

TRENDS AND DEVELOPMENTS

Atomic Waste

ATOMIC WASTE DISPOSAL TO BE STUDIED BY DIVERS OFF NEW ENGLAND COAST: Skin-divers equipped with color cameras will watch at the sea bottom this summer as simulated packages of "radioactive waste" are dumped into 50 feet of water off the New England coast. The job will be done under an agreement with the Atomic Energy Commission by oceanographers of the Coast and Geodetic Survey, U. S. Department of Commerce.

Instead of real atomic waste materials, the packages will contain a dye that will be readily recognized in the water if a package leaks. The Atomic Energy Commission wants to know whether such containers remain intact, break open, gradually disintegrate, or are buried in the bottom. Perhaps they behave differently according to the nature of the sea floor.

The skin-divers will lower themselves from the fantail of the survey vessel *Gilbert* and station themselves at the bottom as the dye-containing packages are dropped from another part of the vessel. The containers will be numbered for identification. If the visibility is poor, the divers can locate them by dragging a wire that will catch on hooks in floats attached to them.

The diving operations will be carried on over Browns Ledge, which is about eleven miles west of Marthas Vineyard. The team of three survey divers may be accompanied by another scientist from the Fish and Wildlife Service.

The Browns Ledge studies are part of a larger project planned to find out what happens to radioactive waste dropped into the sea, so that the best disposal areas and methods can be determined.

Other data will be gathered in a disposal area about 20 miles off Boston harbor, where wastes of low radioactivity and obsolete ammunition have been dumped in the past. The depth is about 300 feet. No diving will be done here, and the equipment used will be tested with a counter for radioactivity whenever it is pulled aboard.

The direction and speed of the currents at three depths will be taken every half hour for 100 hours with meters lowered at two stations several miles apart. Every hour during the same period, a record of temperatures at all depths will be made with a bathythermograph.

Water temperatures will also be measured, as the survey starts and ends along a line from the Boston harbor entrance to a point beyond the disposal area.

Many samples of bottom sediment and seawater will be gathered by the Survey's personnel for analysis by the Public Health Service. Samples of plankton (minute animal and plant life) taken by the Coast and Geodetic Survey in nets will also be turned over to a biological laboratory, such as that of the Fish and Wildlife Service at Woods Hole.

At Browns Ledge it is planned to make similar current and temperature records and to obtain water, sediment, and plankton samples. Here the divers will try to "shave" the top half inch off the bottom to get samples of sediments.

Analysis of the water, bottom, and marine life from the disposal area is expected to show the extent of absorption of radioactivity. The current data will help to determine where the materials have been carried.

In some new area where dumping has started, it is planned to study possible absorption by "bottom dwellers" such as crabs and molluscs indigenous to the section. Many marine animals can concentrate trace elements and may prove to be good indicators of radioactive concentration when examined by bioradiologists of other Government or private agencies.

The Coast and Geodetic Survey made an exploratory survey on Georges Bank last summer to test the feasibility of observations and sample collections by diving oceanographers, and also of measuring deep currents from anchored buoys.



California

AERIAL CENSUS OF COMMERCIAL FISHING CONTINUED: Airplane Spotting Flight 59-1: The inshore area from Morro Bay (Point Estero) to the Mexican Border (Tijuana River) was surveyed from the air (February 9-10 and 13, 1959, by the California Department of Fish and Game *Cessna 170* (1359D) to determine the distribution and abundance of pelagic fish schools and to observe general marine conditions and activity.

Weather conditions during the flight ranged from broken clouds and showers with good visibility to clear skies and almost unlimited visibility.

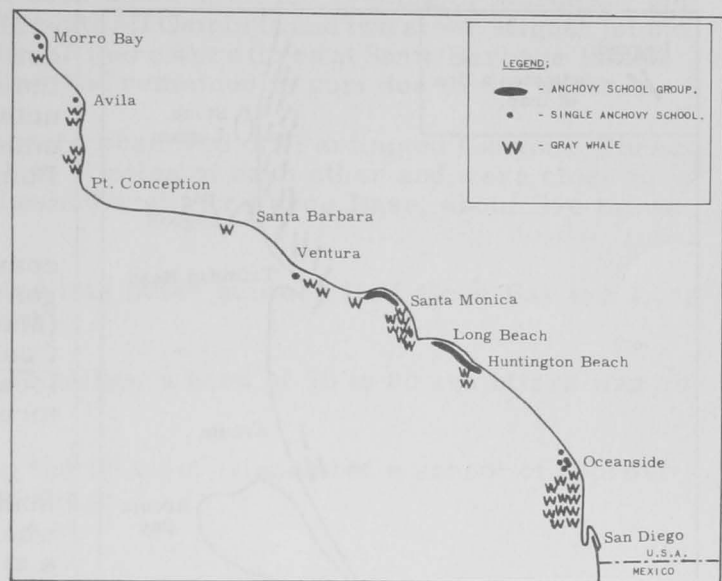
Few pelagic fish schools were observed in the northern and southern portions of the survey area, but from Point Dume to Newport Beach 471 schools of anchovies were seen. The heaviest concentration occurred between Los Angeles Harbor and

Huntington Beach where 309 schools were tallied.

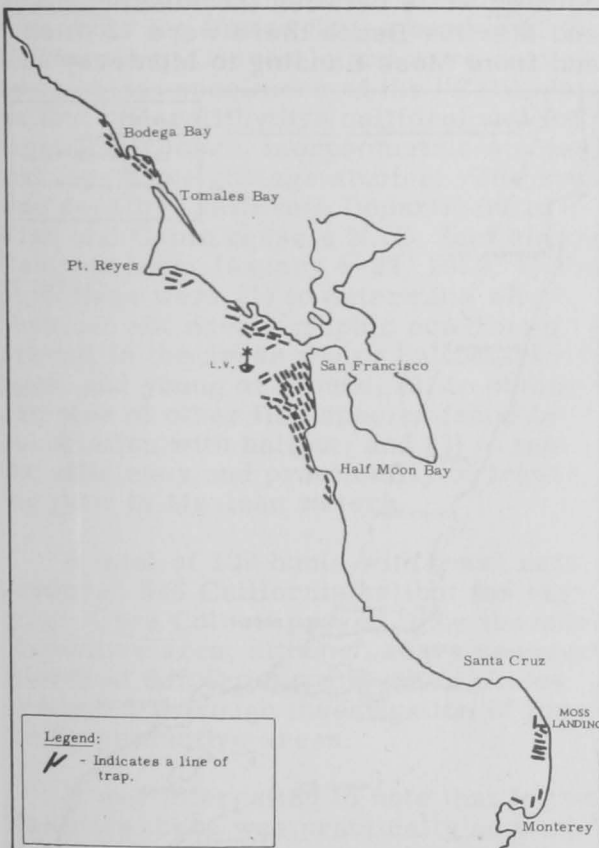
Another group consisting of 155 schools was present between Santa Monica and Malibu. These had the appearance of typical anchovy schools, but some encountered in the vicinity of Malibu behaved more like sardines. A positive distinction was not made.

A total of 34 grey whales was seen in the survey area and all but 2 were traveling in a southerly direction. They were all quite close to shore and two at Pismo Beach were just outside the surf line.

Large porpoise schools were observed between one and two

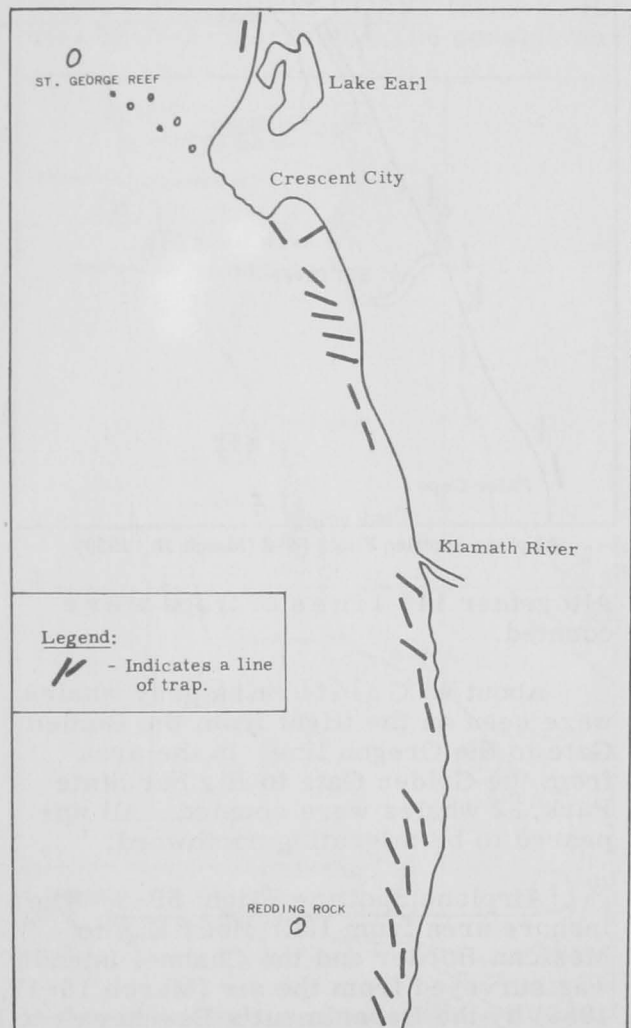


Airplane Spotting Flight 59-1 (February 9, 10, & 13, 1959).

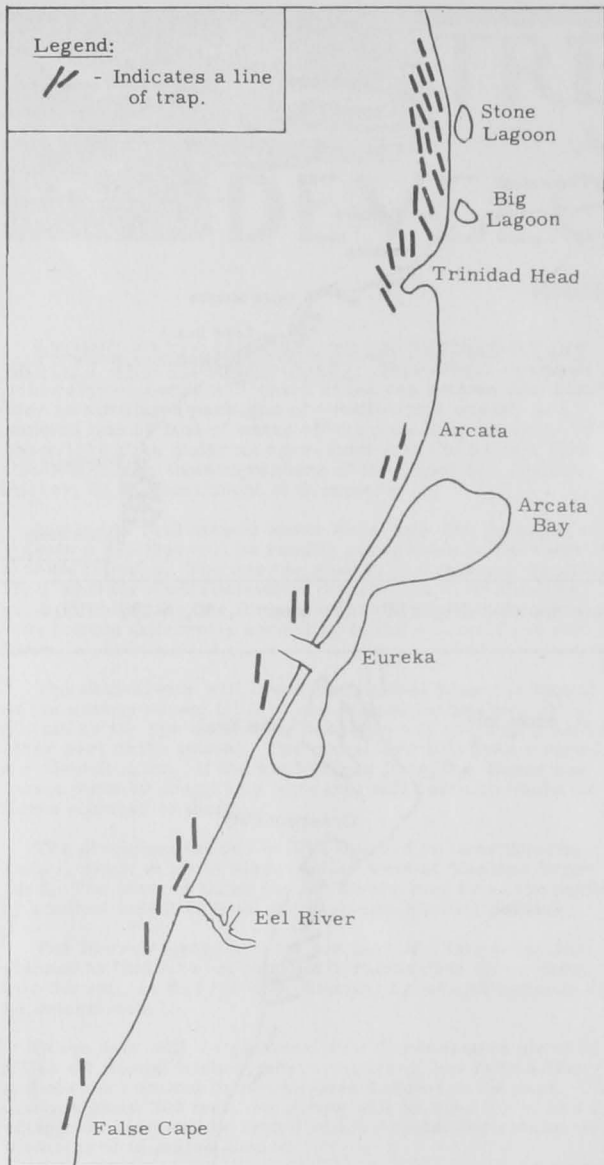


Airplane Spotting Flight 59-2 (March 15, 1959, north of Golden Gate; March 16, 1959, south of Golden Gate).

miles offshore near Laguna Beach, Oceanside, and Del Mar.



Airplane Spotting Flight 59-2 (March 15, 1959).



Airplane Spotting Flight 59-2 (March 15, 1959).

Altogether 146 lines of traps were counted.

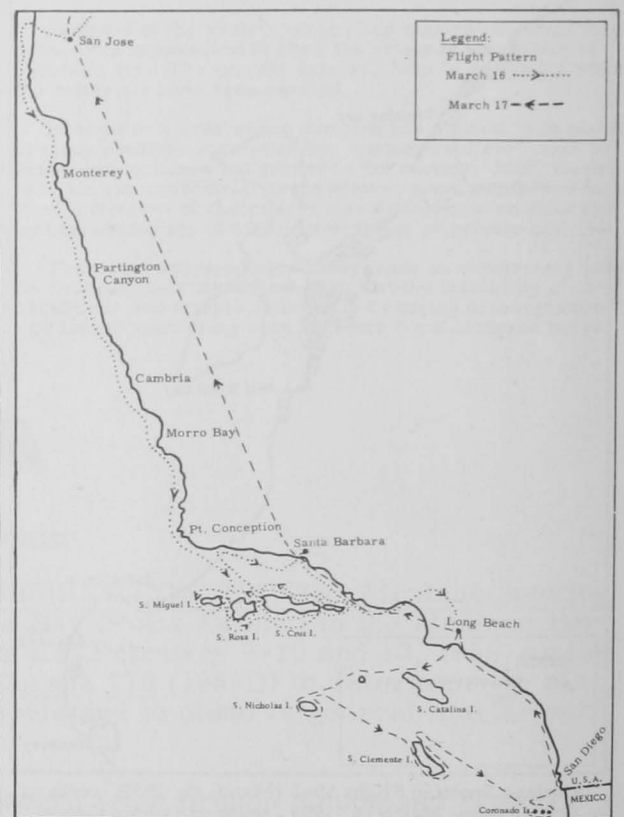
About 45 California grey whales were seen on the flight from the Golden Gate to the Oregon line. In the area from the Golden Gate to Big Sur State Park, 32 whales were counted. All appeared to be migrating northward.

Airplane Spotting Flight 59-3: The inshore area from Half Moon Bay to Mexican Border and the Channel Islands was surveyed from the air (March 16-17, 1959) by the Department's Beechcraft to locate specific areas of commercial abalone diving activities on the opening days of the abalone season.

Water in the inshore area was generally dirty. This condition probably was due to the rain storms during the week of the survey. Particularly dirty water was noted from Santa Barbara to Port Hueneme and near Santa Monica and Dana Point.

Airplane Spotting Flight 59-2: The coastal waters from Monterey to the Oregon line were surveyed from the air (March 15-16, 1959) by the Department's Cessna 180 to determine the crab fishing localities of northern and central California.

Excellent weather and sea conditions made the trips entirely successful. Areas where traps were found were covered in a zigzag pattern extending offshore to the maximum depth which could be fished. From the California-Oregon boundary to below Shelter Cove 63 lines of traps were counted while between the Russian River and Martins Beach there were 72 lines and from Moss Landing to Monterey 11.



Airplane Spotting Flight 59-3 (March 16-17, 1959).

Although storm warnings had just been taken down the evening of March 15, the ocean was reasonably calm. Five diving boats off Cambria and two at San Miguel Island were observed on March 16. On March 17 there were three at Santa Barbara Island and two at Ocean Beach. Most of the fleet had remained in port due to the weather.

Approximately 50 schools of fish were observed off Partington Canyon. These schools were all within a distance of 5 to 6 miles of each other and were close to shore. Many schools were seen off Vandenburg Air Force Base, about five miles offshore.

A total of 43 California grey whales was noted between Half Moon Bay and Long Beach. All appeared to be moving north.

North of Cambria approximately 20 miles, a herd of 50 to 80 sea otters was observed in the kelp.

No fish schools were noted among the Channel Islands but a school of approximately 200 porpoises was seen off San Diego.

Note: See Commercial Fisheries Review, March 1959, p. 26.

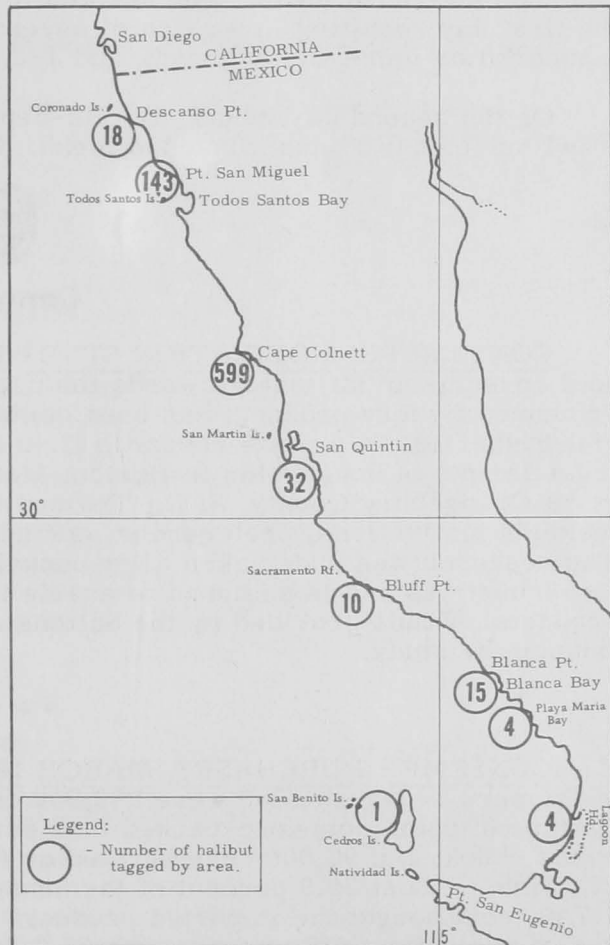
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CALIFORNIA HALIBUT STUDIED OFF BAJA CALIFORNIA COAST (M/V N. B. Scofield Cruise 59-S-1 and M/V Nautilus Cruise 59-N-1-Sportfish): The coastal wa-

ters from the United States border of Baja California to Cedros Island were surveyed to obtain specimens of the "California halibut" (*Paralichthys californicus*) for tagging purposes, morphometric studies, and length-weight-age studies. The work was done by California Department of Fish and Game vessels N. B. Scofield and Nautilus from January 4-22, 1959. Other objectives were (1) to determine what physical and oceanographic conditions prevail in the areas where halibut, their eggs, and young are found; (2) to obtain samples of other fish species found in association with halibut; and (3) to test the efficiency and practicality of trawling gear in Mexican waters.

A total of 139 hauls with trawl nets produced 826 California halibut for tagging. Cape Colnett proved to be the most productive area, although heavy seaweed growth at San Quintin and other places prevented thorough investigation of formerly productive areas.

It was interesting to note that in two localities there was practically no variation in water temperature between the bottom and the surface. In 54 feet of water at Colnett Bay, the bottom was only 0.5° F. colder than the surface. In Todos Santos Bay a variation of 0.3° F. was noted in water 44 feet deep. The bottom waters at these localities were 58° F.



M/V N. B. Scofield and M/V Nautilus Cruise 59-S-1 and 59-N-1 (Jan. 4-22, 1959).

The most successful fishing was found in water ranging from 66 to 84 feet in depth. Fifty percent of the captured halibut were 13 to 17 inches long and 9 percent equaled or exceeded the California length requirement of 22 inches.

A total of 557 cartilaginous fish was taken--representing 21 species in 13 families and 17 genera. The greatest number were bat rays (151), shovelnose guitar fish (87), and round stingrays (74). The 56 species of bony fish were from 30 families and 48 genera. There were 1,840 of these and California halibut (842) were most numerous, followed by diamond turbot (287), and fan-tail soles (80).

Several bony and cartilaginous fish collected were rare, others established extensions of range and depth records, and one smoothhound shark established a new maximum size record. Several institutions and individuals were presented with specimens in which they were particularly interested.

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PRELIMINARY SAMPLING OF FISH POPULATION IN SAN FRANCISCO BAY (M/V Nautilus Cruise 59-N-2-Special Projects): Preliminary fish population sampling in the polluted waters of South San Francisco Bay immediately north and south of Dumbarton Bridge, was conducted by the California Department of Fish and Game's research vessel M/V Nautilus on February 26-27, 1959.

Experimental trawling was conducted with an eight-foot beam trawl made of one-inch stretched mesh. The net was towed on the bottom for about six hauls on the first day resulting in a catch of several hundred each of spider crab and shrimp, a hundred or more shiner perch, and 1-3 specimens of several other varieties.

On the second day, about six mid-depth hauls were made with an eight-foot beam trawl made of two-inch stretched mesh. Only four shiner perch were caught.



Canned Fish

CONSUMERS' MOTIVATION STUDY INITIATED: a motivational study of household consumers' attitudes towards the use of canned tuna, salmon, sardines, and other canned fishery products has been contracted out by the U. S. Bureau of Commercial Fisheries. A private research firm located in Philadelphia, Pa., is interviewing a sample of households in Boston, Mass., Detroit, Mich., Birmingham, Ala., and rural Orangeburg County, S. C. Trained interviewers will probe-in-depth the homemaker's motivations, preferences, attitudes, and use of canned fishery products. The research was undertaken after consultation with representatives of the canned fish industries and is designed to enable the industry to more effectively market its products. Funds provided by the Saltonstall-Kennedy Act of 1954 are being used to finance the study.

* * * * *

CONSUMER PURCHASES, MARCH 1959: Canned tuna purchases by household consumers in March 1959 were 879,000 cases of which 46,000 cases were imported. By type of pack, domestic-packed tuna purchases were 187,000 cases solid, 554,000 cases chunk, and 92,000 cases grated or flakes. The average purchase was 1.8 cans at a time. About 29.9 percent of the households bought all types of canned tuna; only 1.7 percent bought the imported product. The average retail price paid for a 7-oz. can of domestic solid or fancy was 35.0 cents and for a 6½-oz. can of chunk 28.1 cents. Imported solid or fancy was bought at 30.3 cents a can. March purchases

were lower than the 1,125,000 cases bought in February by 21.9 percent; retail prices were slightly higher.

During March household consumer purchases of California sardines were 46,000 cases, and 34,000 cases imported. The average purchase was 1.6 cans at a time for California sardines, and 1.8 cans for imported. Only 1.9 percent of the households bought canned California sardines and 2.2 percent imported. The average retail price paid for a one-pound can of California sardines was 23.4 cents, and for a 4-oz. can of imported 26.1 cents. Retail prices were lower for California sardines but higher for imported. Because of the liberal stocks of canned California sardines, there has been a steady increase in purchases since October 1958.



Canned salmon purchases in March 1959 were 249,000 standard cases, of which 132,000 cases were pinks and 57,000 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 55.8 cents and for red 84.4 cents. March purchases were down about 23.4 percent from the 325,000 cases bought in February and retail prices generally higher.



Cans--Shipments for Fishery Products in 1958 by Area



Out of total shipments of 123,602 tons of steel for use in the manufacture of cans for packing fishery products in 1958, the Pacific area (including Hawaii) used 89,306 tons or 72.2 percent. The Pacific area was followed by the Eastern area (includes New England, Middle Atlantic, South Atlantic, and Puerto Rico) with 29,958 tons or 24.2 percent. The balance of the country or Central area (includes Gulf States) used only 4,338 tons or 3.6 percent of the 1958 total.

Shipments of steel for the manufacture of cans for fishery products on a quarterly basis were heaviest during the third quarter for all the geographic areas. In the East 39.4 percent or 11,807 tons out of a total of 29,958 tons were consumed in the third quarter of 1958. The Central section used 1,333 tons (30.7 percent of the 4,338-ton annual total) and the Western area 33,932 tons (38.0 percent of the annual total of 89,306 tons) during the third quarter.

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.



Clams

HARD CLAMS RAISED UNDER LABORATORY CONTROL SHIPPED FOR TEST PLANTING: Early in April 1959 close to 150,000 hard clams, Venus (Mercenaria) mercenaria were shipped to France and England for test plantings. The hard clams were produced in the tanks of the U. S. Bureau of Commercial Fisheries Laboratory at Milford, Conn., as part of a continuing program to develop methods of rearing clams and oysters under laboratory-controlled conditions for commercial operations.



One commercial hatchery has already been set up on the eastern shore of Virginia and another is in the planning stage for the Long Island, N. Y., area. Some shellfish biologists predict that within 20 years a substantial part of the commercial clam catch will be derived from seed clams reared under laboratory-controlled conditions.



Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES, JANUARY-MARCH 1959: Fresh and Frozen Fishery Products: For the use of the Armed Forces under the Department of Defense, 2.0 million pounds (value \$1.2 million) of fresh and frozen fishery products were purchased in March 1959 by the Military Subsistence Market Centers. This exceeded the quantity purchased in February by 40.8 percent and was 19.1 percent above the amount pur-

QUANTITY				VALUE			
March		Jan.-Mar.		March		Jan.-Mar.	
1959	1958	1959	1958	1959	1958	1959	1958
..... (1,000 Lbs.) (\$1,000)			
2,023	1,698	4,949	5,024	1,179	1,008	2,800	2,952
1/ Not available							

chased in March 1958. The value of the purchases in March 1959 was higher by 51.7 percent as compared with February and 17.0 percent above March 1958.

During the first three months of 1959 purchases totaled 4.9 million pounds--a decrease of 1.5 percent in quantity and 5.1 percent in value as compared with the first three months of 1958.

Prices paid for fresh and frozen fishery products by the Department of Defense in March 1959 averaged 58.3 cents a pound, about 4.7 cents more than the 53.6 cents paid in February, but 1.1 cents less than the 59.4 cents paid during March 1958.

Canned Fishery Products: Tuna and sardines were the only canned fishery products purchased for the use of the Armed Forces

during March 1959. For the first three months of 1959 purchases of canned tuna were up by 111.0 percent and canned sardines were up tenfold from the first three months of 1958. No canned salmon was purchased during January-March 1959, but close to 1.2 million pounds were purchased in the same period of 1958.

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.

Correction for tables 1 and 2 on p. 35 of the December 1958 issue of this Review: first two columns of both tables should have been headed "September" instead of "June."

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

Species	QUANTITY				VALUE			
	March		Jan.-Mar.		March		Jan.-Mar.	
	1959	1958	1959	1958	1959	1958	1959	1958
	... (1,000 Lbs.) (\$1,000) ...			
Tuna . . .	116	96	869	412	58	54	387	218
Salmon . .	-	546	-	1,241	-	295	-	673
Sardines .	228	3	265	24	27	1	40	8

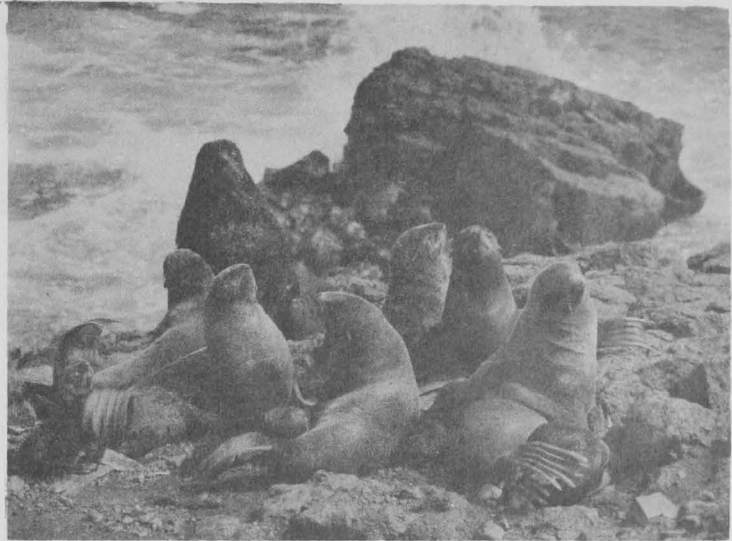


Fur Seals

NEAR-RECORD PRICES FOR ALASKA FUR-SEAL SKINS AT SPRING AUCTION:

At the semi-annual sale of Alaska fur-seal skins held in St. Louis on April 10, 1959, a total of 24,578 United States-owned fur-seal pelts were sold for \$2,450,000 for the account of the United States Government. The skins are products of the sealing operations of the U. S. Bureau of Commercial Fisheries on the Pribilof Islands.

The annual production of the Pribilof Islands, which in recent years has varied from 65,000 to 120,000 skins, is divided, under treaty, 70 percent to the United States and 15 percent each to Canada and Japan. The United States and Japanese skins, plus lesser quantities of South African and South American skins, all processed and ready for use in garment manufacturing, are disposed of at sales each spring and fall. Of the total amount received for United States skins on April 10,



An Alaska fur seal family.

\$1,630,000 will be deposited in the United States Treasury as the Government's share; the rest represents the share of the St. Louis company, handling and processing the skins for the Government.

The prices received at the April 10 sale averaged \$99.75 per skin. This price seldom has been exceeded previously; on October 5, 1956, the skins sold for an average of \$100.96. This year's average represented an increase of 10.1 percent over the price obtained at the last previous sale (October 17, 1958).

The increase in price was considered modest in view of the increased business confidence evident at the sale. The attendance included the largest number of buyers at any sale of fur-seal skins ever held at St. Louis. Also in evidence was the greatest interest in fur-seal products ever shown by foreign buyers; included among the accounts represented at the sale were firms from Canada, West Germany, Denmark, Sweden, Switzerland, France, and Italy.

The auction's average prices by types were: dark-brown or matara \$87.87 per skin, black \$120.97, and dark shade kitovi \$95.51. Japanese Government Alaska fur-seal skins sold: black \$117.59, matara \$91.09, total average \$99.53. All South Africa fur-seal skins averaged \$39.76. Uruguay skins averaged \$49.46.

The sales of all fur-seal skins at this spring auction yielded \$3,519,168.

Note: Also see Commercial Fisheries Review, January 1959 p. 30.



Great Lakes

SEA LAMPREY CONTROL PROGRAM EXTENDED: The extension of the chemical treatment program for control of the sea lamprey to Lakes Michigan and Huron in the United States fiscal year beginning July 1, 1960, was agreed upon at a meeting of the Great Lakes Fishery Commission at Ottawa, Canada, April 16 and 17,

1959. The program for Lake Superior is scheduled to be largely completed by the end of fiscal year 1960 (June 30).

The program in Lake Superior has just been advanced by the purchase of 25,000 pounds of the lamprey-control chemical. Also, treatment was carried out successfully this month on the Brule River in Wisconsin, a tributary to Lake Superior which is famous for its rainbow trout fishing. Biologists report that the treatment was successful, with the complete kill of lamprey larvae and no damage to game fish.



Great Lakes Exploratory Fishing and Gear Research Program

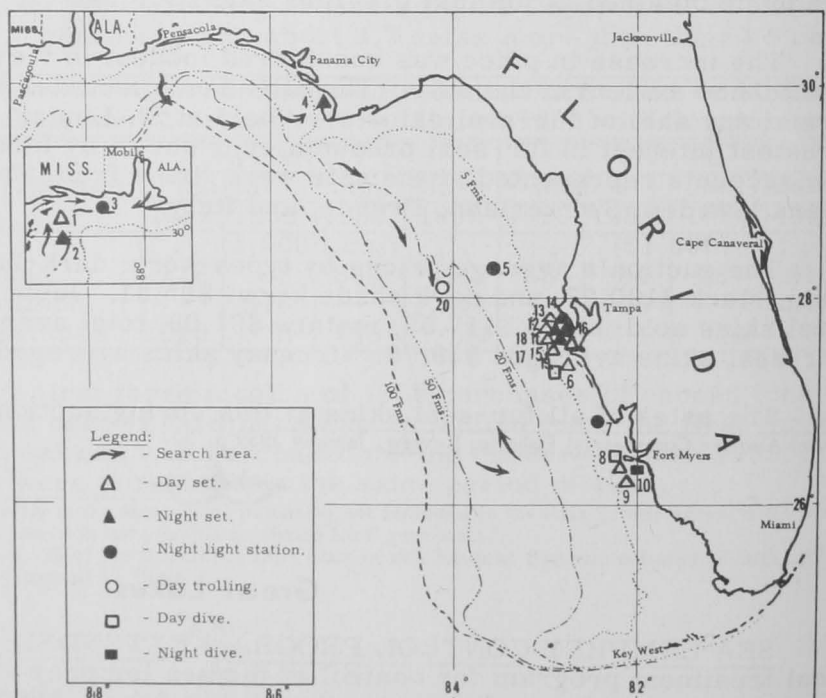
PROGRAM FOR LAKE ERIE STARTED YEAR'S OPERATION APRIL 15: The chartered M/V Active, a 50-foot Diesel-powered trap-net vessel of the Lake Erie Fisheries Exploration and Gear Research program of the U. S. Bureau of Commercial Fisheries, left Sandusky, Ohio, April 15 on the first of a series of two-week cruises scheduled for the period ending November 30. The vessel has been outfitted to carry on the experimental smelt fishing which was initiated in September 1958. Current program objectives are to determine the commercial availability of smelt, alewives, and other underutilized species; and to determine the feasibility of capture of these species by seines and other types of gear not presently used by United States fishermen in Lake Erie. Port calls during the year are planned for Sandusky, Lorain, and Ashtabula, Ohio; and Erie, Pa.; and other Lake Erie ports.



Gulf Exploratory Fishery Program

SARDINE-LIKE FISH STUDIED AND LAMPARA NET TESTED IN NORTHEASTERN GULF OF MEXICO (M/V George M. Bowers Cruise 17): An 18-day cruise in the northeastern Gulf of Mexico for the purpose of testing an experimental lampara net and to obtain data on the seasonal occurrence of surface schools of sardine-like fish was completed by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel George M. Bowers on April 10, 1959. The Mississippi Sound, Cape San Blas, St. Petersburg, and Sanibel Island areas were surveyed during the cruise.

A total of 13 sets was made, 2 of which were blind sets for the purpose of studying the behavior of the gear in certain tidal and wind conditions. Underwater



M/V George M. Bowers Cruise No. 17 (March 24 to April 10, 1959).

observations were made of the operation by SCUBA divers, and aerial observations were made through the cooperation of a Florida seafood company.

Several minor modifications were indicated by the lampara net studies. The 213-fathom net was sufficiently large to encircle most of the schools, however, thread herring, the principal species encountered, showed little hesitation in charging through the 4-inch stretched-mesh wings when lack of strain allowed the meshes to open.

Nighttime attraction of thread herring and pilchards (*Harengula*) was tested using a 500-watt floodlight placed three feet above the surface, a 100-watt submarine lamp placed six feet below the surface, and a 12-volt sealedbeam lamp 6 feet below surface. Observation of fish aggregations were made by SCUBA divers and on depth recorders. The largest and most compact concentrations were obtained with the 500-watt above-surface floodlight.

Adverse weather conditions restricted actual fishing operations to five days.



Hawaii

COMMERCIAL FISHERIES LANDINGS, 1958:

The commercial fisheries landings of sea and pond fish and shellfish in the Hawaiian Islands during the calendar year 1958 amounted to 11.4 million pounds, valued at about \$2.6 million ex-vessel, according to a statistical summary by the Hawaiian Division of Fish and Game. As compared with the preceding calendar year, the catch increased 650,000 pounds or 6.1 percent in volume and \$34,000 or 1.3 percent in value. The increases in weight and value were due primarily to higher landings of skipjack tuna (*aku*) which was up 705,000 pounds or 11.5 percent in weight and \$105,275 or 13.3 percent in value. The increase in the landings of skipjack tuna more than compensated for the lower landings of big-eyed tuna and mackerel.

Ex-vessel prices paid for fish and shellfish continued at a high level,

Table 1 - Hawaiian Commercial Fishery Landings and Ex-Vessel Values, 1958

Species		1958		1957	
English Name	Hawaiian Name	Quantity 1,000 Lbs.	Value US\$ 1,000	Quantity 1,000 Lbs.	Value US\$ 1,000
Ocean Catch:					
Amberjack	Kahala	89	23	70	19
Big-eyed scad	Akale	179	123	177	128
Dolphin	Mahimahi	149	58	210	72
Goatfish	Weke-ula Weke Moana Kumu	141	82	131	83
Crevalles	Uluu Omilu	98	39	112	48
Mackerel	Opilu	188	79	216	82
Snappers:					
Gray	Uku	74	31	101	40
Pink	Opakapaka Kalekale	141	67	148	67
Red	Ulaulu koae Ulaulu (ehu)	89	68	94	68
Swordfishes, sailfishes, spearfishes, & marlins	A'u & A'u lepe	725	164	598	163
Tuna & tunalike fish:					
Albacore	Ahipalaha	16	4	10	3
Big-eyed & bluefin	Ahi	1,596	622	1,633	620
Yellowfin	Ahi	408	117	383	111
Skipjack	Aku	6,835	899	6,130	794
Bonito	Kawakawa	42	7	89	14
Shellfish:					
Crabs	Kona, kauakonu	8	3	16	8
Limpet	Ophi	10	4	17	6
Lobster, spiny	Ula	9	6	14	9
Octopus	Hee	7	4	9	5
Shrimp	Opae	1	1	2	3
Squid	Muhee	25	6	10	5
Other fish & shellfish	-	436	162	446	187
Total Ocean Catch		11,266	2,569	10,616	2,535
Pond Catch:					
Clams	Olepe	4	1	9	3
Crabs	Kuakonu, Papai	2	1	2	1
Milkfish	Awa	16	8	24	11
Mullet	Amaama	57	47	60	49
Tilapia	-	5	1	-	-
Other species	-	11	5	16	6
Total Pond Catch		95	63	111	70
GRAND TOTAL		11,361	2,632	10,727	2,605

1/ Includes only marlins (black, silver, striped) and swordfish.

except for skipjack tuna which is usually processed into canned tuna and has to compete with mainland United States production. The price paid for skipjack averaged about \$263 a short ton.

The Hawaiian landings in 1958 as in past years were relatively heavy from June through August--40.2 percent of the total was landed in that period. The value of the landings for this three-month period was, however, only 32.9 percent of the total annual value. The month of March was the month of lightest landings with only 3.7 percent of the 1958 total, but the value for this month was about 6.2 percent of the total.

The landings in 1958 at the Island of Oahu made up 75.2 percent of the total quantity and 75.5 percent of the total value. The Island of Hawaii accounted for 14.6 percent of the quantity landed and 15.2 percent of the value and the balance of about 9 percent was divided between four other islands of the group.

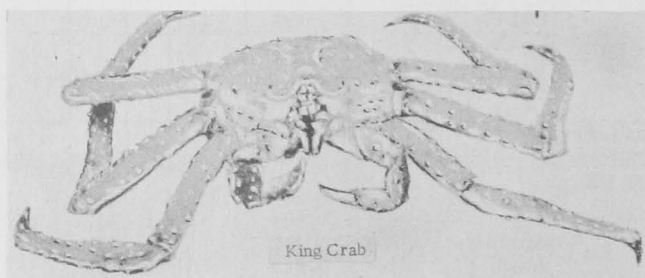
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SKIPJACK TUNA LANDINGS LOW, JANUARY-MARCH 1959: Skipjack tuna landings in Hawaii during January-March 1959 were low. Comparable partial landings for 1957 and 1958 show the 1959 landings were only 36.6 percent of the 1958 landings. Most of this decline resulted from lower January landings. This should not be taken to indicate either a poor season or a good one in the fishery because the winter catch and that of the subsequent season have no apparent relation.

Only about 5 out of 18 sampans of the Honolulu fleet are fishing. Some industry members attribute this to a lack of fishermen. This lack, however, may be traced to the low total landings of skipjack during the past two years. Many fishermen, especially the younger ones, have left the boats to find employment ashore.



King Crab



TAGGING IN BRISTOL BAY, ALASKA: The United States and Japan have been tagging king crabs in Bristol Bay, Alaska, and in the Aleutian Islands to determine if regulations should be set up to protect them. In the last five years biologists of the U. S. Bureau of Commercial Fisheries, Seattle, Wash., tagged about 30,000 large crabs to determine their movements and growth rates. Using SCUBA gear, they captured and

measured 1,350 small king crabs at Unalaska and conducted molting observations on 150 other small crabs in March 1959. Later this year they will study growth rates.

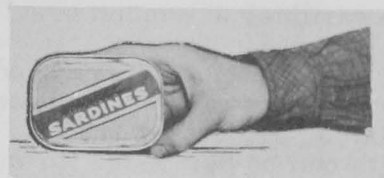


Maine Sardines

CANNED SARDINES INCLUDED ON MILITARY MASTER MENU: Canned Maine sardines will be included as an optional item on the over-all United States Military Master Menu, effective January 1, 1960. Assurance of this action was given the Maine Sardine Council on April 24, 1959, by the Chief of the U. S. Army Subsistence Market Center in Chicago. Final approval was given after testing and consideration of the product by the Military Master Menu Board.

The action will mean that canned sardines will be listed as a menu item for certain meals at all Air Force and Army installations, but that final usage will be a decision of the individual commanding officers.

Under Federal laws the Armed Forces must purchase domestically-manufactured items when available and this coupled with the menu listing should add considerably to the procurement volume for Maine sardines, the Maine Sardine Council's Executive Secretary stated.



The Council has been working on this project for several years and the Maine sardine industry's big progress in quality control, package development, and other factors contributed much to the decision.

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SOURCE OF HIGH QUALITY PROTEIN: The findings of extensive investigations on the nutritive value of canned Maine sardines were discussed by the Head of the Department of Food Technology at the Massachusetts Institute of Technology, in an address at the Annual Research Meeting of the Maine Sardine Industry on April 10, 1959, in Bangor, Maine. The results brought home some very interesting and significant facts about Maine sardines.

One of the most important factors that was brought out in the address was that Maine sardines contain about 25 percent protein, and this is not just ordinary protein, but high-quality protein with a good pattern of amino acids (the building blocks which make up proteins) of the type that are found in eggs, meat, and milk.

In comparison with bread, Maine sardines contain appreciably higher quantities of that important amino acid, lysine. Thus, Maine sardines not only provide a delicious sandwich filler, but also enhance the nutritive value of bread by contributing the essential protein nutrients which are not present in bread to the same extent as in Maine sardines. It was indicated that from the standpoint of lunches, bread and sardines are a good, logical combination, combining the best features of both foods.

Some of the work done with feeding laboratory animals Maine sardines as the source of protein and fat of the diet was also discussed. These studies were of significance in that they showed that Maine sardines favored good muscle building and reduced the tendency towards a production of fat in the animals.

He also pointed out to the Maine industry the value of the Maine Sardine Research and Quality Control Program in producing better, more acceptable Maine sardines which can mean so much to producing better nutrition for more people.



Marketing

EDIBLE FISHERY PRODUCTS MARKETING PROSPECTS, SUMMER 1959: United States civilian per capita consumption of fresh and processed fish and shellfish through early summer will likely be about the same as a year earlier. Average retail prices in the next several months probably will average a little below the high levels of the same part of 1958.

Supplies of commercially-caught fishery products are now increasing seasonally. The relatively high level of prices together with improved weather are expected to encourage intensive fishing operations.

There are substantially larger stocks of processed fishery products on hand this spring than last. Cold-storage holdings of the frozen items this April 1 were up by more than a fourth from the year-earlier level. Stocks of canned tuna and California sardines are much heavier this spring.

Imports of fishery products this spring and early summer may be a little heavier than a year earlier because of the relatively high level of prices in the United States. Exports may be no higher than in the same part of 1958 unless foreign outlets can be developed for canned California sardines (pilchards).

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 May 4, 1959, release of The National Food Situation (NFS-88).



Menhaden

RESEARCH ON PARASITES MAY REVEAL MIGRATORY ROUTES: If young menhaden pick up parasites in the rivers and estuaries and retain them after the winter migration to the ocean, it may be possible to locate the home river or estuary for fish caught anywhere the following year, a Virginia fishery biologist stated on April 3, 1959. Tags are often applied to fish when scientists want to learn about their migrations or where they hatched and grew up. Virginia fishery biologists believe that parasites can be used as natural tags.

It is possible that young menhaden growing up in the Delaware Bay or in Albemarle Sound, N. C., or some other section, will carry different parasites, or may differ in degree of infestation with the same parasite from those growing up in Chesapeake Bay, the Virginia biologist stated. The biologists hope that it will be possible to locate the home waters for fish taken in the commercial catches by examining the external parasites living on the fish. Of particular interest are the monogenetic trematodes (small parasitic worms), but it is possible that the biologists will have to resort to copepods, isopods, leaches, and other parasites to give the needed information. If these fail, the parasites of the digestive tract may furnish the clues needed to unravel the migratory patterns of the menhaden.

Samples of young fish collected at two-week intervals from estuaries along the Atlantic Coast from Massachusetts to Florida will be sent to the Virginia Fisheries Laboratory. By examination of the samples taken in this manner, the biologists hope to learn at what time the fish pick up parasites, and what types and numbers of parasites are present on fish caught from various bays. The U. S. Bureau of Commercial Fisheries is cooperating closely with the Virginia Fisheries Laboratory in the study, and is supplying most of the young fish.

Research on the life history of menhaden at the Virginia Laboratory will be useful in managing this fishery to keep catches at a high level. More menhaden are caught by commercial fishermen than any other fish on the Atlantic Coast. Next to oysters and crabs they are the most valuable sea products landed in Virginia. Knowledge of the habits and behavior of the menhaden will be useful to fishermen and plant operators alike.



National Fisheries Institute Convention

CERTAIN RESOLUTIONS ADOPTED AT 1959 ANNUAL CONVENTION: A total of 16 resolutions was presented and adopted unanimously by those attending the 14th Annual Convention of the National Fisheries Institute (N.F.I.) in New York City, April 10-15, 1959. Those of more general interest follow:

That N.F.I. oppose the principle of dumping waste materials in rivers, bays, estuaries, and contiguous ocean waters, but that if such dumping is deemed essential by constituted State or Federal authority, then the effects of such dumping be determined in advance by the Fish and Wildlife Service or controlling State wildlife and fisheries officials, and the locations and manner of dumping be explicitly set forth by these authorities. Further, that this resolution be forwarded to the U. S. Fish and Wildlife Service.

That N.F.I. instruct its Director of Traffic to work towards the preservation and continuation of express-type service at a level of rates which will permit and encourage the movement of small-quantity-shipments of perishable seafood products throughout the United States.

That N.F.I. instruct its Director of Traffic to reaffirm during the 86th Congress the National Fisheries Institute's previously explained position in support of the fishery exemption.

That N.F.I. support legislation designed to make unlawful the compulsory payment of fees for the unloading of fishery products from motor vehicles.

That N.F.I. instruct its Director of Traffic to oppose the suggested repeal of the fishery exemption, and support in principle the extension of the fishery exemption to rail carriers, subject however to the adoption of guarantees and

conditions which will protect the fishery industry in using motor carriers which provide existing vital services.

That the N.F.I. express to the Secretary of Interior and to appropriate officials of the U. S. Fish and Wildlife Service and the Bureau of Commercial Fisheries the industry's appreciation for and approval of the Bureau's program to develop voluntary grade standards for fishery products, noting with satisfaction the publication during the past year of grade standards for two additional products, haddock fillets and halibut steaks, and requesting that the development of grade standards for cod fillets, ocean perch fillets, Pacific ocean perch, salmon steaks, swordfish steaks, and sole fillets proceed as rapidly as practical.

That N.F.I. approve continuation of the standard industry practice of making adequate glaze allowances, and further, recommend that when the glaze on frozen fish is to be checked that the industry use the method proposed by industry members in Southern California, in which method the product is quickly washed with water so as to remove the glaze but not to thaw the flesh, the deglazed product is weighed and correction of 3 percent is added to compensate for losses of fish fluids, and an allowance of 2 percent is provided for individual variability.

That N.F.I. strongly protest against the unfair and arbitrary interpretation by the Secretary of Labor of the exemptions provided by Section 13(a)(5) and 13(b)(4) of the Fair Labor Standards Act, as amended, and urgently insist that it be given an opportunity to present its position before the Secretary of Labor prior to any enforcement thereunder, and that meanwhile this interpretative ruling be withdrawn pending further consideration by the Department of Labor and action by Congress in pending legislation.

* * * * *

INCREASED SALES AND CONSUMPTION IS THE ONLY ANSWER TO PROBLEMS FACING THE FISHING INDUSTRY: Increased sales and consumption of fish and shellfish products is the only answer to the complexity of problems facing the United States fishing industry today, according to Arnie J. Suomela, Commissioner, U. S. Fish and Wildlife Service. Suomela, who called the National Fisheries Institute 14th Annual Convention in New York City, April 10-15, 1959, "the sounding board in attacking the industry's problems," said fishermen, vessel owners, processors, and wholesalers are plagued by soaring production costs in day-to-day operations.

Costs of vessel replacement and construction, gear, and fuel make it imperative that fishermen and fleet operators find more effective and economic methods of catching and landing the fish, he said. At the same time, processors and wholesalers too must reduce costs of handling the industry's products.

"Unlike other industries you have no consumer problem," Suomela told the Institute, "only to convince him to buy more of your high-quality products."

With the annual per capita consumption of fish and shellfish at 10 pounds as opposed to 160 pounds of meat, Suomela pointed out that, "if we can sell just one more pound per capita" it will be enormously rewarding to the entire industry.

* * * * *

PACKAGING AND QUALITY CONTROL STRESSED ON FOOD STORE DAY: A number of chain-store operators urged that the fishing industry improve its packaging, exercise quality control on its self-service items, and develop new merchandising techniques. They spoke to the National Fisheries Institute during its 14th Annual Convention at New York City on Food Store Day on April 13. They further suggested that the fishing industry ship in

smaller units and use promotional aids to attract the eye of the consumer.

"The package that you as processors pack, and we as retailers sell, is our ambassador to Mrs. Consumer," a Chicago chain-store operator pointed out. Speaking on packaging and labeling, he told members of the fishing and allied industries to consider what size package will best

satisfy the American housewife--whether it should be for two people, for the average family, or a large economy size. He told his audience to consider Mrs. Consumer's refrigerator or freezer in designing new packages. He also spoke of the need of establishing quality standards for the product inside the package, and adhering to them.

The president of a large chain store in Philadelphia told the Institute that their future progress hinged on further refinements in packaged frozen merchandise rather than the high handling costs of their fresh products. "With super-market selling now so impersonal," he said, "any success in distributing a product is heavily dependent on a high uni-

formity of quality. The customer who buys a satisfactory product today, wants to find it exactly the same when she buys it a week or a month hence." He also pointed out that two-thirds of all the food sold at retail in the United States is in self-service markets and predicted that it will reach "90 percent of the total."

Congratulating the group on the enormous strides in fish packaging and processing during the past ten years, he added that one-third of all the things sold today were not on the shelf ten years ago, and another one-third have been sharply improved in quality and dressed up in new and better packages.

* * * * *

NEED FOR BETTER QUALITY STRESSED: The great need for increased quality standards in the fishing industry was stressed on Food Store Day by representatives of five of the nation's largest chain stores on April 13. Addressing the general session of the 14th Annual Convention of the National Fisheries Institute at New York City was a panel of speakers--Joseph Mueller, National Tea; Sidney Beck, Food Fair Stores; Lloyd Johnson, Super Valu; E. J. Voigt, Loblaw; and Louis Voron, Grand Union. The moderator was W. Jackson Catt, prominent in Buffalo's fishing business.

"Quality must be consistently tops," said Voigt, whose subject was "Private Labels." But he said, "before we can talk quality, let's get quality standards throughout the industry."

He also pointed out that private-label products should be retailed sufficiently below the national brands to effect a saving for the consumer. Too, the private label should show a greater profit structure to the retailer. But, he asked, "how can this be done with every seafood packer sharpshooting to cut the other's throat?"

Johnson of Super Valu also urged that more fishery products be brought under quality standards, although "a good deal of progress in quality improvement has been brought about by new and improved methods of handling from the fishing beds to the processing plants."

Emphasizing his subject "Quality," Johnson said, "The quantities in which frozen and prepackaged fish and sea-

foods are purchased and the nature of the processed product make it practically impossible to make anything other than rather superficial spot checks on quality. We must rely on the character and established reputation of our suppliers."

Speaking on packaging and labeling, Mueller of National Tea told the fishing industry, "The package that you as processors pack and we as retailers sell is our ambassador to Mrs. Consumer."

He told his audience to decide what the best size of package should be--for two people, for the average family, or large economy size. And he said also to consider Mrs. Consumer's refrigerator and freezer. Further, he said, look at the retailer's needs. Package must be of good design and display; construction should be that package will not look shopworn as it is handled, and should be tightly sealed.

Speaking on merchandising, Beck of Food Fair, reminded his audience that the average shopper spends only 20 to 25 minutes in a supermarket; yet she wants to shop the store to get ideas for meals. Trained personnel, he said, can prepare the merchandise to the customer's satisfaction. And, he added, "regardless of service or self-service, display for eye appeal, attractiveness, appetite-stimulation, and color are absolutely necessary."

"For quality control," Voron of Grand Union Stores said, "you might ship fresh fishery products in smaller units. A 50-pound box could come into our warehouse and out to the stores without touching it, except to ice as needed, thereby arriving in better condition."



Fig. 1 - Food Store Day panel of speakers at the April 13 session of the 14th Annual Convention of the National Fisheries Institute. Left to right: seated--Sidney Beck, Food Fair Stores; Lloyd M. Johnson, Super Valu Stores; E. J. Voigt, Loblaw, Inc.; Louis Voron, Grand Union Market; J. H. Mueller, National Tea. Standing are fishery dealers Art Frohman, Chicago; W. Jackson Catt, Buffalo (chairman of meeting); and Lewis Goldstein, Philadelphia.



North Atlantic Fisheries Investigations

YELLOWTAIL FLOUNDERS TAGGED ON FISHING GROUNDS SOUTH AND WEST OF MARTHA'S VINEYARD AND OFF NAUSET LIGHT (M/V Delaware Cruise 59-3): A total of 72 1-hour tows were made by the U. S. Bureau of Commercial Fisheries research vessel Delaware from March 18-26, 1959, with a No. 36 otter trawl in 20-30 fathoms for the purpose of catching yellowtail flounder for tagging and for length and age distribution samples. Yellowtails were tagged to further define stocks, migrations, and for the estimation of fishing mortality. Sets were made on the commercial fishing fleet grounds from south of Martha's Vineyard to south of Block Island and off Nauset Light.

On the fishing grounds south of Martha's Vineyard to south of Block Island 2,100 fish were tagged. On the fishing grounds off Nauset Light 1,000 fish were tagged. Scale samples were collected to determine the age distribution of the tagged fish. Hydrographic data was collected throughout the area of the cruise.



The Bureau's research vessel Delaware.

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HADDOCK TAGGING AND VERTICAL DISTRIBUTION STUDIES (M/V Delaware Cruise 59-4): The tagging and release of large numbers of haddock on Georges, Browns, and Massachusetts inshore banks was the principal objective of the April 2-17, 1959, cruise of the U. S. Bureau of Commercial Fisheries research and exploratory fishing vessel Delaware. The secondary objective was to test the use of underwater television as a monitoring device used in conjunction with a mid-water trawl to study the vertical distribution of haddock.

About 1,100 haddock were tagged on Eastern Georges Bank, half of which were released on Georges and half transported to Browns Bank for release. Another 1,100 were tagged on Browns, half released there and half returned to Eastern Georges for release. Scales were taken from all fish for growth study purposes. Approximately 600 haddock were tagged at "the Corner" on the eastern side of the South Channel. Half of these were kept in tanks aboard the vessel for the duration of the tagging operation before being liberated and half were released immediately. Another 200 haddock were tagged at Jeffries Ledge. The fish were taken in 40-45 fathoms on all grounds with a standard No. 41 trawl towed at low speed (180 r.p.m. or about 2½ knots). Tags used were the plastic tubing ("spaghetti") type, inserted into the dorsal musculature.

Approximately 900 haddock of the 1958 year-class (13-24 centimeters or 5.1-9.4 inches) were tagged on the eastern edge of Stellwagen Bank in 22-24 fathoms. The fish were taken in a 1½-inch mesh cotton cover attached to the cod end of a standard No. 41 otter trawl. The net was towed at about one-half normal towing speed (170 r.p.m. or about 2 knots).

High turbidity and a cable failure prevented completion of underwater television tests. Methods developed for handling and positioning will be useful for future television work with trawls.

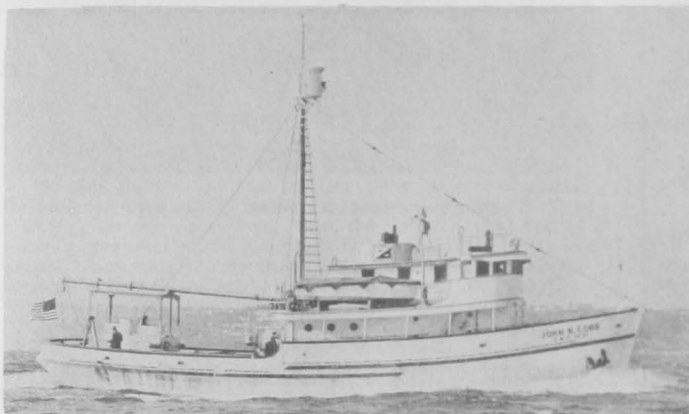
The haddock caught for tagging were generally in excellent condition and very lively. Somewhat higher than expected mortality occurred with fish kept in the 5,000-gallon tank for transplanting (about 50 percent with 550 fish accumulated over 30 hours, less for fewer fish and shorter retention period).

Two lots of live herring, taken in the small mesh cover, were returned to port for serological analyses. Drift bottles were released and hydrographic observations were made over the whole area.



North Pacific Exploratory Fishery Program

MODIFIED OTTER TRAWLS TESTED FOR VERTICAL AND HORIZONTAL OPENINGS (M/V John N. Cobb Cruise 41): Fishing-gear research in the waters of Puget Sound and the eastern end of the Strait of Juan de Fuca was conducted by the



The Bureau's exploratory fishing vessel John N. Cobb.

U. S. Bureau of Commercial Fisheries exploratory fishing vessel John N. Cobb during a 45-day cruise which ended on March 25, 1959.

Two types of modified otter trawls for bottom fish were tested: one designed to increase the horizontal opening, and the other designed to increase the vertical opening. In addition, three types of otter doors were compared as to their relative spreading ability.

Although favorable preliminary results were obtained during experiments with the modified otter trawls, further modifications and trials will be required to per-

fect the gear, so that maximum efficiency will be obtained, before undertaking comparative fishing experiments with conventional trawls.

Two types of light aluminum doors were compared to standard 5-foot wooden shrimp doors on a standard 43-foot Gulf of Mexico-type flat shrimp trawl. The variance in size, shape, and weight of the three doors was so great that a complete appraisal could not be made at this time.

SCUBA divers, making underwater observations, measurements, and evaluations from a diving sled, greatly expedited all phases of the gear research activities. Participating gear specialists consider direct underwater observation indispensable to this type of work. Underwater work was supplemented with surface measurements of water speed, dynamic forces, and distances between floats streamed from various parts of the fishing gear.

The M/V John N. Cobb was scheduled to leave Seattle on April 13, 1959, for a three-week cruise which will combine fishing-gear instrumentation research and English "sole" migration studies. The work will be done off the northern Oregon Coast between Cascade Head and the Columbia River. Fishing-gear instrumentation research plans included: (1) checking out a new Norwegian-made depth-sounder which was designed to operate at depths up to 1,000 fathoms; (2) evaluating the fatigue properties of a new-type electrical trawl cable used in connection with telemetering information from fishing gear to the vessel; (3) testing an on-bottom indicator which will cause a light to go on in the wheelhouse when the trawl door is in

contact with the ocean floor; and (4) testing an automatic bottom sampler which will be attached to a trawl door. English "sole" taken while testing gear will be tagged by biologists of the Oregon Fish Commission. The tagging will be a continuance of the Oregon Fish Commission's program involving the study of migrational habits of commercial species of fish found in waters contiguous to that State. Gear instrumentation work was planned for various depths up to 1,000 fathoms and on different types of ocean bottom.



North Pacific Fishery Investigations

ALBACORE TUNA MIGRATION ROUTE STUDIED: From April 29 to June 16 the U. S. Bureau of Commercial Fisheries research vessel Hugh M. Smith is scheduled to cruise to the locality which adjoins the area of the normal United States west coast summer albacore fishery. The biologists of the Bureau are studying the migration route and time of entry of the albacore into the fishery. The California Department of Fish and Game planned to participate in this investigation.



Oysters

NEW YORK AND CONNECTICUT APPROPRIATE FUNDS TO COMBAT STARFISH: The States of New York and Connecticut have appropriated \$25,000 to carry on research on control work for starfish--oyster predators--in Long Island Sound. Action was taken in both Legislatures and plans are being made to coordinate their work with that of the U. S. Bureau of Commercial Fisheries Shellfish Laboratory at Milford, Conn.

These steps were taken to clear the way for endorsement of the starfish control legislation now pending before the United States 86th Congress. Last year the legislation failed to win the support of the Executive Branch of the Government on the grounds that no efforts were being made by the states to solve the problem locally.



Pacific Oceanic Fishery Investigations

SURVEY OF CALIFORNIA CURRENT EXTENSION AND SKIPJACK TUNA OFF HAWAIIAN ISLANDS (M/V Hugh M. Smith Cruise 51): The studies of the California Current Extension and the occurrence of skipjack tuna and other marine organisms in the current area around the Hawaiian Islands was continued by the U. S. Bureau of Commercial Fisheries research vessel Hugh M. Smith from March 3-April 6, 1959.

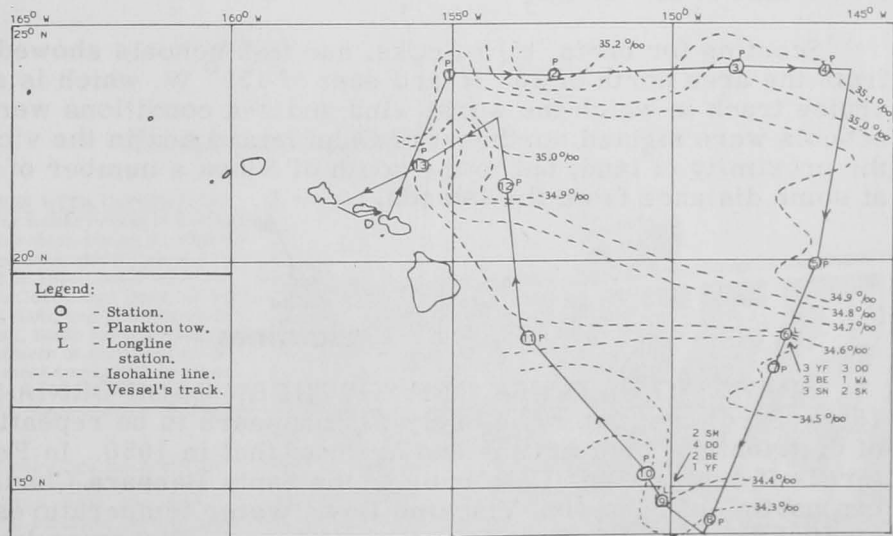


Fig. 1 - Track chart (first survey) of the M/V Hugh M. Smith Cruise 51.

Bathythermograph and surface salinity samples were obtained at 30-mile intervals throughout the cruise. Salinity determinations were made aboard the vessel

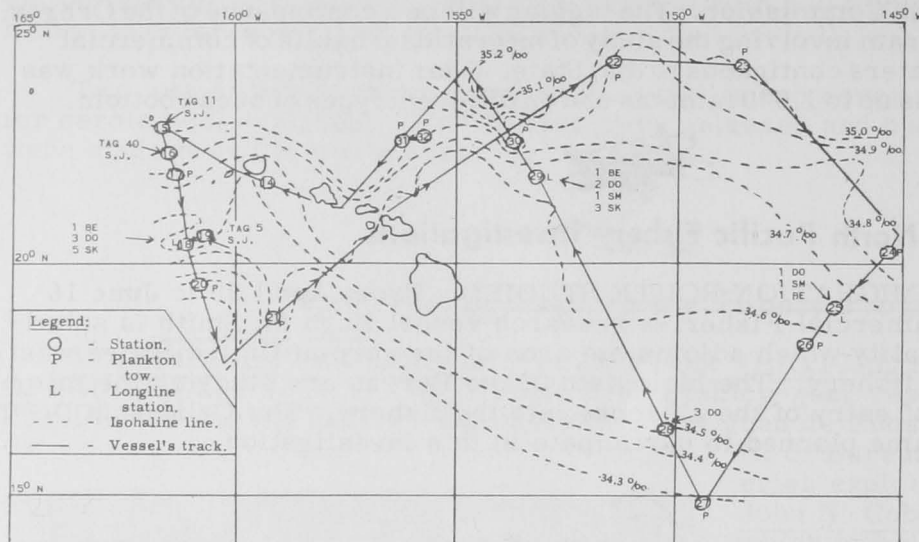


Fig. 2 - Track chart (second survey--approximately 4 weeks after the first) of the M/V Hugh M. Smith Cruise 51.

(approximately 2 months) since the Hugh M. Smith cruise of January-February.

In the survey to the west of the Islands intermediate salinity water was found between Nihoa Island and 20° N. This was an area in which high salinity water had been observed during the previous cruise (cruise 50).

In the second survey to the east of the Hawaiian Islands (approximately 4 weeks after the first), the extent of the intermediate salinity water had noticeably increased.

Thirty-two stations were occupied during the skipjack scouting phase of the cruise in the California Current Extension, its boundaries, and adjacent waters of which 6 were long-line stations with 40 baskets of 11-hook gear. Of the remaining stations, 3 were pole-and-line fishing stations where skipjack were caught and tagged, 21 were 0-60 meter oblique plankton tows, and 2 were surface plankton tows. Adverse sea conditions prohibited the occupation of fishing stations north of 20° N. to the east of the Islands.

Scouting for birds, bird flocks, and fish schools showed that they were absent from the area north of 20° N. and east of 155° W. which is also the portion of the cruise track in which the worst wind and sea conditions were encountered. Skipjack schools were sighted northeast of Oahu Island and in the vicinity of Nihoa Island in the proximity of land, but to the south of Nihoa a number of schools were observed at some distance from the Islands.



Sardines

SPAWNING PATTERN OFF SOUTHERN CALIFORNIA IN 1959 SIMILAR TO 1958: Sardine spawning in early 1959 appears to be repeating the general pattern of distribution, both in time and area, of that in 1958. In February, spawning centered off central Baja California in the Santa Barbara Channel and the southern portion of Sebastian Viscaino Bay. Water temperatures throughout the area studied by the California Cooperative Oceanic Fisheries Investigations were warmer than average, although when compared with the unusually high temperatures of 1958, a decrease of approximately 0.5° C. is apparent.

The presence of fairly heavy sardine spawning off southern California in February 1959 and 1958 is a marked departure from the seasonal distribution during 1950-1957, when nearly 98 percent of the spawning was confined to the period April through July.



Shrimp

GULF OF MEXICO BIOLOGICAL INVESTIGATIONS: A statistical analysis of the data on the total catch of and fishing effort on shrimp in the Gulf of Mexico within statistical areas is being made by the Fishery Biological Laboratory of the U. S. Bureau of Commercial Fisheries at Galveston, Texas. A gross analysis shows that the catch has gradually declined in relation to fishing intensity since 1957.

The Laboratory plans to stain shrimp on the nursery grounds near Galveston. This work should reveal their movements from the nursery grounds to the offshore spawning areas.

Research on a typical nursery area is being continued. This work shows promise of defining the complex ecology of the shrimp nursery grounds and will show when the brown and the white shrimp larvae arrive from the sea and then depart to the offshore waters as the season progresses.

The Laboratory staff will try to determine the physiology, tolerance, and response of shrimp to various conditions and their nutritional requirements.

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UNITED STATES PACK OF MANUFACTURED PRODUCTS, 1957--CORRECTION: In the March 1959 issue, page 47, of this publication, in the table headed "United States Manufactured Shrimp Products, 1956-1957," the quantities given (in 1,000 lbs.) under "Canned: Specialties (aspic, cocktails, spreads, soups, and stews)" . . . should read 394 (instead of 123) for 1957 and 571 (instead of 178) for 1956. The "Total canned" should read 9,514 (instead of 9,243) for 1957 and 14,207 (instead of 13,814) for 1956. The "Total for all products" should read 134,474 (instead of 134,203) for 1957 and 140,736 (instead of 140,343) for 1956. The values are correct as shown.



Susquehanna River

FISHERY STUDY IN CONJUNCTION WITH CONOWINGO DAM: A three-year Susquehanna River fishery study is designed to provide a sound biological basis for decision as to whether or not passage should be provided for migratory fish at Conowingo Dam. The broad study, begun in 1958, deals with the kinds and numbers of fish that reach Conowingo Dam, as well as those in the reservoirs above the dam, and the estimation of the effects of passage on these fish, their basic biology, population size, spawning, and the effects of dam operation on young and adult fish. One of the most important aspects deals with the present condition of the environment of the reservoir in relation to the basic needs of eggs and fry of migratory fish that might spawn there.

Hydrographic research work in Conowingo Lake will be devoted to the determination of: (1) character of water movements in relation to inflow, outflow, wind, and temperature layers below the surface; (2) location, nature, and changes in temperature in the impoundment; (3) character of bottom materials, amount of suspended sediment, and



how this suspension restricts light penetration in the reservoir; (4) seasonal distribution of dissolved oxygen, acidity, and alkalinity (pH) at various depths and locations in the reservoir; and (5) the presence of any toxicants or pollutants in the reservoir.

The Susquehanna fishery study is administered by the Maryland Department of Research and Education, sponsored by the Philadelphia Electric Company, and monitored by an Advisory Committee made up of internationally-known fishery biologists. Studies on the physical character of Conowingo Lake are being made by oceanographers of the Chesapeake Bay Institute of the Johns Hopkins University.

Fishermen have contributed greatly to the success of 1958 and 1959 studies of fish movements and fish harvest and intensity in the Lower Susquehanna River. Local and out-of-state fishermen in Maryland and Pennsylvania have been diligent and cooperative in turning in tags from striped bass and shad and providing necessary information to biologists making creel surveys.

In 1958, for example, 5,478 fish were tagged, of which 4,034 were planted above Conowingo Dam. Of these, 2,983 were shad, and 2,495 were striped bass. From tags returned to the biologists, it was possible to estimate that about 400

shad and 500 striped bass survived downstream passage through the turbines of Conowingo Dam. Shad recaptures, incidentally, were mainly from upper Chesapeake Bay, while some came from Virginia, and one was taken off Portland, Maine. Most of the returns from striped bass were from upper Chesapeake Bay.

The creel survey from April through November 1958, was based on three areas: (1) Conowingo Lake; (2) catwalk on the tailrace of the Dam; and (3) lower Susquehanna River below the Dam to Chesapeake Bay and indicated a high fishing intensity.

Biologists estimated that 73 percent of the fishermen in tidal waters were nonresident and 14 percent in inland waters were nonresident. They discovered that 99 percent of the non-residents were from Pennsylvania. Tidal waters in the lower Susquehanna River extend from the confluence with Chesapeake Bay to Port Deposit, where an artificial boundary is defined by law. Inland waters extend upstream.

Fishermen once again are asked to look out for tagged shad and striped bass. This phase is being carried out with U. S. Fish and Wildlife Service tags. When returned with full information of where, when, how the fish was caught or found, a reward of \$1.00 is paid for each tag.



Tuna

TAGGED FISH RECOVERED OFF JAPAN AND GALAPAGOS ISLANDS: Further evidence of a relationship between the United States west coast and Japanese albacore fisheries turned up when the California Department of Fish and Game received an albacore tag from Japan. The return was the sixth albacore that had been tagged off California and subsequently recaptured in the Japanese fishery.

The latest trans-Pacific recovery was tagged 150 miles south of San Diego in July 1957, and recaptured on long-line gear about 700 miles southeast of Tokyo, 19½ months later--a distance of about 4,800 miles.

Another tuna tag recovery has demonstrated for the first time a relationship between the mainland and the island fisheries off South America. A skipjack tagged in the Gulf of Guayaquil, Peru, was recovered near Cadillac Bank, north of the Galapagos Islands. It had traveled about 720 miles in 45 days.



United States Fishing Fleet^{1/} Additions

JANUARY 1959: A total of 29 vessels of 5 net tons and over were issued first documents as fishing craft during January 1959--17 less than in January 1958. The

Table 1 - U. S. Vessels Issued First Documents as Fishing Craft by Areas, January 1959

Area	January		Total
	1959	1958	1958
(Number).....		
New England	2	1	13
Middle Atlantic	-	1	13
Chesapeake	9	7	99
South Atlantic	8	15	135
Gulf	6	16	270
Pacific	3	6	112
Great Lakes	1	-	10
Alaska	-	-	31
Virgin Islands	-	-	1
Total	29	46	684

Table 2 - U. S. Vessels Issued First Documents as Fishing Craft by Tonnage, January 1959

Net Tons	Number
5 to 9	17
10 to 19	3
20 to 29	3
30 to 39	2
40 to 49	3
90 to 99	1
Total	29

Chesapeake area led with 9 vessels, followed by the South Atlantic with 8, the Gulf 6, the Pacific 3, New England 2, and the Great Lakes with 1 vessel.

^{1/}Includes both commercial and sport fishing craft.

FEBRUARY 1959: A total of 27 vessels of 5 net tons and over were issued first documents as fishing craft during February 1959. Compared with the same month

Table 1 - U. S. Vessels Issued First Documents as Fishing Craft by Areas, February 1959

Area	February		Jan.-Feb.		Total
	1959	1958	1959	1958	
	(Number)				
New England	-	1	2	2	13
Middle Atlantic	-	2	-	3	13
Chesapeake	4	10	13	17	99
South Atlantic	4	8	12	23	135
Gulf	10	19	16	35	270
Pacific	5	7	8	13	112
Great Lakes	2	2	3	2	10
Alaska	2	-	2	-	31
Virgin Islands	-	1	-	1	1
Total	27	50	56	96	684

Table 2 - U. S. Vessels Issued First Documents as Fishing Craft by Tonnage, February 1959

Net Tons	Number
5 to 9	12
10 to 19	3
20 to 29	4
30 to 39	6
40 to 49	1
360 to 369	1
Total	27

vessels. The Pacific area ranked second with 5 vessels, followed by the Chesapeake and South Atlantic areas with 4 each, and the Great Lakes and Alaska areas with 2 each.

in 1958, this was a decrease of 23 vessels. The Gulf area led all other areas with 10

During the first two months of 1959, a total of 56 vessels received first documents as fishing craft, as compared with 96 vessels documented in a similar period of 1958.

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



U. S. Fish Stick Production, January-March 1959

The United States January-March 1959 production of fish sticks amounted to 18.3 million pounds, and the production of fish portions totaled 8.9 million pounds.

Table 1 - U. S. Production of Fish Sticks by Months and Type, January-March 1959^{1/}

Month	Cooked	Uncooked	Total
January	5,746	570	6,316
February	5,807	587	6,394
March	5,172	450	5,622
Total	16,725	1,607	18,332

^{1/} Preliminary data.

This was an increase of 1.4 million pounds or 8 percent in fish sticks and 4.2 million pounds or 89 percent in portions as compared with the same period of 1958.

Table 2 - U. S. Production of Fish Sticks by Areas, January-March 1958 and 1959

Area	1959 ^{1/}		1958 ^{2/}	
	No. of Firms	1,000 Lbs.	No. of Firms	1,000 Lbs.
Atlantic Coast States	24	15,203	24	14,074
Inland and Gulf States	5	1,712	4	1,433
Pacific Coast States	10	1,417	12	1,415
Total	39	18,332	40	16,922

^{1/} Preliminary ^{2/} Revised.

Cooked fish sticks (16.7 million pounds) made up 91 percent of the fish stick total. The remaining 1.6 million pounds or 9 percent consisted of uncooked fish sticks. A total of 8.2 million pounds of breaded fish portions (of which 6.5 million pounds

Month	1959 ^{1/}	1958 ^{2/}	1957	1956	1955
	(1,000 Lbs.)				
January	6,316	5,471	4,261	4,862	5,345
February	6,394	5,925	5,246	5,323	5,794
March	5,622	5,526	5,147	6,082	7,205
April	-	4,855	4,492	3,771	5,953
May	-	4,229	3,380	3,873	4,879
June	-	4,702	3,522	3,580	5,392
July	-	4,574	3,821	3,153	4,340
August	-	4,358	4,643	4,166	4,520
September	-	5,328	4,861	4,085	4,535
October	-	5,485	5,162	5,063	5,261
November	-	5,091	4,579	4,585	4,946
December	-	5,359	4,014	4,019	4,876
Total	18,332	60,903	53,128	52,562	63,046

^{1/} Preliminary. ^{2/} Revised.

were uncooked) and nearly 0.7 million pounds of unbreaded portions was processed during the first quarter of 1959. Compared with the same period of 1958

Month	Breaded			Unbreaded	Total
	Cooked	Uncooked	Total		
	(1,000 Lbs.)				
January	579	1,929	2,508	157	2,665
February	572	2,298	2,870	126	2,996
March	531	2,289	2,820	383	3,203
Total	1,682	6,516	8,198	666	8,864

^{1/} Production from blocks. ^{2/} Preliminary

this was an increase of 94 percent in breaded portions and 43 percent in unbreaded portions.

Area	1959 ^{1/}		1958	
	No. of Firms	1,000 Lbs.	No. of Firms	1,000 Lbs.
Atlantic Coast States	20	5,412	18	2,451
Interior, Gulf, and Pacific Coast States	10	3,452	7	2,247
Total	30	8,864	25	4,698

^{1/} Preliminary.

The Atlantic Coast States led all other areas in the production of fish sticks and portions with 15.2 million and 5.4 million pounds, respectively. The remaining 3.1 million pounds of fish sticks and 3.5 million pounds of portions were in the inland, Gulf, and Pacific Coast States.

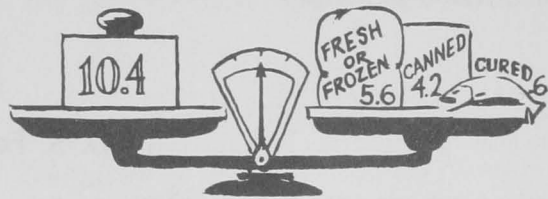
Month	1959 ^{1/}	1958	Month	1959 ^{1/}	1958
	(1,000 Lbs.)			(1,000 Lbs.)	
January	2,665	1,973	July	-	2,161
February	2,996	1,254	August	-	1,516
March	3,203	1,471	September	-	1,566
April	-	2,268	October	-	2,560
May	-	1,478	November	-	1,979
June	-	1,504	December	-	2,060
Contd. in opposite column			Total	8,864	21,790

^{1/} Preliminary.

United States Fishing Industry Investments Exceed a Billion Dollars

Fishermen, processors, and distributors have a capital investment of more than a billion dollars in the United States fishing industry. The estimated retail value of fishery products marketed during 1958 was more than \$1.7 billion.

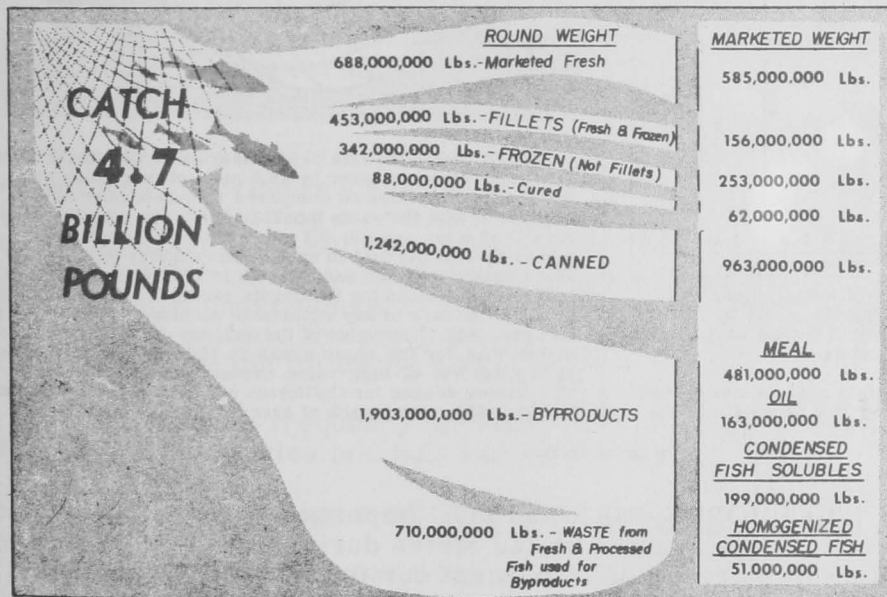
The domestic catch in 1958 was 4.72 billion pounds, a decrease of 62 million pounds; but the ex-vessel value of the catch was a record \$370 million, an increase of \$19 million over 1957. Imports from 1957 to 1958 were up the equivalent of 290 million pounds on a live-weight basis, which makes a net gain in the total supply of fish and shellfish for 1958 of 228 million pounds. This means that 7.4 billion pounds (live weight) was available for the American market.



The per capita consumption of fishery products in 1958 was 10.4 pounds, or 0.3 pounds higher than in 1957.

The \$370 million value of the catch as landed increased to \$633 million at the processor level for the products produced from domestic-caught fish and shellfish. At the wholesale level the value of the total United States catch was estimated at \$882 million and to the retailer at \$1.2 billion.

FLOW CHART of the COMMERCIAL FISHERIES -1958



Note: The round and marketed weights shown above do not include imported items processed in the United States. The marketed weights listed do not include fresh bait, or animal food prepared from waste, shell products, or other miscellaneous byproducts.

The value of the imported fishery products which were received fresh, frozen, and otherwise processed was \$320 million. Imported items processed in the United States were worth \$155 million after manufacturing. The value of the imports reached \$502 million at the wholesale level and \$552 million when they reached the retailer. Domestically-caught fish and imports were valued at \$788 million to the processor,

\$1,384 million to the wholesaler, and \$1,702 million to the retailer.

The domestic producers of fish have \$411.5 million invested in boats and \$89.0 million invested in fishing gear. The fisheries provide employment for 142,000 fishermen and transporters and 97,000 persons in wholesale and manufacturing establishments. A total of \$242.6 million is invested in freezing and processing plants and \$217.6 million in wholesale fish houses. The value of the facilities for handling fish at the retail level is placed at \$111 million. The grand total investment on the basis of these data is \$1,072 million.

A total of 40 percent of the domestic catch was converted into byproducts--oil, meal or solubles--or used as bait. More than 31 percent, or 1,483 million pounds, was utilized fresh or frozen for human food; over 26 percent, or 1,242 million pounds, was canned; and 88 million pounds, nearly 2 percent, were cured.

The Atlantic coast produced 53 percent of the domestic catch or 2,502 million pounds. Other producing areas show: Pacific coast, 904 million pounds; Gulf coast 780 million pounds; Alaska 380 million pounds; Great Lakes and Mississippi River, 150 million pounds.



U. S. Foreign Trade

EDIBLE FISHERY PRODUCTS, JANUARY 1959: Imports of edible fresh, frozen, and processed fish and shellfish into the United States during January 1959 increased by 11.8 percent in quantity and 6.0 percent in value as compared with December 1958. The increase was due primarily to higher imports of groundfish fillets (up 11.3 million pounds) and canned tuna in brine (up 4.5 million pounds), and to a lesser

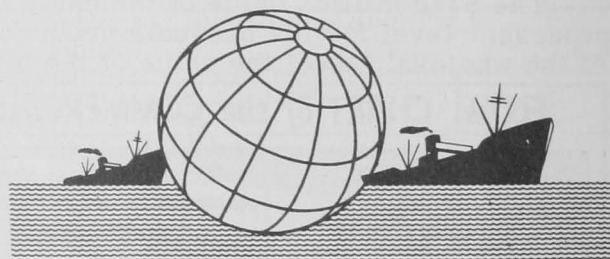
due to higher imports of groundfish fillets (up 7.6 million pounds), frozen tuna other than albacore (up 8.8 million pounds), canned tuna in brine (up 3.2 million pounds), and frozen shrimp (up 2.5 million pounds). Compensating, in part, for the increases was a drop of about 2.5 million pounds in the imports of frozen albacore tuna and frozen and canned salmon (down 3.0 million pounds).

Item	Quantity			Value		
	January		Year	January		Year
	1959	1958	1958	1959	1958	1958
	(Millions of Lbs.)			(Millions of \$)		
Imports:						
Fish & shellfish:						
Fresh, frozen, & processed ^{1/}	88.2	67.6	956.8	24.8	19.5	278.4
Exports:						
Fish and shellfish:						
Processed only ^{1/} (excluding fresh & frozen)	2.4	2.6	41.2	0.8	0.6	15.6

^{1/}Includes pastes, sauces, clam chowder and juice, and other specialties.

degree, an increase in the imports of other fillets and frozen tuna. These increases were partly offset by a 2.2 million-pound decrease in the imports of frozen shrimp and canned salmon (down 1.2 million pounds).

Compared with January 1958, the imports in January 1959 were up by 30.3 percent in quantity and 27.2 percent in value



United States exports of processed fish and shellfish in January 1959 were lower by 46.0 percent in quantity and 33.3 percent in value as compared with December 1958. Compared with the same month in 1958, the exports in January 1959 were down by 6.1 percent in quantity, but were higher by 33.3 percent in value. The exports this January as compared with the same month in 1958 were lower due to the poor demand for California sardines in foreign markets and the lack of any exportable surplus of other canned fish products. The value of the January 1959 exports was higher than for the same month in 1958 due to an increase in the exports of high-value canned shrimp and salmon. The fishing season for California sardines ended on December 31, 1958, with a pack of over 2.2 million cases.

* * * * *

GROUND FISH FILLET IMPORTS, MARCH 1959: Imports of groundfish (including ocean perch) fillets and blocks into the United States during March 1959 amounted to 12.1 million pounds--an increase of 18 percent compared with March of last year. Canada led all other countries in imports with 4.1 million pounds. Iceland was second with 3.5 million pounds, followed by Denmark with 2.4 million pounds, and Norway with 1.6 million pounds.

During the first three months of 1959, imports of groundfish (including ocean perch) and blocks amounted to 41.5 million pounds, about 30 percent above the same period of last year. Canada accounted for 41 percent of the total imports during the 1959 three-months period.

The quota of groundfish (and ocean perch fillets) and blocks permitted to enter the United States at $1\frac{7}{8}$ cents per 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 per pound.

Note: See chart 7 in this issue.

* * * * *

IMPORTS OF CANNED TUNA IN BRINE UNDER QUOTA: The quantity of tuna canned in brine which may be imported into the United States during the calendar year 1959 at the 12½-percent rate of duty has been established as 52,372,574 pounds. Any imports in excess of this established quota will be dutiable at 25 percent ad valorem.

Imports from January 1-April 4, 1959, amounted to 11,308,844 pounds, according to data compiled by the Bureau of Customs. From January 1-March 29, 1958, a total of 8,352,090 pounds had been imported. The quota for 1958 of 44,693,874 pounds was reached on November 20, 1958.



Vessel Safety Program

COMMITTEE FORMED IN MAINE TO PROMOTE PROGRAM: The first "Port Safety Committee" for fisheries in the United States was formed in Maine through the efforts of the U. S. Bureau of Commercial Fisheries Fishing Vessel Safety Program in New England. Fishery leaders at Portland announced April 2 that the Committee was formed and would work with the Bureau's Safety Program to develop a safety and health program for the Maine fishing fleets. Initial activities of the Committee will be confined to Portland vessels with a gradual expansion to all commercial fishing craft based in Maine ports.

The Committee represents people directly interested in the welfare of the Maine fishing industry with diversified experience in vessel operation, marine insurance and inspection, engineering and construction, and fishing vessel maintenance.

The primary objective of the Committee will be to provide leadership for the industry in establishing a practical accident-prevention and health program for commercial fishing vessels in the State of Maine. Action under consideration by the Committee to initiate the program was stated to include the following measures:



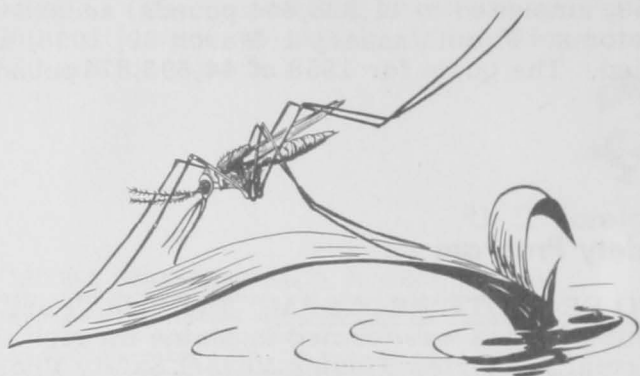
1. Establish a frequency accident rate for the Portland fishing fleet based on disabling work injuries and hull and machinery accidents.
2. Improve working conditions and eliminate hazards aboard fishing vessels.
3. Study accident reports to devise ways to direct accident prevention and elimination of unsafe conditions that may exist in the fleet.
4. Establish a code of safety standards for various classes of vessels engaged in the otter-trawl, scallop-dredge, and purse-seine fisheries.
5. Make available facilities to encourage safe operating practices and demonstrate approved devices and equipment to all industry members.
6. Promote the idea of fleet safety at all times, and by exercising control of operational procedures to reduce the accident rate and effect a reduction in marine insurance premiums to vessel operators.

The U. S. Bureau of Commercial Fisheries Safety Program hopes to assist in forming similar committees in the ports of Gloucester and New Bedford, Mass.



Ways Sought to Control Mosquito Without Harming Fish and Wildlife

The need for research to develop mosquito control methods compatible with fish and wildlife management objectives was stressed by most speakers participating in a mosquito control-fish and wildlife management symposium held in mid-April 1959 in the Department of the Interior Building, Washington, D. C. The purpose of symposium was to provide a better understanding of mosquito control and wildlife management objectives and methods, and to explore possibilities for a greater coordination of interests where conflicts exist.



Malarial Mosquito (*Anopheles maculipennis*)
(Resting position)

Because of the growing resistance of mosquitoes to many insecticides and the damage that these chemicals may cause to fish, shellfish, and wildlife, the trend in present-day control programs is toward the use of water management and biological-control methods. Ditching and filling are widely used but since these practices often adversely affect fish or wildlife, there is a growing recognition by mosquito control workers that effective substitute methods are needed.

Cooperative studies by the Bureau of Sport Fisheries and Wildlife, U. S. Fish and Wildlife Service, and other agencies in Delaware and New Jersey, from 1953 to 1955 showed the value of controlled flooding as a means of mosquito abatement in some areas. Under this system, the production of salt-marsh mosquitoes was virtually halted by preventing the exposure of soil upon which the pests lay their eggs. At the same time, waterfowl conditions were greatly improved. This method is now being used in suitable situations in Florida for the control of mosquitoes.

The symposium, the first of its kind, was sponsored jointly by the American Mosquito Control Association, the Bureau of Sport Fisheries and Wildlife, the Wildlife Society, the Agricultural Research Service of the U. S. Department of Agriculture, and the United States Public Health Service.

Papers on the first day were restricted to the fundamentals of mosquito biology and control and to the fundamentals of wetland management for fish and wildlife. Papers on the second day included reviews of methods of mosquito control by chemicals and by water management, their effects on various types of fish and wildlife, and the effects of fish and wildlife water-development projects on mosquito breeding.

Proceedings of the meeting will be available at \$1 a copy through the American Mosquito Control Association, Morris Plains, N. J.



Wholesale Prices, April 1959

Wholesale prices for selected edible fishery products in mid-April 1959 continued the downward trend of the past few months. Lower wholesale prices for fresh haddock, fresh and frozen fillets, and fresh and frozen shrimp were responsible for a drop of 4.3 percent in the index from March to April this year. The April 1959 edible fish and shellfish (fresh, frozen, and canned) wholesale price index (122.7 percent of the 1947-49 average) was about unchanged (down 0.2 percent) from the same month in 1958. Higher wholesale prices for the fresh-water varieties, frozen haddock fillets, frozen salmon, and canned Maine sardines were more than offset by lower prices for all other items that enter the fishery products wholesale index.

wholesale prices for all the fresh-water items and frozen king salmon. Fresh drawn haddock (down 6.1 percent) and frozen western halibut prices (down 2.5 percent) were lower in April this year as compared with April a year ago.

The fresh processed fish and shellfish subgroup index from March to April this year dropped 6.4 percent due to a drop in wholesale prices for fresh haddock fillets (down 40.0 percent) and fresh shrimp (down 4.5 percent). The subgroup index in April 1959 as compared with April last year was lower by 3.9 percent. Lower wholesale prices for fresh haddock fillets (minus 9.5 percent) and fresh shrimp (minus 7.5 percent) more than offset slightly higher prices for fresh shucked oysters.

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

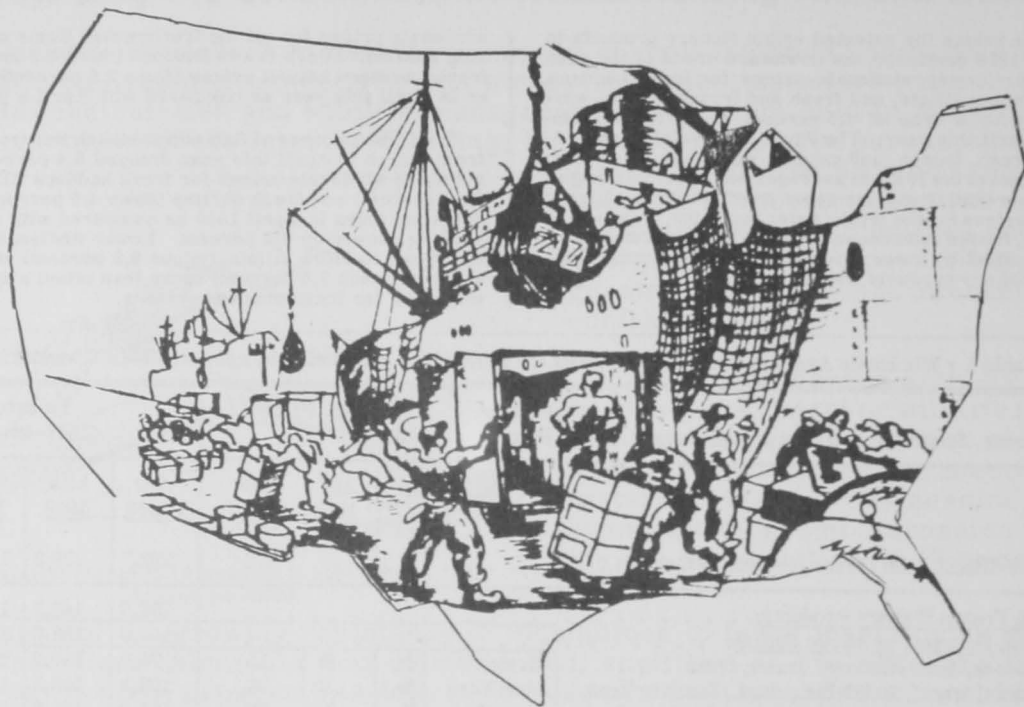
Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices ^{1/} (\$)		Indexes (1947-49=100)			
			Apr. 1959	Mar. 1959	Apr. 1959	Mar. 1959	Feb. 1959	Apr. 1958
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					122.7	128.2	133.7	122.9
Fresh & Frozen Fishery Products:					139.6	148.8	157.9	136.4
Drawn, Dressed, or Whole Finfish:					141.9	153.6	170.9	123.6
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.8	.15	76.0	149.2	212.8	80.9
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.33	.33	102.1	103.1	102.6	104.7
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.76	.75	171.3	168.5	173.0	149.2
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.98	.67	241.7	166.1	190.9	183.4
Whitefish, L. Erie pound or gill net, rnd., fresh	New York	lb.	1.08	.80	217.4	161.8	161.8	136.5
Yellow pike, L. Michigan & Huron, rnd., fresh .	New York	lb.	.71	.73	166.5	170.0	173.5	72.7
Processed, Fresh (Fish & Shellfish):					136.5	145.8	151.1	142.0
Fillets, haddock, sml., skins on, 20-lb. tins . . .	Boston	lb.	.29	.48	97.0	161.6	205.9	107.2
Shrimp, lge. (26-30 count), headless, fresh . . .	New York	lb.	.87	.91	137.4	143.8	145.3	148.5
Oysters, shucked, standards	Norfolk	gal.	5.75	5.88	142.3	145.4	148.5	139.2
Processed, Frozen (Fish & Shellfish):					128.3	2/133.9	137.4	132.4
Fillets: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.40	.41	103.4	106.0	108.6	103.4
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.36	.40	111.4	124.0	131.8	109.9
Ocean perch, skins on, 1-lb. pkg.	Boston	lb.	.30	.30	118.8	118.8	124.9	118.8
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	lb.	.83	.86	128.1	132.3	133.8	135.8
Canned Fishery Products:					99.0	98.8	98.8	104.3
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs. . . .	Seattle	cs.	22.50	22.25	117.4	116.1	116.1	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	84.0
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 48 cans/cs.	Los Angeles	cs.	7.00	7.40	82.2	86.9	86.6	132.4
Sardines, Maine, keyless oil, No. 1/4 drawn (3-3/4 oz.), 100 cans/cs.	New York	cs.	8.22	8.22	87.5	87.5	87.5	79.8

^{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.

^{2/} Revised.

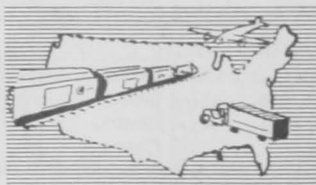
The April 1959 wholesale price index for the drawn, dressed, and whole finfish declined 7.6 percent from the preceding month due to a sharp seasonal drop (49.1 percent) in the drawn fresh haddock price and slightly lower wholesale prices for frozen halibut and yellow pike. Increases in wholesale prices for whitefish (due to short supplies and good demand) and frozen salmon failed to offset lower prices for the other subgroup items. The subgroup wholesale price index this April as compared with April a year ago was up by 14.8 percent due to higher

Further declines in wholesale prices for domestic and imported frozen shrimp at Chicago and frozen haddock fillets at Boston from March to April this year resulted in a 4.2 percent decline in the index for the frozen processed fish fillet and shellfish subgroup. From April 1958 to April this year the wholesale price index fell 3.1 percent due primarily to lower frozen shrimp prices (down 5.7 percent). Frozen fillet prices in April 1959 when compared with April last year were unchanged, except for frozen haddock fillets which were higher by 1.4 percent.



From March to April the over-all canned fish subgroup index dropped slightly (down 0.2 percent) due to a 5.4 percent lower canned California sardines price. Canned pink salmon was up about 25 cents a case and the two other canned fish items (Maine sardines and tuna) were unchanged from March to April. Canned fish prices in April this year were lower by 5.1 percent when compared with the same month in 1958. All canned fish products in the subgroup were lower except for Maine sardines which was up about

9.6 percent. The most pronounced change in price levels between April last year and April this year was for California sardines--down 37.9 percent. As of mid-April this year the market for canned Maine sardines and all types of canned salmon was firm, but the record-size pack of canned tuna was exerting some pressure on primary price levels for this product. The market for canned California sardines appeared to be firmer following a price decrease and the remaining stocks from the 1958 pack are firmly held.



BOIL-IN-BAG FOOD PRODUCTS

The housewife is now finding an ever-increasing variety of frozen food products packaged in airtight plastic bags. The product is cooked by immersing the unopened bag in boiling water. Advocates of this method of packaging claim that plastic bags retain flavor even better than most other types of packaging and cooking. Using this method, a housewife can prepare as many as six courses with the use of a single pot of boiling water.

Since this method of packaging and preparation seems to be "catching on," fish processors may wish to explore the possibility of using this packaging technique with fishery products. A few fishery products are being packaged in this manner.