed that sales of multi-packs greatly increased the sales of sardines. For example, the three-pack without loose cans on the shelf did the best and showed a sales gain of 34 percent. This was a 34-percent increase over loose cans with no multi-packs, but priced 3 for 29 cents.

It was also learned that the closer the store came to the normal multiple-pricing structure--3 cans for 29 cents is an example--the less need there was for loose cans on the shelf with the multiple-packaged product. For instance, for the three-pack and loose combination, the ratio of three-packs to loose cans sold was 70:30. With the six-pack and loose combination, however, the picture changed--the ratio of six-pack to loose was 58:42.

In addition to sales gains, the test revealed a few other marketing conclusions:

(1) Income level is a factor in sardine multi-pack buying. Whether the shopper buys a three-pack or a six-pack, for instance, depends on the income level.

(2) Three-packs sell best in low-income neighborhoods.

(3) The three-pack, six-pack combination does best in stores serving higher income people.

Evidently low-income shoppers shrink from tying up too much money in one item at one time. (Excerpts from address, "Factors that Affect Response to Multiple Packaging," at the Marketing Session of the 52nd Annual Convention of the National Canners Association, Chicago, Ill., February 22, 1959.)

Sea Otter Food Habits Under Study

A study to determine trends in the availability of feed and the range for sea otter is being conducted by a diving biologist with SCUBA gear. This innovation was announced on February 24 by the Department of the Interior. The site of the operation is Kuluk Bay, Adak, Aleutian Islands National Wildlife Refuge. The work is being done by the U. S. Bureau of Sport Fisheries and Wildlife. A typical frogman's suit, with the self-contained underwater breathing apparatus is used. Two lungs are provided, one of them being held in reserve in case extra decompression time becomes necessary.

Adult sea otter hauled out on the rocks.

The project is intended as a sea otter food study in an area of growing sea otter population. Kuluk Bay was chosen because a small colony of sea otters has already established itself there, it is typical sea otter habitat, and a nearby Naval Base facilitates the logistics of the project. Needless to say the water is usually cold and often whipped to violence by high winds. Activity is often hampered by waves and weather.

Because of the newness of the project no definite conclusions have been reached except to verify that in the portions of Kuluk Bay explored there is plenty of sea otter food and lots of other sea life in which the sea otter has no interest. The sea urchin, a shellfish which looks like a cockleburr, is a primary article of diet for the otter. It was found on the bottom in numbers.

The fringed greenling, two varieties of crabs, and the rock oyster--all favorites of the sea otter--are to be found in the bay. So also are such other mollusks as whelks, mussels, chitons, and clams. Other sea life includes the sea cucumber, starfish, brittle stars, and sand dollars. In some places shrimp was observed in large concentrations, but the sea otter is not among those animals which relish that particular type of shellfish.

The diver has found the bottom of the bay rather rugged in terrain, with 40-foot underwater cliffs not unusual. This has made scientific sampling of the area a bit difficult. Also sampling an area in which the fauna was mobile was found to be much different from sampling areas in which mollusks were attached to each other and firmly to the bottom.

One sample, taken from the sea bottom nine feet square and in 50 feet of water, resulted in a catch of 255 specimens weighing a total of 32½ pounds. Mussels--127 of them--accounted for nearly 30 pounds of this. Then there were 56 sea urchins weighing just over a pound, 27 rock oysters, 37 clams, and 8 whelks.

The study is not sufficiently advanced to know the maximum depth limits at which an otter feeds but indications in other studies are that most of the feeding of this deep-diving sea mammal is done in water less than 25 fathoms deep. In Kuluk Bay, work to the present time has been confined to about half that depth.

The sea otter once could be counted by the tens of thousands in Alaskan and North Pacific waters. In one year alone, 1804, a shipment of 15,000 skins valued at one million dollars was shipped from Sitka, Alaska, to Russia. Heavy exploitation in the 1800's virtually exterminated the breed. Under the protection it has received in the past decades, the sea otter has made a promising comeback in Alaska and may be seen at other places along the Pacific Coast.

Shrimp

Supply and Distribution of Shrimp, United States, 1953-58
(Based on Heads-On Weight)

Item	1958 1/	1957 2/	1956	1955	1954	1953
	(Millions of Pounds)					
Supply:						
Domestic catch	212.0	203.9	224.2	244.4	268.3	260.4
Imports 3/	138.0	117.1	115.3	90.3	69.8	72.4
Total	350.0	321.0	339.5	334.7	338.1	332.8
Disposition:						
Canned	54.0	32.6	46.8	46.4	48.4	52.3
Dried	3.0	2.5	3.6	3.8	7.6	7.1
Frozen	238.0	231.6	226.3	208.3	197.8	188.4
Fresh	55.0	54.2	62.7	76.1	84.4	85.0

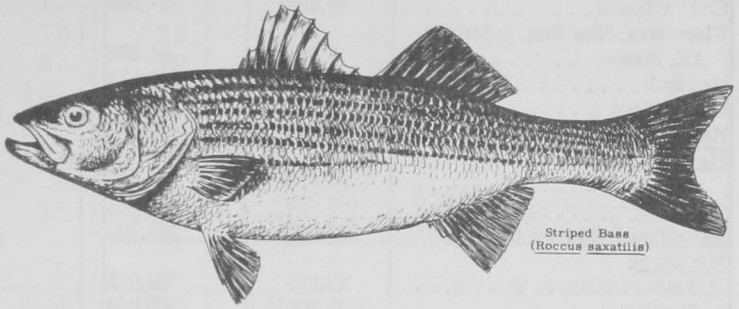
1/Preliminary.
2/Revised.
3/Mostly frozen headless and some frozen peeled shrimp meat. Also may include some fresh, canned, and dried. Round weight was determined by multiplying by 1.68.
Note: To convert to headless weight divide by 1.68.

UNITED STATES SUPPLY AND DISTRIBUTION, 1953-58: The total supply of heads-on shrimp (domestic and imported) available to the United States consumer amounted to 350 million pounds in 1958, an increase of 9.1 percent over the preceding year and about 4.2 percent above the average for the six-year period, 1952-1958. In 1958 the total available supply of heads-on shrimp consisted of 212 million pounds, or 60.6 percent, from domestic landings and 138 million pounds (39.4 percent) from imports. Imports are supplying an increasing share of the over-all United States shrimp supply. In 1953 domestic landings supplied 78.2 percent of the total shrimp supply of 333 million pounds.

The amount of shrimp utilized in the frozen form has steadily increased from about 188.4 million pounds in 1953 to about 238 million pounds in 1958. Most of the increase in the amount of shrimp frozen has occurred at the expense of the fresh shrimp. The quantity of shrimp canned has fluctuated according to the supply of the smaller sizes and the demand for shrimp for other uses, but the amount used for canning in 1958 was the highest in the past six years. The amount of shrimp utilized for drying has declined steadily since 1953.

Striped Bass

SURVEY SHOWS EXCELLENT CROP OF YOUNG IN CHESAPEAKE BAY: There were 30 times as many young striped bass or rockfish taken in exploratory samples from nursery areas of Chesapeake Bay in the summer of 1958 than occurred in samples for the previous two years, biologists of the Virginia Fisheries Laboratory announced on February 16, 1959.


Striped Bass
(Roccus saxatilis)

"Not only did unusual numbers of young striped bass appear in Virginia rivers during the past summer, but Maryland scientists also found an abundance of young fish in rivers up the Bay," a fishery biologist of the Virginia Laboratory stated. "These young fish should supply large stocks for both commercial and sports fishermen by 1960 when they will be about 14 inches long and should weigh about $1\frac{1}{2}$ pounds," he predicted.

The biologist points out that success in breeding and survival of young fish usually plays a more important part in determining the abundance of striped bass than does the removal of large fish by the commercial or sports fishermen. Because both sport and commercial fishing is valuable to the economy of the Chesapeake Bay area, the Virginia Fisheries Laboratory has repeatedly emphasized that nursery areas for striped bass, shad, croakers, oysters, and crabs must be protected from pollution or changes of any kind which would be detrimental to marine animals if this natural resource is to maintain itself. Though there have been large fluctuations in striped bass abundance since 1900 there is no evidence that a decline in the striped bass population has occurred. Indeed, statistics show that almost twice as many rockfish have been caught since 1940 as during any similar period for which records are available.

The successful spawning of striped bass in 1958 is encouraging and should help compensate for the poor croaker spawning during the winter of 1957/58.

U. S. Fishery Landings, 1958

Commercial fishery landings in the United States during 1958 amounted to 4.6 billion pounds--about 3 percent less than the 4.8 billion pounds taken in 1957.

The value of the 1958 catch was about $380 million, or $29 million more than in 1957 and $11 million more than the record in 1956. The preliminary data also show that the canned pack of fishery products for human food in 1958 totaled 740 million pounds, an increase of 90 million pounds over 1957.

The heaviest decline in the catch was in the New England area where decreased haddock, whiting, and industrial fish landings helped to drop the annual harvest about 7 percent or 70 million pounds, and in the Middle Atlantic area where lower menhaden catches contributed to the 300-million-pound decrease in catch. While the catch of salmon was up in Alaska, production of herring declined and the total catch was about the same as in 1957.

To partially offset these losses, 1958 landings in Chesapeake Bay were up 43 million pounds, South Atlantic landings up 35 million pounds, and Gulf landings up 68 million pounds.

The catch off the California coast was up 29 million pounds and the catch off Latin America by California fishermen was 18 million pounds above that of 1957. In these instances the sardine and tuna harvests were largely responsible for the increase. The State of Washington had landings 27 million pounds in excess of the 1957 catch while Oregon fishermen held even with the previous year.

The principal decline by species were: menhaden landings were down 163 million pounds, New England industrial fish (excluding menhaden) down 73 million pounds, jack mackerel down 59 million pounds, Pacific mackerel down 39 million pounds, anchovies down 32 million pounds, whiting down 31 million pounds and haddock down 14 million pounds. Landings in 1958 were up for Pacific sardines almost four times and reached 202 million pounds--an increase of 156 million pounds over 1957. Salmon landings in the Pacific Coast States were up about 38 million pounds; tuna landings in continental United States were up 18 million pounds; ocean perch up 14 million pounds; pollock up 9 million pounds; and shrimp landings on the Atlantic, Gulf, and Pacific coasts (excluding Alaska) were up 6 million pounds.

Table 1 - United States Fishery Landings of Certain Species, 1958 and 1957

Species	1958 1/	1957
	....(1,000 Lbs.)....	
Anchovies, Calif.	8,300	40,547
Cod, Atlantic	39,600	34,068
Flounders, New Eng. & Middle Atl. States	70,600	64,223
Haddock	119,100	133,571
Hake, white	4,200	5,745
Halibut, Pacific	47,900	49,899
Herring, sea:		
Alaska	86,000	118,290
Maine	160,000	153,621
Industrial fish, New England 2/	217,000	289,700
Mackerel:		
Jack	22,800	82,012
Pacific	22,900	62,044
Menhaden	1,527,200	1,690,128
Ocean perch, Atlantic	147,700	133,931
Pollock	30,800	22,034
Salmon	302,700	265,153
Sardine, Pacific	202,300	45,862
Tuna, Pacific Coast States:		
Albacore	37,100	46,659
Bluefin	30,900	20,315
Skipjack	118,500	90,821
Yellowfin	126,400	137,240
Total	312,900	295,035
Whiting	102,100	133,041
Crabs, Dungeness, Pac. States (excluding Alaska)	38,800	42,222
Lobsters, Maine	21,500	24,403
Scallops, sea	18,900	20,994
Shrimp (heads-on):		
South Atlantic States	22,700	28,590
Gulf States	175,000	168,453
Pacific Coast States (excl. Alaska)	10,000	4,431
Squid, California	7,500	12,449
Total all above items	3,718,500	3,920,446
Others not listed	907,500	858,012
Grand Total	4,626,000	4,778,458

1/Preliminary. 2/Excluding menhaden.
Note: Data principally are weight of fish and shellfish as landed except mollusks which are the weight of meats only.

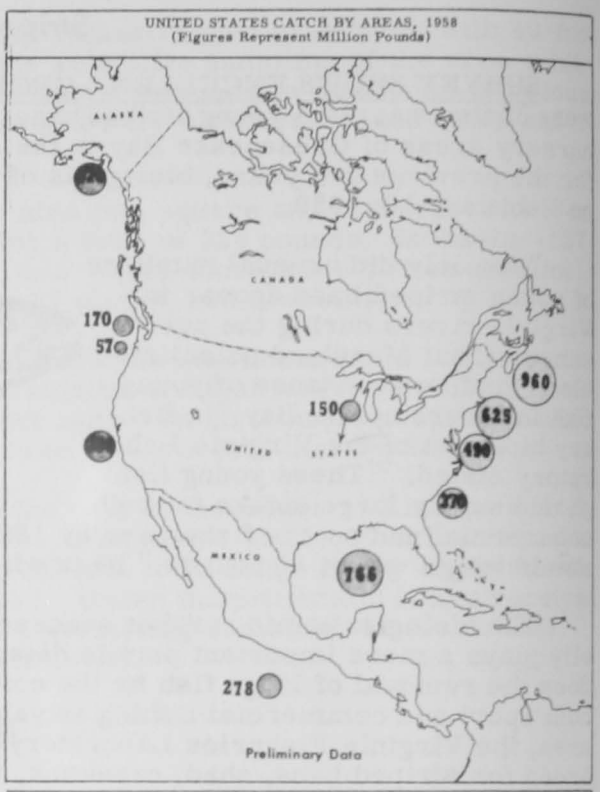


Table 2 - United States Fishery Landings by Areas, 1958 and 1957

Area	1958 1/	1957
	.....(1,000 Lbs.)...	
New England	960,000	1,031,000
Middle Atlantic	625,000	928,000
Chesapeake	490,000	447,000
South Atlantic	370,000	335,000
Gulf	766,000	692,000
Inland (Miss. River and Great Lakes areas)	150,000	153,000
California:		
off California	390,000	361,000
off Latin America	278,000	260,000
Oregon	57,000	57,000
Washington	170,000	143,000
Alaska	370,000	371,000
Total	4,626,000	4,778,000

1/Preliminary.

United States Fishing Fleet 1/ Additions

NOVEMBER 1958: A total of 36 vessels or 5 net tons and over was issued first documents as fishing craft in November 1958. Compared with the same month of 1957, the total was the same for both years. The Gulf Area led with 12 vessels, the South Atlantic was second with 9; and Chesapeake was third with 6.

1/Includes both commercial and sport fishing craft.

Table 1 - U. S. Vessels Issued First Documents as Fishing Craft by Areas, November 1958

Area	November		Jan.-Nov.		Total
	1958	1957	1958 2/	1957 2/	1957
	(Number)				
New England	1	1	12	18	19
Middle Atlantic	1	1	13	22	23
Chesapeake	6	6	93	99	104
South Atlantic	9	15	131	119	130
Gulf	12	11	259	143	166
Pacific	4	-	107	98	102
Great Lakes	3	2	9	7	8
Alaska	-	-	31	47	48
Puerto Rico	-	-	-	1	1
Virgin Islands	-	-	1	-	-
Total	36	36	656	554	601

2/Revised.
Note: Vessels assigned to the various sections on the basis of their home ports.

Table 2 - U. S. Vessels Issued First Documents as Fishing Craft, by Tonnage, November 1958

Net Tons	Number
5 to 9	17
10 to 19	2
20 to 29	5
30 to 39	7
40 to 49	3
80 to 89	1
180 to 189	1
Total	36

Fishing craft issued documents as fishing craft during the first 11 months of 1958 totaled 656 vessels--an increase of 102 vessels, or 18 percent, as compared with the same period of 1957. Of the vessels documented for fishing, 39 percent were reported from the Gulf States.

U. S. Foreign Trade

GROUNDFISH FILLET IMPORTS, JANUARY 1959: During January 1959 imports of cod, haddock, hake, pollock, cusk, and ocean perch fillets (including blocks) into the United States amounted to 19.1 million pounds--an increase of 8.7 million pounds or 83 percent as compared with January 1958.

Imports from Canada (8.3 million pounds) accounted for 44 percent of the month's total imports. Iceland was second (6.2 million pounds) for 33 percent, while the remainder (4.5 million pounds) for 23 percent was shipped in by 7 other countries.

The quota of groundfish and ocean perch fillets and blocks permitted to enter the United States at $1\frac{7}{8}$ cents a pound in the calendar year 1959 is 36,919,874 pounds, based on a quarterly quota of 9,229,968 pounds. The quota for the calendar year 1958 amounted to 35,892,221 pounds. Imports during individual quarters in excess of the established quarterly quota enter at a duty of $2\frac{1}{2}$ cents a pound.
Note: See Chart 7 in this issue.

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SHRIMP IMPORTS, 1958: United States imports of all shrimp (fresh, frozen, canned, and dried) from all countries in 1958 amounted to 85.4 million pounds as compared with 69.7 million pounds in 1957. Shrimp imports from Mexico in 1958 totaled 56.1 million pounds as compared with 47.9 million pounds in 1957.

Most of the imported shrimp is frozen except for some canned shrimp from northern Europe and some dried shrimp from Hong Kong and Japan.

The United States imported shrimp from 39 countries in 1958 as compared with 36 countries in 1957. Some notable increases occurred in the imports of frozen shrimp from El Salvador, Nicaragua, Costa Rica, Colombia, Argentina, Hong Kong, Australia, Korea, and Egypt.

United States Shrimp Imports (Fresh, Frozen, Canned, and Dried), 1957-58

Country of Origin	1958	1957
	(In 1,000 Lbs.)	
Mexico by Customs District:		
Florida	138	77
New Oreans	2,871	3,668
Laredo	20,947	17,280
El Paso	29	1
San Diego	1,718	760
Arizona	30,334	25,792
Los Angeles	61	310
Hawaii	-	15
Puerto Rico	-	3
Total Mexico	56,098	47,906
British Honduras	4	-
Greenland	41	11
Canada	263	243
El Salvador	1,129	65
Guatemala	39	-
Honduras	836	-
Nicaragua	278	1
Costa Rica	717	228
Panama	7,917	8,378
Canal Zone	193	42
Bahamas	4	8
Cuba	391	610
Netherlands (Antilles)	-	19
Colombia	890	486
Venezuela	121	137
Surinam	82	65

Country of Origin	1958	1957
	(In 1,000 Lbs.)	
Ecuador	4,438	3,869
Peru	487	625
Chile	163	46
Argentina	606	138
Iceland	16	64
Sweden	21	8
Norway	144	132
Denmark	46	21
United Kingdom	2	-
Netherlands	1	-
Western Germany	86	7
Spain	230	22
Italy	267	60
Greece	-	14
Turkey	5	3
Israel	14	14
India	1,700	1,250
Pakistan	637	471
Philippines	5	3
Vietnam	1	-
Korea	128	58
Hong Kong	4,029	1,586
Taiwan	-	2
Japan	2,552	2,887
Australia	362	178
Egypt	450	40
Grand Total	85,393	69,677

Note: Also see Commercial Fisheries Review, April 1958, p. 43.

Wholesale Prices, February 1959

Wholesale prices for selected edible fishery products in February 1959 were down slightly from the preceding month due primarily to lower prices for fresh drawn haddock and haddock fillets, fresh and frozen shrimp, and canned sardines. But compared to the same month a year ago, the February 1959 edible fish and shellfish (fresh, frozen, and canned) wholesale price index (133.7 percent of the 1947-49 average) was up 5.4 percent due to higher prices for fresh and frozen drawn and dressed fish, fresh and frozen fish fillets, fresh water fish, and canned Maine sardines.

The February 1959 price index for the drawn, dressed, and whole finfish subgroup was down 1.8 percent from the preceding month because of a drop in drawn haddock prices (-8.6 percent) and slight declines in prices for frozen red king salmon and halibut. These lower prices more than offset increases in the prices for whitefish and yellow pike. As compared with February 1958, the subgroup index for this February was higher by 24.7 percent because of price increases for all the commodities in the subgroup.

The fresh processed fish and shellfish subgroup index for this February was down 2.0 percent due to a decline in the wholesale prices for fresh haddock fillets (down 4 percent) and fresh shrimp (down 3.2 percent). Shucked oyster prices remained unchanged from January to February this year. The subgroup index in February 1959 as compared with February a year ago was up 4.5 percent. Higher prices for fresh haddock fillets (up 24.8 percent) and oysters (up 11.7 percent) more than offset a drop of 3.2 percent in fresh shrimp prices.

Because of lower frozen shrimp prices at Chicago, the February 1959 index for frozen processed fish fillets and shellfish was down slightly (1.1 percent) from the preceding month. Ocean perch and flounder fillet prices were unchanged, but haddock fillet prices were up 2.4 percent. From February 1958 to February this year the wholesale price index dropped 2.6 percent due to a decline of 8.2 percent in frozen shrimp prices at Chicago. The lower frozen shrimp prices more than offset a 5.0-percent increase in frozen fillet prices in February this year as compared with the same month in 1958.

From January to February 1959 the over-all canned fish subgroup index was about unchanged--slightly higher canned salmon prices just about balanced out lower prices for canned Maine and California sardines. The drop in the Maine sardine price was due to the sell-out of available stocks of the best-grade pack. Canned tuna prices were unchanged from January to February this year, but substantial promotional allowances are being offered to stimulate sales. As compared with the same month of 1958, prices for the selected canned fish products this February were lower by 3.2 percent. Higher Maine sardine prices (up 17.8 percent) were more than offset by a drop of 23.9 percent in the prices for California sardines and lower prices (down about 3 percent) for canned salmon and tuna.

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, February 1959 With Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices1/ ($)		Indexes (1947-49=100)			
			Feb. 1959	Jan. 1959	Feb. 1959	Jan. 1959	Dec. 1958	Feb. 1958
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					133.7	135.4	134.8	126.9
Fresh & Frozen Fishery Products:					157.9	160.6	160.1	144.9
Drawn, Dressed, or Whole Finfish:					170.9	174.1	177.5	137.0
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.21	.23	212.8	232.9	235.0	149.7
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.33	.34	102.6	103.7	104.2	97.5
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.77	.78	173.0	174.1	176.9	141.0
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.77	.67	190.9	166.1	185.9	148.7
Whitefish, L. Erie pound or gill net, rnd., fresh	New York	lb.	.80	.73	161.8	146.6	182.0	128.4
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.74	.66	173.5	153.6	152.4	164.1
Processed, Fresh (Fish & Shellfish):					151.1	154.2	148.0	144.6
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.61	.63	205.9	214.4	211.0	165.0
Shrimp, lge. (26-30 count), headless, fresh	New York	lb.	.92	.95	145.3	150.1	139.0	150.1
Oysters, shucked, standards	Norfolk	gal.	6.00	6.00	148.5	148.5	148.5	133.0
Processed, Frozen (Fish & Shellfish):					137.4	138.9	140.0	141.1
Fillets: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.42	.42	108.6	108.6	108.6	103.4
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.42	.41	131.8	128.7	128.7	125.6
Ocean perch, skins on, 1-lb. pkg.	Boston	lb.	.31	.31	124.9	124.9	124.9	118.8
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	lb.	.87	.89	133.8	137.7	139.6	145.8
Canned Fishery Products:					98.8	98.9	98.3	101.3
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	22.25	22.00	116.1	114.8	112.2	120.0
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	11.00	11.00	79.3	79.3	79.3	81.8
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 24 cans/cs.	Los Angeles	cs.	7.38	7.75	86.6	91.0	96.9	113.8
Sardines, Maine, keyless oil, No. 1/4 drawn (3-3/4 oz.), 100 cans/cs.	New York	cs.	8.22	8.47	87.5	90.1	90.1	74.3

1/ Represent average prices for one day (Monday or Tuesday) during the week in which the 15th of the month occurs. These prices are published as indicators of movement and not necessarily absolute level. Daily Market News Service "Fishery Products Reports" should be referred to for actual prices.

ICED FISH STORAGE EXPERIMENTS

Experiments conducted in Denmark have shown that when plaice are stored without ice at 5.3°, 0.6°, and -0.6° C. (41.5°, 33°, and 30.2° F.), the fish at the lowest temperature kept approximately twice as long as at the highest temperature. Iced fish, at nearly the same temperature (0° to -0.5° C. or 32° to 31.1° F.), kept 2 or 3 days longer. Temperature measurements on iced boxed fish have shown that when fish were exposed for 4 to 5 hours in an auction hall at 14° C. (57.2° F.), the temperature of the upper layers of fish rose to 5° or 6° C. (41° to 42.8° F.), while that of the lowest layers was 2° C. (35.6° F.) (Arsberetning fra Fiskeriministeriets Forsegslaboratorium for 1955, Copenhagen, Denmark.)