

TRENDS AND DEVELOPMENTS

American Fishery Advisory Committee

INTERIOR DEPARTMENT REAPPOINTS SIX TO COMMITTEE:

Six members of the American Fisheries Advisory Committee whose terms expired on June 30, 1960, have been reappointed to 3-year terms beginning July 1, Assistant Secretary of the Interior Ross Leffler announced July 6, 1960.

The appointees are: Ralph E. Carr, President, Mid-Central Fish Co., Kansas City, Mo.; Chris Dahl, Kayler-Dahl Fish Co., Petersburg, Alaska; H. R. Humphreys, Jr., President, Standard Products Co., White Stone Va.; Leon S. Kenney, President, Pinellas Seafood Co., St. Petersburg, Fla.; James McPhillips, Vice President, Southern Industries Corp., Mobile, Ala.; and Arthur H. Mendonca, President, F. E. Booth Co., Inc., San Francisco, Calif. Kenney and Mendonca have served with the Committee since it was organized on February 14, 1955. There were then 19 members; later, this number was raised to 20.

Authority for the creation of the Committee is carried in the Saltonstall-Kennedy Act of 1954. The purpose of the Saltonstall-Kennedy Act is to promote the free flow of domestically-produced fishery products in commerce, to develop and extend markets, and to assure necessary research.

The original Advisory Committee was considered to be temporary since the life of the legislation was only three years. In 1956, however, the Fish and Wildlife Act extended the Saltonstall-Kennedy legislation indefinitely. The committee acquired permanent status effective July 1, 1957. The rules governing appointments provide for a basic 3-year term for members and permit one 3-year reappointment. One-third of the membership is changed each year.

The Committee will hold its next meeting in the Olympic Hotel, Seattle, Wash.,

August 10-12. Assistant Secretary Leffler is the Chairman. At these meetings, it is customary for the Bureau of Commercial Fisheries to review its activities and to outline its future plans. The Committee advises the Secretary and the Bureau of Commercial Fisheries in the formulation of policy, rules, and regulations pertaining to requests for assistance under the terms of the Saltonstall-Kennedy Act, and other matters.

Besides the six members reappointed, the Committee consists of: William P. Ballard, President, Ballard Fish and Oyster Co., Inc., Norfolk, Va.; Lawrence Calvert, President, San Juan Fishing and Packing Co., Seattle, Wash.; Harold F. Cary, Van Camp Seafood, Inc., Long Beach, Calif.; Ray H. Full, Treasurer, Kishman Fish Company, Vermilion, Ohio; David H. Hart, fisherman and boatowner, Cape May, N. J.; J. W. Lewis, President, Twin City Fishermen's Cooperative Association, Inc., Morgan City, La.; Donald P. Loker, Star-Kist Foods, Inc., Terminal Island, Calif.; J. Richard Nelson, F. Mansfield and Sons Co., New Haven, Conn.; Moses B. Pike, General Manager, Holmes Packing Corp., Eastport, Maine; Harry F. Sahlman, Sahlman Sea Foods, Fernandina Beach, Florida; Arthur S. Sivertson, Sivertson Bros. Fisheries, Duluth, Minn., and Lawrence W. Strasburger, technological consultant, Metairie, La. There are two vacancies on the Committee.



American Samoa

TUNA LANDINGS, JUNE 1960:

Landings of tuna by Japanese, South Korean, and native long-line vessels at the United States-owned tuna cannery in American Samoa totaled 2,944,000 pounds in June 1960, an increase of about 39.5 percent from the 2,111,000 pounds landed in June a year ago. For the first six months of 1960 landings amounted to 13,552,000 pounds as compared with 12,196 pounds landed the same period of 1959.

American Samoa Tuna Landings, June 1960 and January-June 1960				
Species	June		January-June	
	1960	1959	1960	1959
Albacore	2,061	1,533	11,058	9,078
Yellowfin	197	459	1,429	2,514
Big-eyed	686	119	1,055	604
Skipjack	1/	—	10	1/
Total	2,944	2,111	13,552	12,196

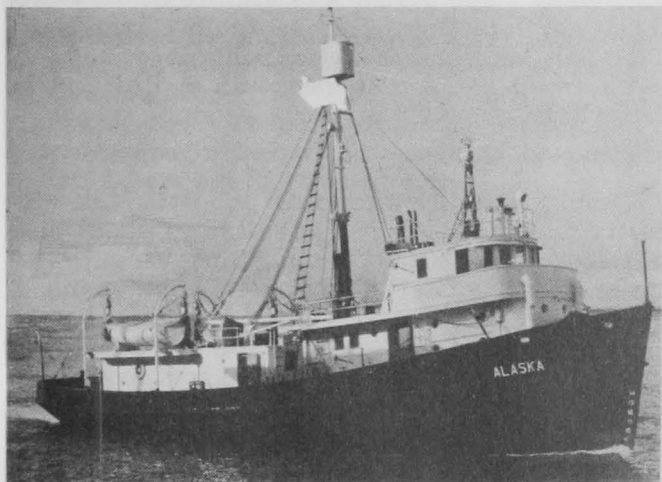
1/ Less than 500 pounds.



California

COLORED LIGHTS FOR ATTRACTING FISH AND NEW METHOD OF SETTING SAMPLING NETS TESTED:

M/V "Alaska" Cruise 60A5-Pelagic Fish:
The coastal waters off southern California from San Pedro to Palos Verdes Point, and Santa Catalina Island were surveyed (May 16-June 4, 1960) by the California Department of Fish and Game research vessel Alaska to test the effectiveness of several types of lights for attracting fish, and to experiment with new methods of setting fish-sampling nets.



California Department of Fish Game's research vessel M/V Alaska.

Tests were conducted on 28 stations to determine the relative effectiveness of fish attraction of underwater colored lights compared with the regular 1500-watt incandescent standard sampling light. A 500-watt underwater lamp with interchangeable colored filters was used. The two lamp types were used separately on alternate stations. Stations were located in clear water where fish were known to be present.

At 22 of the 28 stations a blue lens was used alternating with the standard 1,500 watt lamp. The blue lens attracted sardines on 2 of the 11 stations at which it was used, jack mackerel on 2, and Pacific mackerel on 1. The standard light attracted sardines on 5 of the 11, jack mackerel on 2, Pacific mackerel on 1, anchovies on 1, bonito on 1, and atherinids on 4.

In the remaining 6 tests, an underwater amber lens attracted sardines on 1 of the 3 stations at which it was used. Sardines were also attracted to 1 of the 3 alternate standard light stations.

To test the effectiveness in catching fish under different colored lights, fish were attracted with a surface light, an underwater light was then turned on and the surface light extinguished. Observations of fish behavior were then made. On each station the amber, blue, clear, and red lenses were used. Fish behavior was not noticeably altered by the amber, blue, or clear lenses. A milling school of sardines or anchovies under the surface light continued to mill in the same pattern when the underwater lamp was lighted and the surface light extinguished. When the red lamp was turned, sardines, in each case, left the red light zone. Reaction to the red light may have been a function of low light intensity rather than a response to the red color. Sardines did not avoid the red light zone when an overhead incandescent lamp was turned on simultaneously.

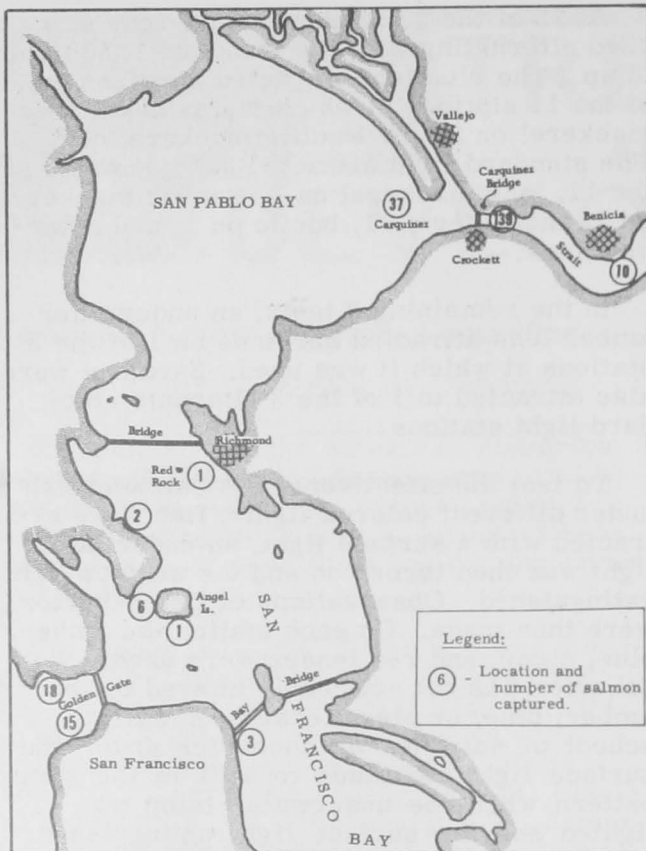
None of the underwater lenses tested altered fish behavior to the extent that it made them more susceptible to capture. However, when sardine or anchovy schools were given a preference, invariably they were attracted to the brightest light source.

A sampling gill net was set on 5 schools of "wild" sardines which were extremely difficult to catch with the blanket net. Sardines were obtained in each set. The degree of "wildness" in sardines varied between schools. The presence of bonito, barracuda, sharks, and other predators considerably increased the degree of "wildness" in a school.

* * * * *

NEW MIDWATER TRAWL NET TESTED ON SALMON FRY:

M/V "Nautilus" Cruise 60N4: An experiment with a new midwater trawl net (15 feet square



M/V Nautilus Cruise 60N4 (June 2-9, 1960).

opening by 65 feet long) for capturing salmon fry was conducted (June 2-9, 1960) by the California Department of Fish and Game research vessel Nautilus in outer San Francisco Bay, from Bonito Point to Benicia in Carquinez Strait. Other objectives of the survey were to determine at what depths salmon are located and in what areas, and to recover as many marked salmon as possible.

The Nautilus completed 44 tows with the mid-water trawl net. A total of 232 salmon fry was captured. Of these, 6 were marked (salmon released in Sacramento River earlier this year)--4 dorsal right ventral fin-clipped fish released into the River at Rio Vista and 2 dorsal left ventral fin-clipped fish released into Battle Creek.

Trawling was done at various depths and distances from shore. Small salmon were found in all areas tried. Largest numbers were taken very near the surface. They were found to be distributed at various distances from shore.

The trawl net was a small copy of a net developed in 1953. Its mouth was held open by 4 doors 1½ feet x 2 feet, acting as kites. Some trawls were made with 2 small otter doors placed 75 feet forward of the quarter doors. This made the net fish slower and deeper than it did without otter doors. Only 20 salmon were caught with this method. All remaining salmon were caught with quarter doors while fishing on the surface. Average towing speed was between 4 and 5 miles

per hour. At this speed the net's mouth was forced together slightly by pressure. This reduced the effective fishing area of the net to about 9 square feet.

The 2 most common species taken were northern anchovy, Engraulis mordax (about 900 pounds of 1-5-inch fish) and herring, Clupea pallasii (about 200 pounds of 2-6 inch fish). Other fish taken in small numbers were: striped bass, Roccus saxatilis; jack smelt, Atherinopsis californiensis; starry flounder, Platichthys stellatus; shad, Alosa sapidissima; split-tail, Pogonichthys macrolepidotus; California pompano, Palometa simillima; a few species of family Embiotocidae; and a few young fresh-water smelt and greenling sea trout.

PELAGIC FISH POPULATION SURVEY CONTINUED:

Airplane Spotting Flight 60-12-Pelagic Fish: The inshore area from the California-Mexican border north to Bodega Bay was surveyed from the air (June 15-17, 1960), by the Department's Cessna "180" 3632C to determine the distribution and abundance of pelagic fish schools.

Low clouds and fog prevailed over most of the California coast during the five days scheduled. The ocean was visible in only two areas north of Point Dume: from Carmel to Cape San Martin, where no schools were seen; and a small section at the south end of Bodega Bay where about 25 anchovy schools were found.

During one day when fair conditions of visibility prevailed, it was possible to scout the extreme inshore area from Point Vicente to the Mexican border; no schools were seen.

Red tide was observed in the San Pedro end of Los Angeles-Long Beach harbor and along the beach from Malibu to Ocean Park.

Note: Also see Commercial Fisheries Review, Aug. 1960, p. 14.



Canned Sardines

MARKETING STUDIES SHOW CONSUMER BUYS ON IMPULSE:

A sizable amount of canned sardines marketed in the United States are purchased by consumers on impulse. This is one of several findings of a survey of consumer attitudes toward canned sardines which are included in a report entitled Who Buys Canned Sardines, and Why.

The new U. S. Bureau of Commercial Fisheries report is based on a survey of the factors that motivate consumer preferences for canned sardines, conducted by a research firm under a contract from the Bureau.



The survey found that among the users of sardines, 12 percent in Boston, 21 percent in Birmingham, Ala., and 31 percent in Detroit bought sardines on impulse. When asked what would induce them to use more sardines, about one-fifth of the household consumers said that they eat sardines often enough; in addition, 46 percent in Boston, 27 percent in Birmingham, and 21 percent in Detroit stated that nothing would induce them to use more sardines. However, 17 percent in Birmingham and 15 percent in Detroit stated that a lower price would increase their buying. Only 4 percent in Boston mentioned price. Removal of bones, and/or removal of skin were also mentioned as inducements for greater use by about 20 percent of the consumers interviewed in Detroit, 10 percent in Boston, and 8 percent in Birmingham.



Cans--Shipment for Fishery Products, January-May 1960

Total shipments of metal cans during January-May 1960 amounted to 49,682 short tons of steel (based on the amount of steel consumed in the manufacture of cans) as compared with 43,046 tons in the same period a year ago. The increase of about 15.4 percent in the total shipments of metal cans January-May this year as compared with a similar period of 1959 was probably



due to early orders in anticipation of a sharp increase in the Alaska canned salmon pack.

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.



Central Pacific

Fisheries Investigations

FLUCTUATIONS IN HAWAII'S SKIPJACK TUNA CATCH MAY BE DUE TO CHANGES IN OCEANIC CIRCULATION:

Biologists and oceanographers of the Honolulu Biological Laboratory of the U. S. Bureau of Commercial Fisheries are attempting to learn the reasons for the wide annual fluctuations in the skipjack catch from Hawaiian waters. Briefly, they assume that the changes in catch are related to changes in the oceanic circulation or flow of water. One aspect of this circulation which appears to be important is the California Current Extension which flows toward Hawaii from off the California coast. To better understand this feature of the oceanic circulation, scientists from the Bureau of Commercial Fisheries Honolulu Biological Laboratory undertook a series of five cruises during 1959 covering an area between 12° and 25° N. lat. and 145° and 170° W. long., approximately 1 million square miles of ocean.

The results of these cruises show that the circulation changes substantially during the year. In the winter, the flow of western North Pacific water effectively bars the California Current water from entering the island area. As the year progresses, the strength of the California Current increases and during spring and early summer this water gradually pushes into and beyond the Hawaiian Islands. In mid-summer the western North Pacific system increases in strength and again gradually replaces the California Current water around the islands. This process of the advance and retreat of the California Current Extension is apparently an annual occurrence, although the extent and time of the advance may vary from year to year.

Records of the bird flocks and fish schools seen during the five cruises afford some ideas as to the relation between the environment and the distribution of tunas. Fish were also caught by pole-and-line fishing and by long-

line gear. Skipjack were considerably more abundant to the southwest of the Hawaiian Islands than to the east. They also appeared to be more abundant near the boundaries between the western North Pacific water and the California Current Extension. Long-line catches varied considerably among cruises, with the best catches taken during the winter months.

How the changes in circulation affect the Hawaiian skipjack fishery is still unknown. One hypothesis is that the fish use the California Current Extension as a guide or signpost in their migrations. These migrations may be for the purpose of reaching feeding areas or areas favorable for reproduction. Plankton collections made during the 1959 cruises do not show that any of the areas surveyed are especially rich in food. Because of this it appears more likely that skipjack may migrate in the Hawaiian area because conditions are suitable for spawning and survival of young. Examination of the plankton collections for skipjack larvae, a time-consuming and tedious task, is in progress. Results of these examinations should show whether more spawning takes place in certain areas than in others.

Cruises to the east and southwest of the Hawaiian Islands will be made during 1961. On those cruises we hope to learn more about the relation between skipjack and their environment in the central Pacific.



Chesapeake Bay

COAST AND GEODETIC SURVEY TO ASSIST IN DEVELOPMENT OF FISHERY RESOURCES:

A dual purpose survey of the Chesapeake Bay, scheduled to start early in July 1960, was announced by the U. S. Coast and Geodetic Survey. That agency will undertake a 1,500-mile shoreline survey in cooperation with the Maryland Department of Tidewater Fisheries.

The Coast and Geodetic Survey Director said that the project will provide 37 special shoreline maps for Maryland to assist in their study and development of fishery resources--especially oyster cultivation. In addition, the Survey will revise about 80 of its own large-scale base maps of the Bay with the aerial photography and field data thus acquired. Both Maryland and the Federal Government will

share the expense of this project, which is expected to cost about \$120,000.

An aerial photographic mission started flights during the first week of July near the mouth of the Potomac River. The photography will be accomplished in two distinct phases. Black-and-white film will be used for the revision of land details on the maps, and infrared film employed to emphasize shoreline detail at a mean high stage of the tide. Photogrammetrists know that infrared rays are absorbed by water; thus using this special film, water areas on infrared photographs become black, in sharp contrast to land details. All shore-line photography will be taken when the tide reaches a predetermined level--that of mean high water, and consequently, details can be interpreted from the photography and mapped by rapid office methods without the expense of extensive field surveys.

Two crews will work in the field, locating existing triangulation stations and selecting and identifying prominent objects and marks to be mapped. These alongshore objects will be used by the Department of Tidewater Fisheries as survey points from which they can divide and study the offshore oyster bars and other areas of interest to the seafood industry of Maryland. Many of these "landmarks" will also be included on future editions of nautical charts of the Bay, because of their special interest to the mariner.

Office phases of this project will include "measurement" of the photographs in precision instruments, such as the stereoplanigraph, to control the mapping operation; a careful study of all photography and the revision of existing maps; compilation, scribing or engraving of new map copy; and printing of special maps for the Department of Tidewater Fisheries.

Cooperation between Maryland agencies and the Coast and Geodetic Survey has been commonplace for many years. In 1906, for example, a joint survey was begun of the Chesapeake Bay under the direction of the now defunct Maryland Shellfish Commission. The Survey, between 1906 and 1912, produced 42 detailed oyster charts for the Commission. The Maryland Oyster Survey used these charts with considerable success through the years.

In the period from 1935 until 1945, the Coast and Geodetic Survey completed a new series of planimetric and topographic base

maps of the Chesapeake Bay coastal areas. Aerial photography and field surveys accomplished in 1960 will be used to revise the base maps, and provide most of the source material for the construction of the special maps for the State of Maryland.

The result of this new cooperative survey is expected to be of significant value to the fishing industry.

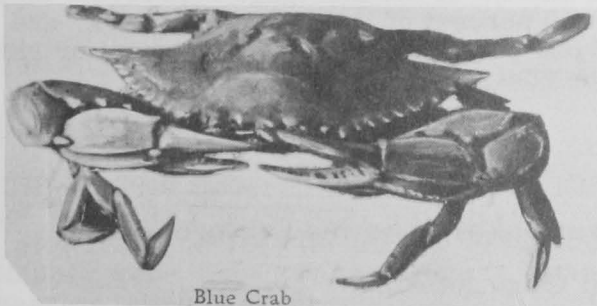


Crabs

CHESAPEAKE BAY SHORTAGE ENDED:

The shortage of blue crabs which has plagued Chesapeake Bay crab fishermen and processors of crab meat since January 1960 will end by mid-summer, scientists at the Virginia Fisheries Laboratory, Gloucester Point, reported on July 11.

The biologist in charge of the crab research project at the Laboratory reports that at least three times as many soft and peeler crabs were caught in June of this year as were landed in the same period in 1959. "This verifies again our belief that a large supply of crabs was produced from spawning in mid-summer 1959," he stated. Numerous finger-nail-sized crabs were caught in November 1959, during one of the Laboratory's regular monthly surveys.



Blue Crab

"Soft and peeler crabs should remain abundant through August," the biologist predicted, "and crab-potters will have above average catches throughout August and this fall; the winter dredge catches will be larger than usual in 1960/61. Hard crab catches by pots and peeler catches with scrapes and fykes should remain high during the spring and early summer of 1961, barring the unforeseen."

Predictions of catches a year in the future are based on observations of the number of

small crabs caught with an experimental trawl by the Pathfinder, the Laboratory's research vessel, and from reports of the hard and peeler crabs caught by commercial crabbers.



Films

FISHING ON GREAT LAKES

SUBJECT OF NEW INTERIOR FILM:

The romance of "fishing on the lakes" will be portrayed in a sound-color motion picture now in production, the U. S. Department of the Interior announced July 10, 1960. Fishery activity on all the Great Lakes will be documented. Because so much of the material in the film is of a seasonal nature, the actual filming will require more than a year. The picture will be ready for distribution on a free-loan basis in about a year and a half.

The commercial fisheries picture, sponsored by the Outboard Marine Corporation, is being produced and will be distributed by the Bureau of Commercial Fisheries, Fish and Wildlife Service.

This is the second commercial fisheries film sponsored by the Outboard Marine Corporation and produced by the Bureau of Commercial Fisheries as part of the Bureau's policy of working cooperatively with the industry in the production of fishery educational films. The first, Outboard Fisherman USA, received wide acclaim in this country and won awards at the Edinburgh, Scotland, Film Festival in 1956.

Two additional films more recently produced by the Bureau were exhibited at the Columbus, Ohio, Film Festival and received the Chris Awards from the Film Council of Greater Columbus. These were Salmon-- Catch to Can sponsored by the Canned Salmon Institute and Outdoor Fish Cookery, a Bureau-financed production.

The Bureau of Commercial Fisheries is currently producing a picture for the natural sponge industry. This picture is sponsored by the Sponge and Chamois Institute and the sponge industry of Tarpon Springs, Fla.



Fisheries Loan Fund

FISHERIES LOANS

APPROVED FISCAL YEAR 1960:

During fiscal year 1960 (July 1, 1959 to June 30, 1960), applications for fisheries loans totaling 190 and valued at \$5,328,956 were received by the U. S. Bureau of Commercial Fisheries. Of the total, 105 applications for \$2,220,024 were approved and 65 applications for \$1,927,302 were declined or found ineligible. Funds are available for additional loans, and new applications will be processed promptly.

From the beginning of the program in December 1956 through June 30, 1960, a total of 777 applications for \$24,231,119 have been received. Of these, 422 (\$9,933,257) have been approved, 267 (\$7,369,502) have been declined or found ineligible, 66 (\$4,231,122) have been withdrawn by applicants before being processed, and 22 (\$1,622,687) are pending. Of the applications approved, 157 were approved for amounts less than applied for--the total reduction was \$1,074,551.

The following loans were approved during April, May, and June of 1960:

New England Area: Archie M. Alley, Jr., Beals, Me., \$3,500.

South Atlantic and Gulf Area: Edgar J. Taylor, Ft. Myers, Fla., \$12,500; Trawler Austin, Inc., Tampa, Fla., \$21,667; and Mike Gianaras, Tarpon Springs, Fla., \$3,000.

California: Walter T. Cramer, Eureka, \$17,742; Fern D. Henry, Lakeside, \$6,425; The Ambrose Co., Vessel Ronnie S, San Diego, \$120,000; The Ambrose Co., Vessel Wiley V. A., San Diego, \$110,000; Daniel A. Marks, et al, M/V South Coast, San Diego, \$80,000; Malcolm S. Rice, et al, M/V American Enterprise, San Diego, \$80,000; and George Collins, Trinidad, \$6,500.

Pacific Northwest Area: Alex C. Prankard, Olympia, Wash., \$1,250; Ludvik M. Dahlberg, Seattle, Wash., \$23,000; Ola Hendricks, Seattle, Wash., \$14,489; Hans Hoddevik, Seattle, Wash., \$60,000; Ottar G. Larsen, Seattle, Wash., \$8,000; Commander, Inc., Tacoma, Wash., \$75,475; and Seafarer, Inc., Tacoma, Wash., \$61,971.

Alaska: George Hippert, Ketchikan, \$4,900; Emil Christoffersen, Kodiak, \$7,000; William F. Love, Petersburg, \$1,500; Henry A. Nelson,

Petersburg, \$1,500; Dez Gunderson, Seldovia, \$12,000; Theodore Pederson, Seldovia, \$9,000; and Joseph E. Redington, Wasilla, \$3,000.

Hawaii: KHH Fishing Co., Hilo, \$3,250.

Note: See Commercial Fisheries Review, June 1960 p. 26, May 1960 p. 20, March 1960 p. 21.



Fishing Vessel Mortgage Insurance

NEW PROGRAM STARTED:

A new program (Public Law 86-577) to insure mortgages which are given to assist in the construction, reconstruction, and reconditioning of fishing vessels has been started. Assistant Secretary of the Interior Ross Leffler announced on July 9, 1960. This new program will operate similarly to the mortgage insurance on houses which is provided by the Federal Housing Administration.

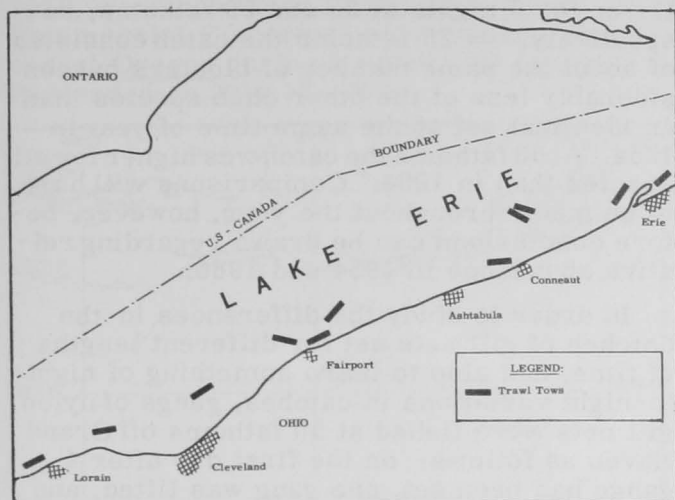
Under this plan the U. S. Department of the Interior, through its Bureau of Commercial Fisheries, will insure the entire amount of the mortgage, which may not exceed 75 percent of the cost of vessel construction or reconditioning. The mortgage cannot extend more than 15 years nor can it bear interest of more than six percent. The insurance premium will be one percent a year when the face amount of the mortgage represents more than 50 percent of the cost of the work, and $\frac{3}{4}$ of one percent when it is 50 percent or less of the cost.



Great Lakes Fisheries Exploration and Gear Research

SEASONAL DISTRIBUTION STUDIES OF COMMERCIAL FISH STOCKS IN LAKE ERIE CONTINUED:

M/V "Active" Cruise 10: The second in a series of cruises scheduled for Lake Erie was conducted (June 6-16, 1960), by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Active to obtain additional information on the seasonal distribution of fish stocks. Erie will be the new permanent base of operations for the eastern Great Lakes.



M/V Active Cruise 10 (June 6-16, 1960).

Extensive echo-sounding operations conducted from Vermilion, Ohio, to Erie, Pa., failed to locate any large concentrations of smelt. These results were anticipated on the basis of previous records during this time of year in Lake Erie. Trawling was only carried out in restricted areas where echo-tracings gave sufficient indication that commercial quantities could possibly be harvested. Half-hour drags generally caught from 90-130 pounds of medium (15-20 per pound) smelt. Thermal stratification with a sharp thermocline was observed throughout the area. Surface temperatures in the open lake ranged from 55^o-68^o F.

Note: Also see Commercial Fisheries Review, Aug. 1960 p. 23.

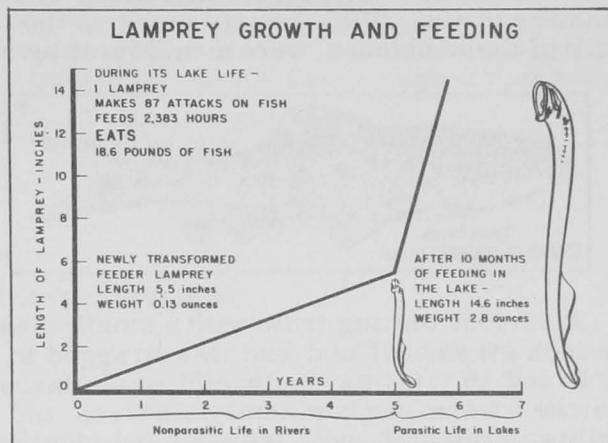


Great Lakes Fishery Investigations

HIGH WATER HAMPERS LAKE SUPERIOR SEA LAMPREY CONTROL PROGRAM:

Electrical devices for control of the sea lamprey were placed in operation in Lake Superior tributaries on schedule this spring, but extreme high water handicapped operations over a 6-week period. It was impossible even to service traps at some installations for periods in excess of 30 days. An attempt was made to keep all devices functioning throughout the flood even though lampreys could bypass the structures. Sea lamprey escapement past the barriers was possible at all installations except Pendills Creek. The most serious damage occurred to the Bad River installation where destruction was so extensive that repair is not planned. In addition to the Bad River, operation of the Big

Garlic River installation ceased on May 29, 1960, as a result of a change in the ownership of the property. Damage at the remaining installations was relatively light.



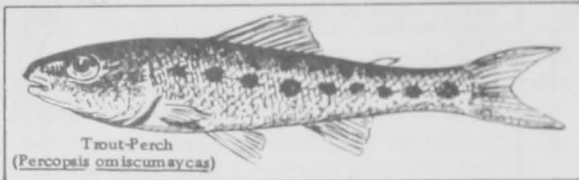
Control barriers out of operation were repaired as soon as water levels receded or access roads and bridges were passable and 35 control devices are now in operation. Captures of adult sea lampreys totaled 27,869 by June 17. These same control devices caught 42,175 adults during the same period in 1959.

Although the captures to June 17 represent a reduction of nearly 34 percent in the number of adults as compared with the same period of time in 1959, it cannot be considered indicative of the actual population, since no knowledge of the number of sea lampreys that bypass the controlling devices during periods of extensive high water is available. Heavy but unmeasured mortality of adult sea lampreys occurred at some devices during high-water periods.

LAKE MICHIGAN POPULATION SURVEY CONTINUED:

M/V "Cisco" Cruise 3: The chub (*Leucichthys* sp.) population survey in southern Lake Michigan was continued (June 7-21, 1960) by the U. S. Bureau of Commercial Fisheries research vessel Cisco. Trawl catches during this cruise were generally small. Thirty-minute tows with a 52-foot ballon trawl at 5-fathom intervals from 15 to 35 fathoms, and at 50 fathoms, west-southwest of Grand Haven, Mich., yielded 36 to 272 pounds of chubs. Similar tows at 5-fathom intervals from 15 to 35 fathoms west-northwest of St. Joseph, Mich., took 35 to 235 pounds of chubs. The best catches were at the shallower depths.

Practically all the chubs were bloaters (*Leucichthys hoyi*). No species other than chubs were taken in significant quantities. The poor trawl catches, also reported by commercial fishermen, suggest that many of the smaller chubs, which usually make up the bulk of these catches, were at midwater levels.



A 39-foot whiting trawl with a small-mesh ($\frac{1}{2}$ -inch stretched) cod end was dragged in 5, 7, and 10 fathoms south of Grand Haven. Catches were predominately alewives and yellow perch at 5 and 7 fathoms and bloaters and yellow perch at 10 fathoms. Also numerous at 5 and 7 fathoms were smelt, trout-perch, and spottail-minnows; less common were whitefish (2), longnose suckers (1), and log-perch (1). Yearling perch averaged about 3.2 inches, and yearling smelt about 2.6 inches.

Gangs of nylon gill nets (50 feet each of $\frac{1}{4}$ - and $1\frac{1}{2}$ -inch mesh, and 300 feet each of 2-, $2\frac{3}{8}$ -, $2\frac{1}{2}$ -, $2\frac{3}{4}$ -, 3-, $3\frac{1}{2}$ -, and 4-inch mesh) set overnight at 25 and 50 fathoms off Grand Haven, made heavier catches than during cruise 2, except in the smallest ($\frac{1}{4}$ -inch) mesh. Thus it appears that more of the larger than of the smaller chubs have remained near the bottom. The chubs in the gill nets were about 99 and 95 percent bloaters at 25 and 50 fathoms, respectively. The remainder were *L. reighardi*, *L. zenithicus*, *L. alpenae*, and, at 50 fathoms *L. kiyi*. Catches included also a few lake herring (*L. artedi*). *L. reighardi* has practically completed spawning, which began in late April. Gangs of nylon gill nets set overnight at 25 and 50 fathoms off St. Joseph took fewer chubs than did those off Grand Haven, but at 25 fathoms the percentage of fish other than bloaters was higher. The catch at 25 fathoms was 324 *L. hoyi*, 6 *L. zenithicus*, 3 *L. reighardi*, 2 *L. alpenae*, and 25 lake herring; at 50 fathoms it was 266 *L. hoyi*, 2 *L. zenithicus*, 8 *L. reighardi*, 2 *L. alpenae*, 1 *L. kiyi*, and 3 lake herring.

A gang of linen gill nets consisted of 255 feet each of $2\frac{3}{8}$ -, $2\frac{1}{2}$ -, $2\frac{5}{8}$ -, $2\frac{3}{4}$ -, and 3-inch mesh and another gang of twice this amount of each mesh size were set off Grand

Haven for 5 nights at 25 and 50 fathoms, respectively. At 25 fathoms the catch consisted of about the same number of bloaters but considerably less of the other chub species than an identical set at the same time of year in 1954. At 50 fathoms the catch was higher for all species than in 1954. Comparisons will have to be made throughout the year, however, before conclusions can be drawn regarding relative abundance in 1954 and 1960.

In order to study the differences in the catches of gill nets set for different lengths of time, and also to learn something of night-to-night variations in catches, gangs of nylon gill nets were fished at 50 fathoms off Grand Haven as follows: on the first day after 4 gangs had been set, one gang was lifted, and reset; the second day the 1-night set and a 2-night set were lifted, and one of the gangs was reset; on the third day no nets were lifted, due to stormy weather; on the fourth day all three remaining gangs were lifted. Thus there were two each of 1-night, 2-night, and 4-night sets. The 1-night set took 553 and 826 chubs, the 2-night sets 1,106 and 1,189, and the 4-night sets 2,002 and 2,000. All mesh sizes except the 2-inch caught nearly twice as many fish in the 4-night sets as in the 2-night sets, so that they apparently were fishing well for the full 4 nights. The 2-inch mesh, which caught considerably more than any other mesh, appeared to have "loaded up" after two nights, however. The catches for this mesh were 325 and 402 in the 2-night sets and 465 and 467 in the 4-night sets.

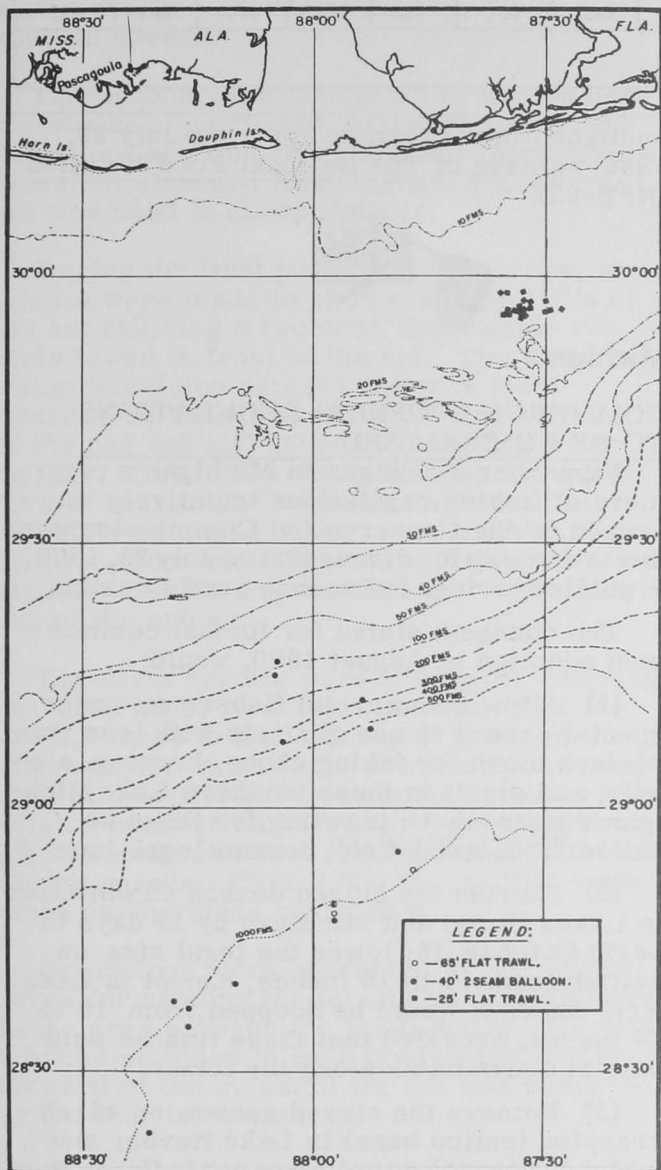
Complete hydrographic observations and collections were made at 25-fathom stations off Grand Haven and St. Joseph. Surface temperatures were lower in a narrow band near shore (mostly 6° to 8° C.-- 42.8° to 46.4° F.) than farther out (mostly 11° to 15° C.-- 51.8° to 59.0° F.) except at the end of the cruise when strong winds partially broke up the thin epilimnion offshore and dropped surface temperatures there to about 8° C. (46.4° F.). Extreme open-lake surface temperatures recorded were 5.4° C. (41.7° F.) and 17.2° C. (63.0° F.).

Gulf Exploratory Fishery Program

DEEP-SEA COMMERCIAL-TYPE
TRAWLING METHODS STUDIED
IN NORTH-CENTRAL GULF:

M/V "Oregon" Cruise 68: Studies of deep-sea trawling methods, which were initiated in

1958, were continued by the U. S. Bureau of Commercial Fisheries' exploratory fishing vessel Oregon during a seven-day cruise that ended on July 18, 1960.



M/V Oregon Cruise 68 (July 12-July 18, 1960.)

A total of 10 drags was attempted along the 1,000-fathom depth contour, using 60-foot and 40-foot shrimp trawls. The major trawling problem was bogging the gear in soft mud bottom, which occurred on six of the drags. Two drags resulted in catches of approximately 50 pounds of fish, crustaceans, and miscellaneous invertebrates. Both catches were heavily coated with lube-oil sludge. Two drags were water hauls.

A series of five drags were made off Mobile Bay between depths of 80 and 575 fathoms. Of particular interest was a 58-pound catch

of unusually large royal-red shrimp from 240-245 fathoms which averaged about 16-18 count (heads-off) per pound.

A 40-bushel sample of calico scallops was caught on the return leg of the cruise. These were brought in whole for shucking tests at the Bureau's Pascogoula Technological Laboratory.

Note: Also see Commercial Fisheries Review, November 1959 p. 38.



Maine Sardines

BOY SCOUTS SERVED SARDINES:

Almost 60,000 Boy Scouts ate 60,000 cans of Maine sardines at their National Jamboree at Colorado Springs during the latter part of July. The Maine Sardine Council donated the sardines to the scouts as a duplicate of a similar operation at the 1957 Jamboree at Valley Forge, Pa.

The sardines were served as the main item of a quick meal as the boys arrived at the site from all sections of the country. The second serving was a farewell snack as they left for home. The cans had a specially-designed cover commemorating the Jamboree.

Last year the Council served Maine sardines to 20,000 Girl Scouts at their National Campfire.

* * * * *

CANNED STOCKS, JULY 1, 1960:

Distributors' stocks of Maine sardines totaled 172,000 actual cases on July 1, 1960, a drop of 2 percent from the 176,000 cases on hand July 1, 1959. Stocks held by distributors on June 1, 1960, amounted to 197,000 cases, and on April 1, 1960, totaled 252,000 cases, according to estimates made by the U. S. Bureau of the Census.



Canners' stocks on July 1, 1960, totaled 359,000 standard cases (100 $\frac{3}{4}$ -oz. cans), a decrease of 63,000 cases (15 percent) as compared with July 1, 1959. Stocks held by canners on June 1, 1960, amounted to 235,000 cases and on April 1, 1960, amounted to 397,000 cases.

Table 1- Canned Maine Sardines--Wholesale Distributors' and Cannery Stocks, July 1, 1960, With Comparisons^{1/}

Type	Unit	1959/60 Season					1957/58 Season				
		7/1/60	6/1/60	4/1/60	1/1/60	11/1/60	7/1/59	6/1/59	4/1/59	1/1/59	11/1/58
Distributors	1,000 actual cases	172	197	252	235	296	176	197	254	268	312
Cannery	1,000 std. cases ^{2/}	359	235	397	843	1,001	422	272	474	891	1,037

^{1/}Table represents marketing season from November 1-October 31.

^{2/}100 $3\frac{3}{4}$ -oz. cans equal one standard case.

The 1960 pack (from the season which opened on April 15, 1960) as of July 23 was about 677,000 standard cases as compared with 673,000 cases packed in the same period of 1959. The April 1, 1960, carryover was about 335,000 cases, substantially lower than the carryover of 420,000 cases on April 1, 1959.



Marketing

EDIBLE FISHERY PRODUCTS MARKETING PROSPECTS, SUMMER 1960:

United States civilian consumption of fishery products in the summer and fall of 1960 was expected to continue close to that of a year earlier. Supplies of the processed items were expected to remain lower than a year ago until marketings of the 1960 pack of the canned commodities started in volume during late summer. Retail prices of fish and shellfish may average a little lower this summer and early fall than last.

Commercial landings of food fish and shellfish are now at the season's peak. The annual total for this group may be higher than in 1959, when the catch of both salmon and sardines was unusually small.

Supplies of fishery products were somewhat lower this January-June than last. Stocks of the frozen commodities at the beginning of 1960 were well above those of a year earlier, but canned fishery products were much lower. The catch and imports of food fish and shellfish through midspring also were down. Civilian per capita consumption of these foods was maintained at the year-earlier level by drawing on stocks. Retail prices averaged a little lower than in the first half of 1959 because of the lower prices this past winter.

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 July 29, 1960, release of The National Food Situation (NFS-93).



Michigan

COMMERCIAL FISHING REGULATIONS TO BE LIBERALIZED:

Five liberal changes in Michigan's commercial fishing regulations tentatively approved by the Conservation Commission were due to come up for discussion on July 25, 1960, at public hearings in Escanaba and Lansing.

The changes, slated for formal commission adoption in August 1960, would:

(1) Allow commercial fishermen under special permit to use gill nets with less than $2\frac{1}{2}$ -inch mesh for taking chubs, herring, alewife, and smelt in those southern Lake Michigan waters where trawling for those so-called "industrial fish" became legal June 12.

(2) Shorten the closed season on whitefish in Lakes Huron and Michigan by 15 days to begin October 15; lower the legal size on catfish from 17 to 15 inches, except in Lake Erie where it would be dropped from 15 to 14 inches, provided that these fish be sold only at docks on or along the lake.

(3) Remove the closed season on black crappies (calico bass) in Lake Huron; and match the season on yellow perch in Green Bay with the June 1-April 25 season in Lake Michigan.



North Atlantic Fisheries Exploration and Gear Research

OTTER-TRAWL PERFORMANCE OBSERVED WITH UNDERWATER TELEVISION:

M/V "Delaware" Cruise 60-9: Observations of otter-trawl gear performance utilizing underwater television from the

U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware were conducted June 10-28, 1960. A photographic record was made from the shipboard television monitor showing otterboard action at various speeds.

Operations were conducted in waters near the southern portion of Stellwagen Bank and near the Cape Cod Bay shore off North Truro, Mass. A standard New England No. 41 trawl net was used in all operations.

During the first portion of the cruise, attempts were made to photograph sections of the net utilizing a two-man underwater vehicle towed in front of the net. The underwater television camera unit was pivot-mounted on the stern of the vehicle. Views of the cod end and headrope were recorded on film. Due to low water temperatures, the divers' maximum "vehicle time" could not be safely extended beyond nine minutes. In addition, poor visibility made it desirable to terminate vehicle operations for the remainder of the cruise.

Excellent results were attained by lowering the underwater television camera down the towing warps to a position just ahead of the otterboards. A series of trawl-door scenes were film-recorded from the underwater television monitor on board the Delaware, showing the actions of the trawl doors at different towing speeds. Over 3,000 feet of film were taken during these operations.

Operations were conducted to test procedures for sending the television camera down to the area between the trawl doors. By using a bridle attached to each trawl wire, the area forward of the mouth of the net was surveyed by the television camera.

These studies were carried on as a part of a program of research designed to better understand the functioning of the otter-trawl fishing gear.



North Atlantic Fisheries Investigations

INSHORE HADDOCK NURSERY GROUNDS SURVEYED:

M/V "Delaware" Cruise 60-10: The inshore nursery grounds of haddock were surveyed by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Dela-

ware during a July 5-9 cruise. A scientific crew of five, collected information from 32 inshore stations located in the Ipswich Bay area, off Cape Cod, in the Nauset Beach area, and Stellwagen Bank in Massachusetts Bay.

Haddock were taken in each area, but the area off Race Point, Provincetown, the tip of Cape Cod, was found to have the largest concentration of small haddock. These small fish belonging to the 1958 year-class will, in another year, become an important part of the commercial catch. In addition to haddock, 22 other species of fish were taken in varying quantities. Among these were cod, pollock, hake, and dogfish.



North Pacific Exploratory Fishery Program

GOOD TRAWLABLE BOTTOM FOUND OFF STRAIT OF JUAN DE FUCA:

M/V "John N. Cobb" Cruise 46: Commercial quantities of groundfish were found in four separate areas by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel John N. Cobb during an 8-week (ended June 24, 1960) exploratory fishing cruise in the bad bottom "spit area" west of Cape Flattery. The first area (see chart) produced principally petrale sole. Each of two 60-minute tows caught 1,200 pounds of this species at depths from 61 to 79 fathoms. Three additional trawl tows in the deeper water of the same area produced moderate catches of rockfish. The area covers approximately 15 square miles.

The second area produced principally dover sole. Two 70-minute tows produced 4,000 and 3,800 pounds of rockfish at depths from 57 to 72 fathoms. The area measures approximately 10 square miles. A 90-minute tow adjacent to that area in 72-80 fathoms took 1,500 pounds of dover sole.

The third area produced principally snappers (rockfish). Catches ranged from approximately 500 pounds to 4,500 pounds per hour in depths from 70 to 80 fathoms. The area is approximately 10 miles long and 2 to 3 miles wide.

The fourth area located produced excellent catches of Pacific ocean perch. Five tows produced perch at rates from 500 to 4,000

pounds per hour in depths ranging from 75 to 92 fathoms. This was the largest clear area found and measured approximately 10 miles by 6 miles.

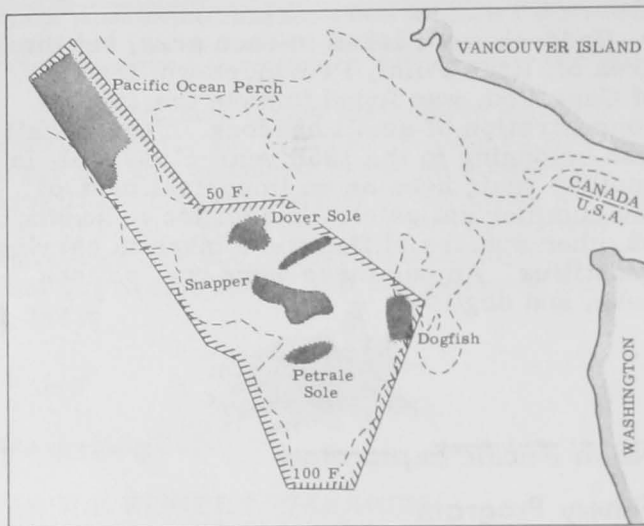


Fig. 1 - M/V John N. Cobb Cruise 46 (May-June 1960).

A fifth area of clear dragging bottom was also discovered; however, tows produced only large catches of dogfish. The area measured approximately $2\frac{1}{2}$ by 4 miles and ranged in depth from 75 to 98 fathoms.

The locations of the trawable areas and catches obtained were communicated to the commercial trawling fleet directly. The commercial otter-trawl fleet was quick to take advantage of the discovery of favorable bottom in an area which had previously been considered too rough for bottom trawls. The commercial fleet landed over 300,000 pounds from the petrale sole and dover sole areas before the completion of the cruise by the Bureau's vessel.

The procedure used to survey the area was as follows: (1) Sounding transects, using a high resolution research model echo-sounder, were made approximately two miles apart and at right angles to each other over an area of approximately 100 square miles. The character of the bottom with respect to hardness was plotted during the sounding transects as were the definitely untrawable stretches. (2) The promising sections within the soft bottom areas were then surveyed using a snag cable 280 feet long between standard 8-foot by 4-foot otter doors. (3) On snag cable tows coming clear a standard 400-mesh eastern otter trawl was towed to evaluate the species and magnitude of fish populations present.

A total of 174 stations, including sounding transects, snag cable tows, and otter trawl tows, was made during the cruise.

Biologists from the Washington State Department of Fisheries tagged and released numbers of petrale sole and ling cod--as part of their research program on the commercial groundfish species.

M/V "John N. Cobb" Cruise 47: The Cobb was scheduled to depart on July 18, 1960, for 7 weeks of exploratory bottom trawling off the north end of Vancouver Island (Quatsino Sound to the Scott Islands). The primary

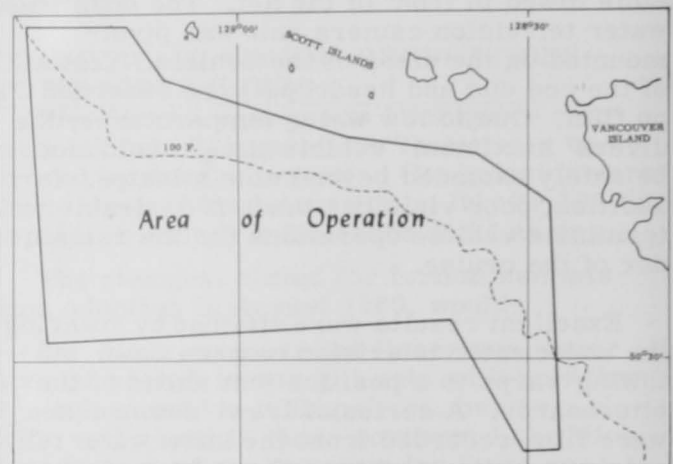
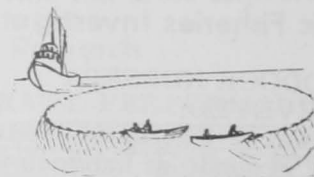


Fig. 2 - M/V John N. Cobb Cruise 47 (July-September 1960).

purpose was to evaluate the commercial potential of bottom fish in that area. Records will be maintained on (1) the general topography of the area and (2) oceanographic and meteorological conditions. For the more important commercial species that are encountered, lengths and average weights will be measured. Otoliths ("ear bones") will be removed from English and petrale sole so that their approximate ages can be determined.

Transects using sonic equipment will be made over runs of approximately constant depth. Transects showing trawable bottom will be surveyed with a standard otter trawl to assess the commercial fishing potential.



Oysters

LONG ISLAND SOUND OBSERVATIONS ON SPAWNING AND SETTING:

The U. S. Bureau of Commercial Fisheries Biological Laboratory, Milford, Conn., will again conduct systematic observations in Long Island Sound on spawning and setting of oysters and starfish, using the same 10 major stations as in previous years. In addition to the basic stations, at least 12 auxiliary ones will be used, principally in the Milford and New Haven areas. These stations, however, are primarily designed for studies dealing with development of mechanical and chemical methods of control of shellfish enemies.

The bottom water temperature recorded at the stations during the week ending July 9 varied from about 60.0° F. at the deepest stations to about 68.0° F. at the shallow ones. Some oysters have spawned but no larvae have been found in the plankton samples collected on July 5, 1960.

Setting of starfish began on July 1 and young stars were observed on the collectors at most of the stations except two. To date, however, the setting has been light with the heaviest amounting to 9 starfish per 20 shells at one station located in 30 feet of water in the Milford area. (Bulletin No. 1, July 11, 1960.)

The bottom water temperature recorded during the collecting trip on July 18 ranged from 66.0° F. at the deepest stations to 71.0° F. at New Haven Stations #4, #5, and #6. The water was extremely rich in phytoplankton; numerous blooms covering areas of several square miles each were observed. However, oyster larvae were virtually absent in plankton samples. These samples consist of material retained from about 200 gallons of sea water by a #20 net.

No oyster set has been recorded, but setting of starfish is continuing and during July 14 to July 18 it showed a great increase in intensity, especially at Station #3, which is the deep-water station at Milford, and Station #7, a



deep-water station in the New Haven area. (Bulletin No. 2, July 20, 1960.)

NEW METHOD OF CONTROL FOR COMMON MUSSEL:

A new method for control of the common mussel, a competitor of oysters, has been developed by the U. S. Bureau of Commercial Fisheries, Milford Biological Laboratory. In



The characteristic position of sea mussel. The anterior end buried in the sand and the posterior or siphon end projecting well above the level of the bottom.

preliminary experiments, a 1-percent solution of copper sulfate killed 99.3 percent of the mussels, while an insignificant number of oysters was injured. Further experiments are now in progress, but all observations to date show the same results, i.e. nearly all mussels are killed by the treatment, while few oysters are injured. Several oyster companies, which have beds that are now heavily populated with mussels, plan to use the method this summer. The copper sulphate method is much cheaper and more effective than Victoria Blue. The latter, however, is still very useful in combatting other competitors, such as tunicates.



Scallops

AUGUST SCALLOP FESTIVAL AND PUBLICITY CAMPAIGN:

Commercial fishing and allied food trade industries cooperated in the publicity for the "New Bedford Scallop Festival" in August 1960. Because of the large stocks and low prices, the U. S. Bureau of Commercial Fisheries cooperated with the New England scallop industry in its effort to move scallops



SCALLOP FESTIVAL

New Bedford, Mass. 1960

into trade channels. At the request of the Bureau, the U. S. Department of Agriculture listed scallops on the List of Foods in Plentiful Supply for August and publicized scallops in the material it distributes to the food trade and food service industries.

To help the scallop industry market its product, the Bureau's other efforts included:

Press Release and Special Marketing Bulletin consisting of story and three scallop recipes, for distribution to the Bureau's mailing list of some 2,300 food editors, nutritionists, dietitians, and others in the food and allied industries.

For use by restaurants, 25,000 Fisheries Marketing Bulletins featuring scallop recipes for 25, 50, and 100 portions for distribution to the major regional, state, and local restaurant associations in the United States, and by the Bureau's field staff.

For use by institutions, 33,000 Fisheries Marketing Bulletins prepared in cooperation with Sun-Kist, featuring scallops and lemons for distribution through the Sun-Kist nationwide mailing list, and by the Bureau's field staff.

For food editors, nutritionists, dietitians, and others in the food and allied industries, 7,000 fisheries marketing bulletins prepared in cooperation with Sun-Kist featuring lemons and scallops for distribution through the Sun-Kist nationwide mailing list and the Bureau's field staff.

In an effort to enlist the support of the important allied food trade industries, a telegram, signed by Ross Leffler, Assistant Secretary for Fish and Wildlife, Department of the Interior, was sent to over 40 trade organizations.

To carry this promotion into the fall selling months a special flyer for School Lunch

and the institutional trade was prepared for use during Fish 'n Seafood Parade in October. In addition scallops are featured in a Special Fishery Marketing Bulletin for food editors, nutritionists, dietitians, and others in the food and allied industries.

Supplementing the printed material, the Bureau's Home Economists featured scallops in their demonstrations before school-lunch personnel, dietitians, restaurant operators, chefs, extension agents and others.

Marine Park overlooking beautiful Buzard's Bay in New Bedford, was the scene of the 3rd Annual Scallop Festival, August 12, 13, and 14, 1960. Based on the popularity of last year's Festival, approximately 20,000 people from all parts of the country were present to sample this seafood.

* * * * *

SHUCKING METHOD DEVELOPED:

Before the calico scallop beds discovered off the Florida coast by the U. S. Bureau of Commercial Fisheries' chartered fishing vessel Silver Bay could be exploited, an economical means of shucking the small scallops needed to be developed. The Bureau's Technology Laboratory at Pascagoula, Miss., has come up with a simple shucking method which may adequately cover this need. The scallops are placed in warm water, which relaxes the shellfish, and then the shell is split. The viscera are pulled out by a vacuum pump, leaving the "eye muscle" to be cut by the workers. It appears that this method is fast and economical.

Note: Also see Commercial Fisheries Review, Mar. 1960 p. 26.



Shrimp

ALASKA CANNED PRODUCT YIELD INCREASED:

How to increase the product yield in Alaska canned shrimp was revealed by recent studies at the Ketchikan, Alaska, Bureau of Commercial Fisheries Technological Laboratory. Hitherto automatic removal of the shells of Alaska shrimp required that the shrimp be held in ice or in refrigerated sea water for two days to facilitate release of the shrimp meats from the shells. Studies on the holding process indicated that the product yield decreased by 13 percent during the

two-day holding period and that a further 2-percent loss in yield occurred for each additional day of holding beyond the two-day minimum.

Preliminary processing studies have indicated that briefly immersing the shrimp immediately after receipt in a very weak acidic solution may permit automatic shell removal without the customary waiting period.

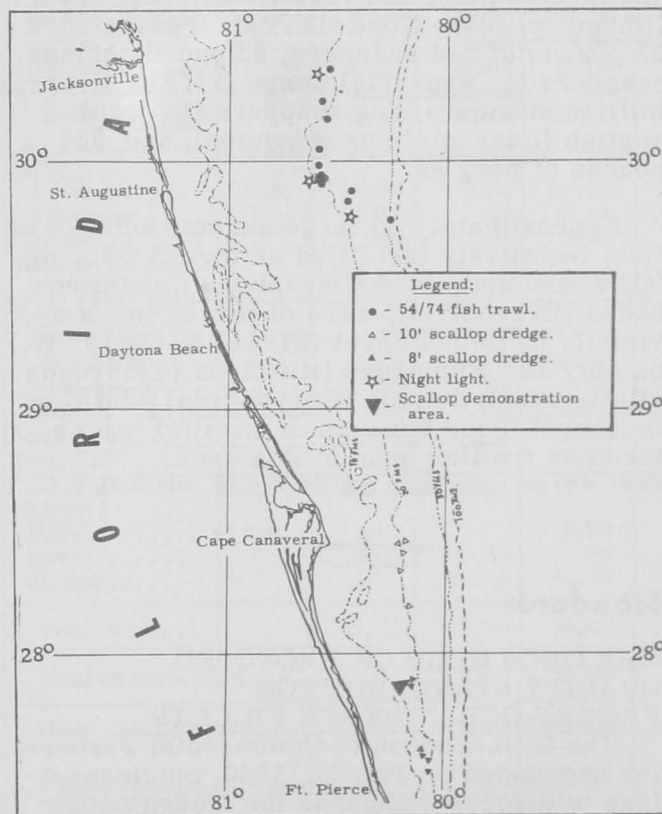
Successful completion of these studies will markedly improve product yield in Alaska canned shrimp and probably also improve the product quality.



South Atlantic Exploratory Fishery Program

COMMERCIAL SCALLOP DREDGE DEMONSTRATED TO FISHERMEN:

M/V "Silver Bay" Cruise 24: During May 26 to June 14, the U. S. Bureau of Commercial Fisheries' chartered fishing vessel Silver Bay returned to the Florida east coast



M/V Silver Bay Cruise 24 (May 26 - June 14, 1960).

for follow-up operations in the recently-discovered calico exploratory trawling for red snapper.

Because of extensive interest shown by the industry, daily trips were scheduled out of Fort Pierce for the purpose of demonstrating scallop fishing gear and methods and to provide samples for processing tests. From May 30 to June 5, 86 observers participated in the fishing demonstrations, which were conducted in a limited buoyed area (27°53' N.-80°09' W.), approximately 9 miles north of Bethel Shoals buoy. At this location, 25 drags with a single 8-foot modified New England-type scallop dredge produced 285 bushels of live scallops in 11.8 hours of fishing.

Limited exploration for red snapper (*Lutjanus aya*) with a 54'/74' roller-rigged, 2 seam, 4½" mesh nylon fish trawl, between Daytona and Jacksonville, resulted in the location of suitable trawling bottom and small catches of red snapper.

Catches of mixed fish, up to 1,595 pounds per 90-minute tow, consisted predominantly of triggerfish (*Balistes*), grunts (*Bathystoma*), angelfish (*Angelichthys*), porgies (*Pagrus* and *Stenotomus*), and vermilion snappers (*Rhomboplites*). Food fish captured included 63 pounds of red snappers, 82 pounds of lane snappers (*L. synagris*), large (11"-14") vermilion snappers, dog snappers (*L. jocu*), hogfish (*Lachnolaimus maximus*), and 334 pounds of porgies.

Approximately 60 large surface schools of fish, tentatively identified as thread herring (*Opisthonema*), scad (*Decapterus*), and menhaden (*Brevoortia*), were observed in the vicinity of Bethel Shoal (27°44' N-80°10' W.) on May 30. Numerous little tuna (*Euthynnus alletteratus*), dolphin (*Coryphaena*), and king mackerel (*Scomberomorus cavalla*) were taken on trolling gear in this area.

Note: Also see *Commercial Fisheries Review*, July 1960, p. 41.



Standards

MEETINGS HELD ON PROPOSED QUALITY STANDARDS FOR FROZEN OCEAN PERCH FILLETS:

The U. S. Bureau of Commercial Fisheries announced on July 13, 1960, public meetings to discuss standards for frozen ocean perch and Pacific ocean perch fillets.

Developed by the Bureau at its new Gloucester, Mass., Technological Laboratory and the Seattle, Wash., Laboratory, this standard is another step in a continuing joint effort by Government and industry to improve the quality of fishery products. Similar quality standards are already in use for eight other frozen sea foods--fish sticks, fish blocks, salmon and halibut steaks, cod and haddock fillets, raw breaded fish portions, and shrimp.

The meetings were held in Gloucester, Chicago, and Seattle.



United States Fishing Fleet 1/ Additions

APRIL 1960:

A total of 24 vessels of 5 net tons and over were issued first documents as fishing craft during April 1960--a decrease of 21 vessels as compared with the same month in 1959. The Pacific area continued to lead with 14

Table 1 - U. S. Vessels Issued First Documents as Fishing Craft by Areas, April 1960

Area	April		Jan. -April		Total 1959
	1960	1959	1960	1959	
	(Number)				
New England	2	1	5	6	15
Middle Atlantic	-	-	5	3	12
Chesapeake	4	9	13	30	106
South Atlantic	1	5	15	23	76
Gulf	3	15	16	40	135
Pacific	14	13	32	21	97
Great Lakes	-	-	3	3	6
Alaska	-	-	1	4	32
Total	24	45	90	130	479

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

vessels. The remaining 10 vessels were issued first documents in the Chesapeake, Gulf, New England, and South Atlantic areas.

Table 2 - U. S. Vessels Issued First Documents as Fishing Craft by Tonnage, April 1960

Net Tons	Number
5 to 9	15
10 to 19	7
40 to 49	1
310 to 319	1
Total	24

During the first four months of 1960, a total of 90 vessels were issued first documents as fishing craft--40 below the same period of 1959. Most of the decline occurred in the Gulf area with a drop of 24 vessels as compared with the 1959 four-months period.

* * * * *

MAY 1960:

A total of 63 vessels, of 5 net tons and over, were issued first documents as fishing 1/ Includes both commercial and sport fishing craft.

craft during May 1960--18 above May 1959. The Alaska area represented the greatest

Table 1 - U. S. Vessels Issued First Documents as Fishing Craft by Areas, May 1960

Area	May		Jan. - May		Total 1959
	1960	1959	1960	1959	
	(Number)				
New England	1	1	6	7	15
Middle Atlantic.	3	-	8	3	12
Chesapeake	10	4	23	34	106
South Atlantic	5	8	20	31	76
Gulf	11	11	27	51	135
Pacific	19	18	51	39	97
Great Lakes	1	-	4	3	6
Alaska	13	3	14	7	32
Total	63	45	153	175	479

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

increase with a gain of 10 vessels as compared with the same month of 1959, followed by the Chesapeake area with a gain of 6 vessels.

During the first five months of 1960, a total of 153 vessels were issued first documents as fishing craft--a drop of 22, compared with the 1959 five-months period. The Pacific area with 51 vessels made up one-third of the total vessels documented--12 above the same period of 1959.

Table 2 - U. S. Vessels Issued First Documents as Fishing Craft by Tonnage, May 1960

Net Tons	Number
5 to 9	38
10 to 19	10
20 to 29	7
30 to 39	1
140 to 149	1
150 to 159	2
320 to 359	4
Total	63



United States Fishery Landings, January-June 1960

Landings of fish and shellfish in the United States during the first half of 1960 dropped 11 percent as compared with the same period of 1959--from 1.6 billion pounds in 1959 to 1.4 billion pounds in 1960.

The greatest decline was for menhaden--156 million pounds less in 1960 than in the first half of 1959. Menhaden landings on the Atlantic Coast dropped sharply and only a slight increase was reported in the Gulf States. During January-June 1960, herring landings in Alaska were down about 18 million pounds and industrial fish landings in Maine and Massachusetts were down about 30 million pounds as compared with the first half of 1959.

On the Pacific Coast, landings of salmon in Alaska for the first seven months this

Table 1 - United States Fishery Landings of Certain Species for Periods Shown, 1960 and 1959^{1/}

Species	Period	1960	1959	Total 1959
. (1,000 Lbs.)				
Anchovies, Calif.	6 mos.	1,600	1,800	7,173
Cod:				
Maine	4 mos.	1,000	833	2,694
Boston	6 "	8,400	9,171	17,709
Gloucester	6 "	1,800	1,607	3,233
Total cod		11,200	11,611	23,636
Haddock:				
Maine	4 mos.	1,200	1,272	3,405
Boston	6 "	38,700	40,480	72,378
Gloucester	6 "	8,800	9,404	12,103
Total haddock		48,700	51,156	87,886
Halibut 2/:				
Alaska	6 mos.	14,300	13,640	17,908
Wash. and Oreg.	6 "	10,600	11,424	22,537
Total halibut		24,900	25,064	40,445
Herring, Alaska	6 mos.	23,500	41,000	107,444
Industrial fish, Me. & Mass. 3/	6 "	14,700	44,525	103,312
Mackerel:				
Jack	6 mos.	38,000	15,322	37,484
Pacific	6 "	9,200	6,136	37,597
Menhaden	6 "	531,200	687,100	2,193,866
Ocean perch:				
Maine	4 mos.	17,100	19,656	75,225
Boston	6 "	400	1,756	3,230
Gloucester	6 "	32,000	25,814	58,197
Total ocean perch		49,500	47,226	136,702
Salmon:				
Alaska	7 mos.	160,000	105,000	147,278
Washington	4 "	200	391	41,800
Oregon	5 "	800	999	5,027
Scallops, sea (meats), New Bedford	6 "	8,900	8,100	18,814
Shrimp (heads-on):				
South Atlantic & Gulf States	6 mos.	61,800	59,660	220,074
Wash.	4 "	300	400	2,992
Oregon	5 "	100	1,505	2,781
Squid, Calif.	6 "	300	14,918	19,653
Tuna, Calif. to July 23		168,100	165,300	254,775
Whiting:				
Maine	4 mos.	400	-	23,339
Boston	6 "	57	72	687
Gloucester	6 "	14,200	18,318	61,797
Total whiting		14,657	18,390	85,823
Total all above items		1,167,657	1,305,603	3,574,562
Others (not listed)		271,443	303,092	1,525,438
Grand total		1,439,100	1,608,695	5,100,000

^{1/}Preliminary. ^{2/}Dressed weight. ^{3/}Excluding menhaden.

year were 55 million pounds greater than in the same period of 1959. Jack mackerel

landings during the first half of 1960 were up 23 million pounds and Pacific mackerel 3 million pounds.



U. S. Foreign Trade

EDIBLE FISHERY PRODUCTS, MAY 1960:

Imports of edible fresh, frozen, and processed fish and shellfish into the United States during May 1960 increased by 8.8 percent in quantity and 14.6 percent in value as compared with April 1960. The increase was due primarily to higher imports of frozen tuna other than albacore (up 6.6 million pounds) and to an increase of about 2.2 million pounds each in the imports of shrimp, lobster and spiny lobster, and fillets other than groundfish. The increase was partly offset by a 4.3-million pound decrease in the imports of groundfish fillets.

Table 2 - United States Fishery Landings by States for Periods Shown, 1960 and 1959 ^{1/}

Area	Period	1960	1959	Total 1959
..... (1,000 lbs.)				
Maine	4 mos.	26,000	28,024	265,959
Massachusetts ^{2/}:				
Boston	6 mos.	55,500	60,088	113,257
Gloucester	6 "	68,200	76,741	223,723
New Bedford	6 "	40,700	56,228	107,961
Provincetown ..	6 "	9,400	8,603	27,700
Total Mass.		173,800	201,660	477,641
Rhode Island ^{3/} ...	5 mos.	14,100	45,800	100,591
New York ^{3/}	6 "	23,000	20,300	38,656
New Jersey ^{3/}	6 "	34,300	28,777	56,929
Maryland ^{3/}	6 "	23,100	27,413	60,500
North Carolina ^{3/}	6 "	27,900	32,026	62,724
South Carolina ^{3/} ..	6 "	5,600	4,200	18,654
Georgia	6 "	8,900	7,001	21,513
Florida ^{3/}	5 "	62,100	59,365	142,860
Alabama	4 "	2,400	2,512	14,022
Mississippi ^{3/}	4 "	3,300	2,500	80,944
Louisiana ^{3/}	1 "	5,000	3,039	99,963
Texas ^{3/}	5 "	13,300	10,731	82,715
Ohio	6 "	9,900	11,132	18,586
Alaska:				
Halibut ^{4/}	6 "	14,300	13,640	17,908
Herring	6 "	23,500	41,000	107,444
Salmon	7 "	160,000	105,000	147,278
Washington ^{2/}	4 "	20,000	30,234	157,920
Oregon ^{2/}	5 "	16,200	14,822	52,377
California:				
Certain species ^{5/} ..	6 mos.	217,200	203,476	356,682
Other	4 "	26,100	29,496	155,519
Total Calif.		243,300	232,972	512,201
Hawaii	3 mos.	1,600	1,647	16,570
Rhode Island, Middle Atlantic, Chesapeake, South Atlantic, and Gulf States (menhaden only) ..	6 mos.	527,200	684,900	2,158,423
Total all above		1,439,100	1,608,695	4,712,378
Others not listed		<u>6/</u>	<u>6/</u>	387,622
Grand total		<u>6/</u>	<u>6/</u>	5,100,000

^{1/} Preliminary.
^{2/} Landed weight.
^{3/} Excludes menhaden.
^{4/} Dressed weight.
^{5/} Includes catch of anchovies, jack and Pacific mackerel, squid, and tuna. Data on tuna are through July 23.
^{6/} Data not available.
 Note: Data principally represent weight of fish and shellfish as landed except for mollusks which represent the weight of meats only.

Item	QUANTITY			VALUE		
	May	Year		May	Year	
	1960	1959	1959	1960	1959	1959
	. (Million of Lbs.) (Millions of \$) .		
Imports:						
Fish & Shellfish:						
Fresh, frozen, & processed ^{1/}	81.7	82.5	1,070.5	25.9	25.8	309.6
Exports:						
Fish & Shellfish:						
Processed only ^{1/} (excluding fresh & frozen)	1.8	5.2	68.0	0.6	1.2	22.8

Compared with May 1959, the imports in May this year were lower by 1.0 percent in quantity and 0.4 percent in value due mainly to lower imports of groundfish fillets (down 6.2 million pounds). Compensating, in part, for the decreases was an increase of about 5.2 million pounds in the imports of frozen albacore and other tuna.

United States exports of processed fish and shellfish in May 1960 were lower by 49.0 percent in quantity and 53.8 percent in value as compared with April 1960. Compared with the same month in 1959, the exports this May were lower by 65.7 percent in quantity and 50.0 percent in value. The lower exports in May this year as compared with the same month in 1959 were due mainly to sharply lower exports of canned California sardines and squid.

**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 1960 at the 12½-per-cent rate of duty is 53,448,330 pounds. Any imports in excess of the quota will be dutiable at 25 percent ad valorem.

Imports from January 1-July 2, 1960, amounted to 22,698,066 pounds, according to data compiled by the Bureau of Customs. From January 1-July 4, 1959, a total of 21,992,914 pounds had been imported.



**U. S. Production of Fish Sticks and Portions,
April-June 1960**

United States production of fish sticks in the second quarter of 1960 was 12.8 million

Table 1 - U. S. Production of Fish Sticks by Months, April-June 1960^{1/}

Month	Cooked		Raw	Total
	(1,000 Lbs.)			
April	4,474	373	4,847	4,847
May	3,366	278	3,644	3,644
June	3,988	278	4,266	4,266
Total 2nd quarter 1960	11,828	929	12,757	12,757
Total 2nd quarter 1959	12,710	971	13,681	13,681
Total first 6 months 1960	30,425	2,186	32,611	32,611
Total first 6 months 1959	29,343	2,537	31,880	31,880

pounds and fish portions 10.4 million pounds. This was a drop of 7 percent in fish sticks but a gain of 21 percent in portions as compared with the same quarter of 1959. Most of the decline in fish sticks occurred in the cooked sticks (down almost 1.0 million pounds). The increase in portions was attributed to a greater production of raw

Table 2 - U. S. Production of Fish Sticks by Areas, April-June 1959 and 1960

Area	1960 ^{1/}		1959 ^{2/}	
	No. of Firms	1,000 Lbs.	No. of Firms	1,000 Lbs.
Atlantic Coast States	22	10,288	22	11,797
Inland and Gulf States	4	1,350	5	994
Pacific Coast States	7	1,119	9	890
Total	33	12,757	36	13,681

breaded portions (up 1.5 million pounds), while the unbreaded portions dropped to slightly over one-half the amount produced during the same period of last year. Cooked

breaded portions production was up 600,000 pounds.

Table 3 - U. S. Production of Fish Sticks by Months, 1959-1960

Month	1960 ^{1/}	1959 ^{2/}	1958 ^{2/}	1957	1956
	(1,000 Lbs.)				
January	5,496	6,265	5,471	4,261	4,862
February	6,528	6,340	5,925	5,246	5,323
March	7,830	5,594	5,526	5,147	6,082
April	4,847	4,708	4,855	4,492	3,771
May	3,644	4,398	4,229	3,380	3,873
June	4,266	4,575	4,702	3,522	3,580
July		3,783	4,574	3,821	3,153
August		3,872	4,358	4,643	4,166
September		5,343	5,328	4,861	4,085
October		5,831	5,485	5,162	5,063
November		4,822	5,091	4,579	4,585
December		4,734	5,467	4,014	4,019
Total	60,265	61,011	53,128	52,562	52,562

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

Cooked fish sticks (11.8 million pounds) made up 93 percent of the fish stick total. The remaining 7 percent consisted of raw fish sticks. A total of 10.0 million pounds of

Table 4 - U. S. Production of Fish Portions by Months and Type, April-June 1960^{1/}

Month	Breaded			Unbreaded	Total
	Cooked	Raw	Total		
	(1,000 Lbs.)				
April	697	2,506	3,203	167	3,370
May	519	2,509	3,028	100	3,128
June	335	3,412	3,747	149	3,896
Total 2nd quarter 1960	1,551	8,427	9,978	416	10,394
Total 2nd quarter 1959	950	6,911	7,861	704	8,565
Total first 6 months 1960	3,440	17,842	21,282	808	22,090
Total first 6 months 1959	2,627	13,514	16,141	1,366	17,507

^{1/}Preliminary.

breaded fish portions (of which 8.4 million pounds were raw) and 416,000 pounds of unbreaded portions was processed during the second quarter of 1960.

Table 5 - U. S. Production of Fish Portions by Areas, April-June 1959 and 1960

Area	1960 ^{1/}		1959 ^{2/}	
	No. of Firms	1,000 Lbs.	No. of Firms	1,000 Lbs.
Atlantic Coast States	20	5,042	21	4,071
Inland and Gulf States	6	5,011	8	4,192
Pacific Coast States	6	341	4	302
Total	32	10,394	33	8,565

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

The Atlantic Coast was the principal area for the production of fish sticks and portions--15.3 million pounds. The remaining 7.9 million pounds of fish sticks and portions were packed in the inland, Gulf, and Pacific Coast states.

During the first six months of 1960, a total of 32.6 million pounds of fish sticks was pro-

Table 6 - U. S. Production of Fish Portions by Months, 1958-1960

Month	1960 ^{1/}	1959 ^{2/}	1958
	(1,000 Lbs.)		
January	3,623	2,692	1,973
February	3,454	3,025	1,254
March	4,619	3,225	1,471
April	3,370	2,634	2,268
May	3,128	2,684	1,478
June	3,896	3,247	1,504
July		2,227	2,161
August		2,796	1,516
September		3,558	1,566
October		4,314	2,560
November		3,483	1,979
December		3,262	2,060
Total		37,147	21,790

1/Preliminary.
2/Revised.

duced--an increase of 2 percent as compared with the corresponding period of 1959; fish portions (22.1 million pounds) production was up 26 percent.



Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES, JANUARY-MAY 1960:

Fresh and Frozen Fishery Products: For the use of the Armed Forces under the Department of Defense, 2.1 million pounds (value \$1.1 million) of fresh and frozen fishery products were purchased in May 1960 by the Military Subsistence Supply Agency. This exceeded the quantity purchased in April by 29.3 percent and was 6.6 percent over the amount purchased in May 1959. The value of the purchases in May 1960 was up 15.1 percent as compared with April and 6.6 percent more than for May 1959.

During the first five months of 1960 purchases totaled 9.0 million pounds (valued at \$4.8 million)--an increase of 1.2 percent in quantity and 0.5 percent in value as compared with the same period in 1959.

Table 1 - Fresh and Frozen Fishery Products Purchased by Military Subsistence Supply Agency, May 1960 with Comparisons

Quantity				Value			
May		Jan. -May		May		Jan. -May	
1960	1959	1960	1959	1960	1959	1960	1959
(1,000 Lbs.)				(\$1,000)			
2,128	1,997	9,022	9,134	1,103	1,035	4,791	4,817

Prices paid for fresh and frozen fishery products by the Department of Defense in May 1960 averaged 51.8 cents a pound, about 6.4 cents less than the 58.2 cents paid in

April but exactly the same as paid in May last year.

Canned Fishery Products: Very small amounts of canned fishery products were

Table 2 - Canned Fishery Products Purchased by Military Subsistence Supply Agency, May 1960 with Comparisons

Product	Quantity				Value			
	May		Jan. -May		May		Jan. -May	
	1960	1959	1960	1959	1960	1959	1960	1959
Tuna	1	424	1,283	1,832	1/	210	581	868
Salmon	-	7	-	7	-	5	-	5
Sardines	1	229	62	509	1/	26	26	72

1/Less than \$1,000.

purchased for the use of the Armed Forces during May this year. In the first five months of 1960, purchases of canned tuna, salmon, and sardines were substantially lower than in the same period in 1959.



Wholesale Prices, July 1960

The wholesale price index for edible fishery products (fresh, frozen, and canned) for July 1960 at 129.9 percent of the 1947-49 average was up 2.7 percent from the preceding month. The increase was the result of higher ex-vessel prices for haddock at Boston and higher wholesale prices for fresh and frozen haddock fillets, Pacific Coast salmon, and western halibut. Compared with July 1959, the fishery products wholesale price index this July was up 5.6 percent principally because of higher prices for fresh and frozen shrimp, fresh salmon, fresh haddock fillets, and canned fish.

The index for the drawn, dressed, and whole finfish subgroup this July was sharply higher (10.3 percent) as compared with the preceding month and also higher by 3.1 percent from July a year ago. Responsible for the increase from June to July were higher prices for large drawn haddock (up 54.9 percent), fresh Pacific salmon (up 4.6 percent), fresh Pacific halibut (up 2.4 percent), Lake Superior drawn whitefish (up 10.5 percent), and yellow pike (up 1.5 percent). A drop of 18.2 percent in the price of Great Lakes round whitefish offset the increases to some extent. The July 1960 subgroup prices were higher than in the same month of 1959 because of the sharp increase in Pacific salmon prices (up 15.6 percent) and smaller increases for fresh halibut and Lake Superior whitefish, offset somewhat by lower wholesale prices for large haddock at Boston and Great Lakes round whitefish and yellow pike at New York.

The fresh processed fish and shellfish subgroup index this July increased slightly (0.8 percent) from the preceding month. A 23.0-percent increase in the wholesale price for fresh small haddock fillets was almost completely offset by a 3.1-percent decline for fresh shrimp at New York City. Shrimp prices seasonally drop in the summer and fall months. The July 1960 subgroup wholesale price index was higher by about 18.7 percent from July a year ago due to sharply higher prices for all the subgroup items.

This July the wholesale price index for the frozen processed fish and shellfish subgroup declined slightly (0.5 percent) from a month earlier. An increase of about 2 cents a pound in the frozen haddock fillet price from the abnormally low level of the past few months failed to offset fractionally lower prices for frozen ocean perch and flounder fillets and shrimp. From July a year ago to this July, the subgroup

price index was down 2.6 percent due primarily to lower prices for frozen haddock fillets (down 19.4 percent) and other fillets. The decreases were partially offset by a 2.6-percent increase in frozen shrimp prices at Chicago.

There was no movement in the canned fish primary price index, but it still was up 4.3 percent from July 1959. All canned fish items were higher this July as compared with the same month of 1959. In July 1959 the fish canneries were active packing salmon, mackerel, Maine sardines, and Cali-

fornia tuna. Although the reported July prices for canned tuna at the packers' level were about unchanged from recent months, heavy stocks of both domestic and imported canned tuna resulted in reductions in the form of promotional or advertising and other allowances. The excellent July pack of Bristol Bay canned sockeye or red salmon was offset by a poor pack of the less expensive pink salmon and other types of salmon in other areas. After a poor start in June, the Maine sardine canned pack picked up and at the end of July was at about the same level as for the same period a year ago.

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, July 1960 With Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ (\$)		Indexes (1947-49=100)						
			July 1960	June 1960	July 1960	June 1960	May 1960	July 1959			
			ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)								129.9
Fresh & Frozen Fishery Products:					147.7	142.0	142.2	139.0			
Drawn, Dressed, or Whole Finfish:					165.1	149.7	150.1	160.2			
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.14	.09	136.8	88.3	94.1	169.5			
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.34	.34	106.2	103.7	93.5	103.6			
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.88	.84	198.0	189.3	184.8	171.3			
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.63	.57	156.2	141.3	183.4	151.2			
Whitefish, L. Erie pound or gill net, rnd., fres.	New York	lb.	.68	.83	136.6	166.9	212.5	159.8			
Yellow pike, L. Michigan & Huron, rnd., fresh .	New York	lb.	.68	.67	158.3	155.9	170.0	190.0			
Processed, Fresh (Fish & Shellfish):					146.0	144.8	145.8	123.0			
Fillets, haddock, sml., skins on, 20-lb. tins . .	Boston	lb.	.46	.37	154.8	125.9	91.9	139.5			
Shrimp, lge. (26-30 count), headless, fresh. . .	New York	lb.	.79	.82	124.8	128.8	135.1	104.3			
Oysters, shucked, standards	Norfolk	gal.	7.00	6.88	173.2	170.1	170.1	145.4			
Processed, Frozen (Fish & Shellfish):					117.8	118.4	117.7	120.9			
Fillets: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.39	.39	100.8	102.1	98.1	102.1			
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.27	.25	84.8	78.5	80.1	105.2			
Ocean perch, skins on, 1-lb. pkg.	Boston	lb.	.27	.28	106.7	110.8	112.8	112.8			
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	lb.	.79	.80	121.5	123.8	123.5	118.4			
Canned Fishery Products:					104.8	104.8	104.8	100.5			
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs. . .	Seattle	cs.	24.50	24.50	127.8	127.8	127.8	122.6			
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	11.10	11.10	80.0	80.0	80.0	77.9			
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 48 cans/cs.	Los Angeles	cs.	8.00	8.00	93.9	93.9	93.9	85.1			
Sardines, Maine, keyless oil, 1/4 drawn (3-3/4 oz.), 100 cans/cs.	New York	cs.	8.75	8.75	93.1	93.1	93.1	87.8			

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.



PROCESSING WHALE LIVERS TO PREVENT LOSS OF VITAMIN A

In a whale factoryship fitted out in East Germany on Russian account, special equipment for the treatment of whale livers was included. The liver oils are recovered by a special solvent extraction process in order to prevent loss of vitamin A. The livers are reduced in mincers and produced in the form of flakes in a coagulating chamber. They are then dried under vacuum to reduce the moisture content. The dried livers are extracted by a batch process with trichlorethylene which is recovered from the oils by distillation. The solvent-free oil is stored in drums for further processing. The residue is dried into a meal (World Fishing, November 1956).