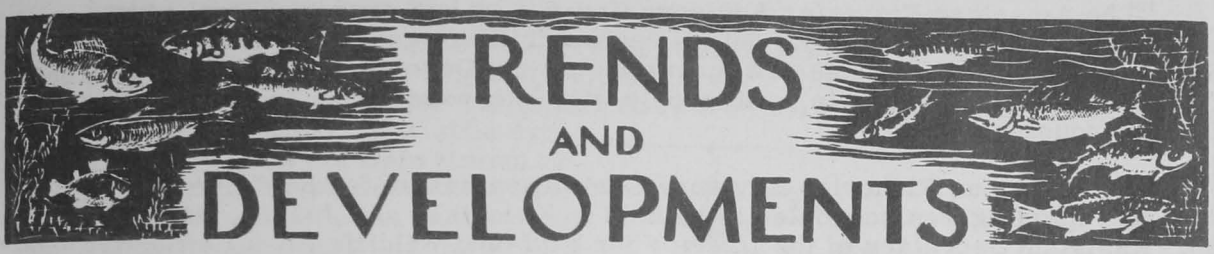


American Fisheries Advisory Committee

NEW COMMITTEE APPOINTED: Letters of appointment to varying terms of office in the American Fisheries Advisory Committee were mailed to 19 members of all segments of the American fishing industry, the Secretary of the Interior announced on June 22.

This Committee was authorized by the Saltonstall-Kennedy Act of 1954 which was passed by the Congress "to promote the free flow of domestically produced fishery products in commerce." The Act was due to expire on June 30, 1957, which would have automatically terminated the Committee.

With the passage of the Fish and Wildlife Act of 1956 which, among other things, made the Saltonstall-Kennedy Act permanent, the Department of the Interior has now established a new committee using a staggered-term system which will retire one-third of the committee each year.

Under this plan 13 former members are being reappointed effective July 1--five for one year, four for two years, and four for three years. Six new members are being appointed to complete the committee.

This group represents a complete cross-section of the American fishing industry. Geographically, it provides representation from the Atlantic, Gulf, and Pacific Coasts, and the inland States.

Former members reappointed and their terms of offices are as follows: For one year: Moses B. Pike, Treasurer, Holmes Packing Corp., Eastport, Me.; H. F. Sahlman, Sahlman Sea Foods, Fernandina Beach, Fla.; Donald P. Loker, Vice Pres., Star-Kist Foods, Inc., Terminal Island, Calif.; Lawrence Calvert, Pres., San Juan Fishing and Packing Company, Seattle 14, Wash.; Arthur Sivertson, Sivertson Bros. Fisheries, Duluth, Minn. For two years: J. Richards Nelson, Oyster and Clam Grower, Madison, Conn.; David H. Hart, Fisherman and Vessel Owner, Cape May, N. J.; Lawrence W. Strasburger, Strasburger Inspection Service, Metairie, La.; Thomas F. Sandoz, Pres., Columbia River Packers Assn., Astoria, Ore. For three years: James S. Carlson, Treasurer, Baker, Boies and Watson Co., Boston 10, Mass.; Leon S. Kenny, President, Pinellas Seafood Co., St. Petersburg 5, Fla.; Arthur H. Mendonca, President, F. E. Booth, Inc., San Francisco, Calif.; Chris Dahl, Kayler-Dahl Fish Company, Petersburg, Alaska.

New members and terms of office are: For one year: John Lewis, President, Twin City Fishermen's Cooperative Assn., Inc., Morgan City, La. For two years: William Ballard, President, Ballard Fish & Oyster Co., Inc., Norfolk, Va.; Mason Case, Manager, Fishermen's Coop. Assn. of San Pedro, San Pedro, Calif. For three years: Ralph E. Carr, President, Mid Central Fish Co., Kansas City, Mo.; R. L. Haynie, President, Reedville Oil & Guano Co., Inc., Reedville, Va.; James McPhillips, President, McPhillips Packing Corp., Mobile, Ala.

"The American Fisheries Advisory Committee has rendered invaluable servi to this Department in carrying out its responsibilities under the law," Secretary Seaton said, "and with these new appointments the Department will continue to ber fit from the advice available from people with long experience in the commercial fishing industry."

The American Fisheries Advisory Committee has so far held five meetings. The next meeting was scheduled to be held in Ketchikan and Juneau, Alaska, July 25. Assistant Secretary of the Interior for Fish and Wildlife Ross Leffler is Chai man of the Committee and was expected to preside at the Alaska meeting.

The law makes available to the Secretary of the Interior each fiscal year an amount equal to 30 percent of the gross receipts from customs duties collected or imported fishery products for the conduct of various types of fishery research and services to develop and increase markets for fishery products of domestic origin. With these funds the Bureau of Commercial Fisheries conducts a broad program designed to aid the American fishing industry.

California

ABUNDANCE AND LIFE HISTORY DATA ON OCEAN SHRIMP GATHERED OF CALIFORNIA (M/V Nautilus Cruise 57-N-2): As a result of abundance and life hi tory data gathered on this cruise by the California Department of Fish and Game's research vessel Nautilus and the N. B. Scofield, Cruise 57-B-1, it was recom mended that Area C (Avila shrimp bed, between Point Pigeon and Point Rincon) be re-opened to commercial shrimp fishing. During the cruise (January 16-March 8, 1957), 61 tows were made with an 8-foot beam trawl--48 tows contained ocean shrimp (Pandalus jordani). Tows ranged in depth from 39-165 fathoms. Th better catches originated in depths of 110-125 fathoms.

Seven tows were made with a 20-foot beam trawl, of which three of these con tained commercial quantities of shrimp. Strong currents coupled with large swel considerably hampered the fishing efficiency of the 20-foot gear.

The trawling "A" frame was modified with protective pipe skids. This greatl facilitated retrieving the 20-foot beam in rough weather and also made the trawlin operation much safer.

* * * * *

ESCAPEMENT OF IMMATURE SHRIMP FROM BEAM TRAWLS STUDIED (M/ N. B. Scofield Cruise 57-B-1): This cruise of the California Department of Fish and Game's research vessel N. B. Scofield off the mouth of the Russian River and off Avila was designed to test the escapement of immature shrimp from beam traw of various mesh sizes.

During the cruise (February 15-March 18, 1957), 68 drags were made using a double cod end or "trousers trawl." A trousers trawl consists of two 10-foot wid trawl nets attached from the same 20-foot beam. Measurements of the catches from pairs of nets of different mesh show the escapement factor.

Bad weather hampered fishing operations off the Russian River area. Net tes were completed off the Avila area where shrimp were located by the vessel Nautilu In the course of mesh tests some 7,000 pounds of shrimp were taken in the compa ison gear.

* * * * *

PELAGIC FISH SCHOOLS SURVEYED BY AIRPLANE OFF SOUTHERN CALIFORNIA COAST (Cessna 1359D, May 14-23; and Beechcraft 4758N, May 15-17): During an airplane spotting flight (57-2), observers aboard the aircraft found far fewer fish schools (except for yellowtail and sardines) in May this year than in the same month last year. The area surveyed by the California Department of Fish and Game's airplanes extended along the inshore California shore from Santa Cruz to San Diego and the area around Santa Cruz, Santa Rosa, San Miquel, Santa Catalina, San Clemente, and Coronados Islands.

The flight was designed (1) to assess the abundance and distribution of schooling pelagic fish and to measure variations in abundance of fish schools from day to day; and (2) to experiment with aerial photography in determining area of fish schools.

Weather conditions were quite variable. From May 16-19 exceptionally calm and clear weather prevailed over the entire coast. From May 20-23 strong winds and rain squalls were encountered.

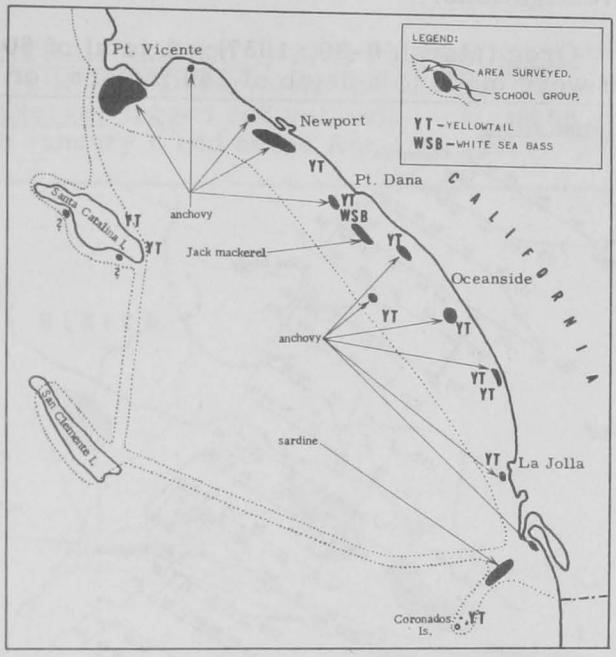


FIG. 1 - AIRPLANE SPOTTING FLIGHT 57-2 (MAY 14-23, 1957).

Fish abundance was apparently affected by the various weather conditions as the most fish schools were seen on the calm clear days.

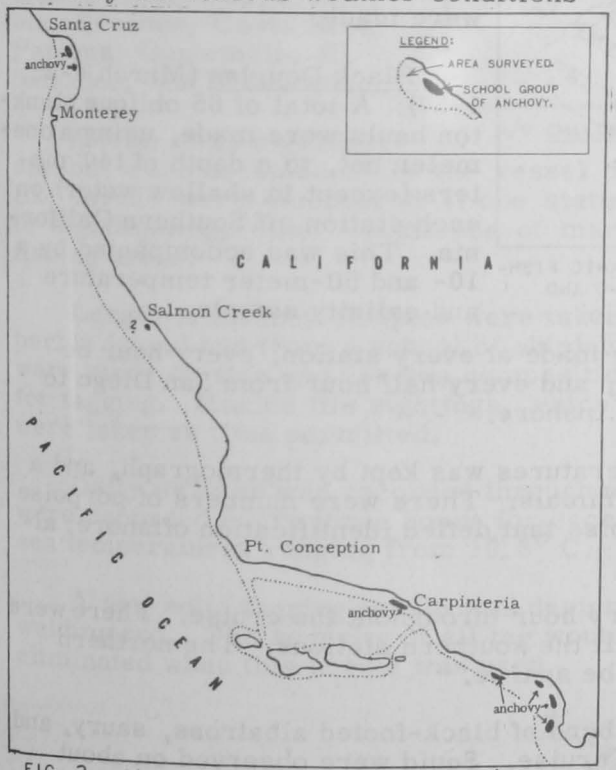


FIG. 2 - AIRPLANE SPOTTING FLIGHT 57-2 (MAY 15-23, 1957).

Anchovy: The main concentration was between Pt. Vicente and Newport. This group of schools was mainly in the channel between the mainland and Santa Catalina Island but would at times come close to shore where it could be assessed by the Cessna. Up to 195 schools were seen in one day in this area whereas up to 3,000 schools were seen along the coast in May of 1956.

Sardine: One school group was seen between the Coronados Islands and Pt. Loma. These fish were nearly all of the 1955 year-class. (Determined from samples of live bait collected by U. S. Fish and Wildlife Service.)

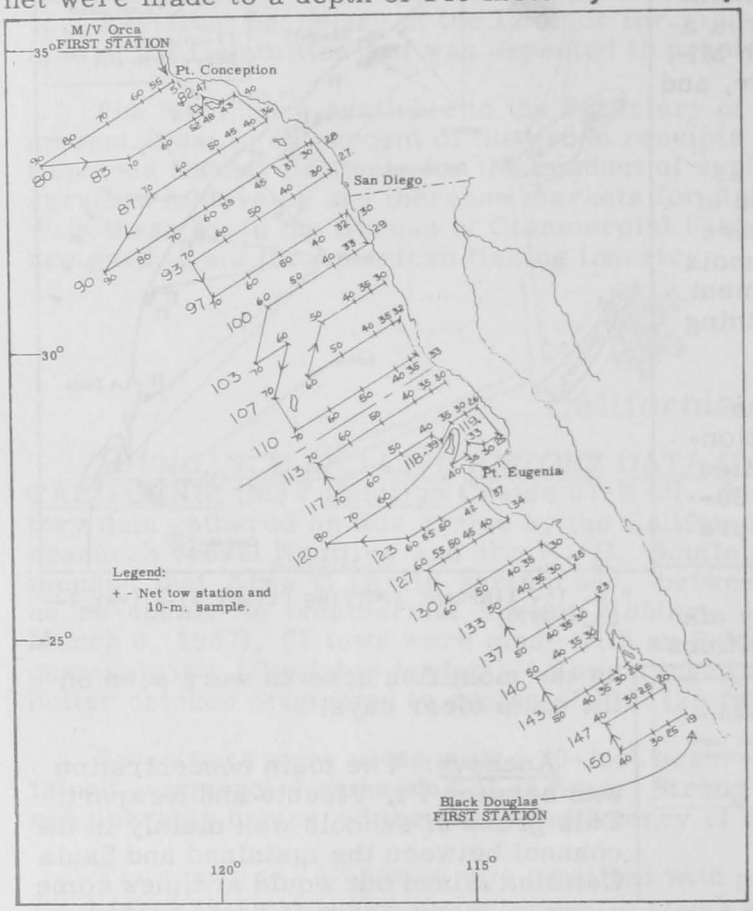
Yellowtail: Far more were seen than on any other flight over the past three years. Large schools of this species were found from Newport and Santa Catalina Island to the Coronados.

Jack Mackerel: Fewer than last year. Few schools seen in the San Clemente area.

* * * * *

OCEANOGRAPHIC AND BIOLOGICAL OBSERVATIONS[1/] (M/V Black Douglas Cruise 57-3-B and Orca Cruise 57-3-0): Biological and hydrographic observations were made by the research vessels Orca of the Scripps Institution of Oceanography and the Black Douglas of the U. S. Fish and Wildlife Service South Pacific Fishery Investigations.

Orca (March 6-30, 1957): A total of 60 oblique plankton tows with a one-meter net were made to a depth of 140 meters, or less, in shallow water on each station off Southern California. Records were kept of black-footed albatross seen on day-light stations, as well as sauries and squid on night stations. Specimens were dip-netted when possible. The watch on the bridge kept a record of all marine mammals sighted. Pelagic observations were made while under way and at all stations.



STATION POSITIONS OF CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS CRUISES; ORCA CRUISE 5703-0 AND BLACK DOUGLAS CRUISE 5703-B.

Two Nansen bottles were lowered to 10 and 50 meters for salinity and temperature observations. Bathythermograph observations totaling 176 were taken at all station, and under way between stations and station lines, weather permitting. Also, 372 drift bottles were released at designated stations (12 per station). Other oceanographic observations were made.

Black Douglas (March 6-23, 1957): A total of 65 oblique plankton hauls were made, using a one meter net, to a depth of 140 meters (except in shallow water) on each station off Southern California. This was accompanied by a 10- and 50-meter temperature and salinity sample.

Bathythermograph observations were made at every station, every hour between stations, and station lines offshore, and every half hour from San Diego to the first station and between station lines inshore.

A continuous record of surface temperatures was kept by thermograph, and a continuous watch was kept for marine mammals. There were numbers of porpoise seen inshore and sperm whales and porpoise that defied identification offshore; also, killer whales were seen.

Pelagic observations were made every hour throughout the cruise. There were large numbers of pelagic crabs seen on all the southern stations. The northern part of the pattern showed pelagic life to be sparse.

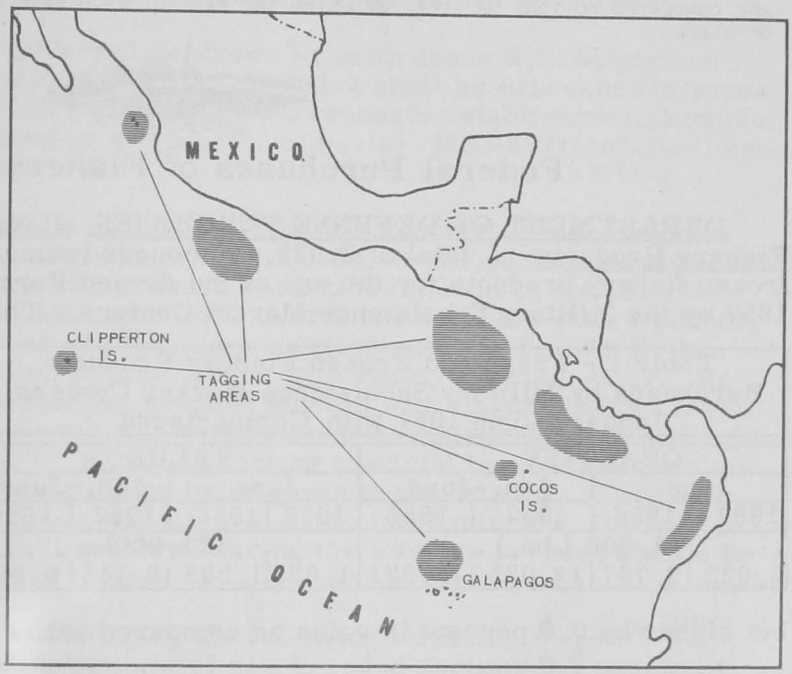
Records were maintained on the numbers of black-footed albatross, saury, and squid seen on each station throughout the cruise. Squid were observed on about three stations and saury were seen on two stations. The largest number of saury seen was up in the hundreds: these were all small ones.

1/ CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS.

All jig-line catches were recorded and stomachs were taken. We took three species of fish on the jig lines. They were yellowtail, yellowfin tuna, and bluefin tuna.

* * * * *

TUNA TAGGED OFF MEXICO, CENTRAL AMERICA, AND ECUADOR (M/V Challenger, 57-C-1): Biologists of the California Department of Fish and Game aboard the commercial tuna clipper Challenger tagged 603 yellowfin, skipjack, and big-eyed tuna during a trip that began on January 6 and ended April 25, 1957. The cruise was planned to (1) study the populations of the Eastern Pacific yellowfin, skipjack, and big-eyed tuna by tagging; (2) delineate the spawning range of the tuna varieties by nightlighting for tuna larvae; (3) make routine biological and limited oceanographic observations; (4) test the effect tag color may have on recovery success by alternating, in groups of five, red and blue tags with white tags; and (5) collect other marine organisms from bait and fishing areas. Tuna were tagged off Mexico, Clipperton Island, Cocos Island, Galapagos, Columbia, Ecuador, Costa Rica, Panama, Guatemala, El Salvador, and Nicaragua.



M/V CHALLENGER CRUISE 57-C-1, JAN. 6-APR. 25, 1957.

A total of 23 nightlight stations were occupied while the vessel drifted on the fishing grounds. Tuna-like larvae were discovered at one station off the coast of Mexico. In addition to nightlighting, other specimens of marine life were collected from bait and fishing areas.

Length-frequency samples were taken from a school of yellowfin tuna at Clipperton Island and from a school of skipjack in the Cocos Island area. Observations were made on size and species composition of schools from which fish were caught for tagging. Marine life sightings, which may be related to the occurrence of tunas, were taken as time permitted.

Daily weather was recorded throughout the cruise and surface sea temperatures were recorded every three hours for each 24-hour period. Tuna were captured in sea temperatures ranging from 19.8° C.-31.2° C.(67.6°-88.2° F.).

A new solid tagging needle was designed and fabricated from $\frac{3}{16}$" stainless steel welding rod. The severity of all tag wounds was minimized and wound bleeding was eliminated when this needle was used.

Cans--Shipments for Fishery Products, January-April 1957

Total shipments of metal cans for fish and shellfish canning during January-April 1957 amounted to 29,767 short tons of steel (based on the amount of steel consumed in the manufacture of cans), compared to 23,094 short tons in the same period of 1956. Firms canning tuna, shrimp, oysters, Pacific mackerel, jack mackerel, and anchovies were active during the month. Packers of Maine sardines were preparing for the season that opened on April 15.

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.

Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES, JUNE 1957: Fresh and Frozen Fishery Products: A total of 2,023,000 pounds (valued at $1,039,000) of fresh and frozen fishery products for the use of the Armed Forces were purchased in June 1957 by the Military Subsistence Market Centers. This was a decrease of 23.2 per cent in quantity and 18.4 percent in value as compared with the previous month.

Table 1 - Fresh and Frozen Fishery Products Purchases by Military Subsistence Market Centers, January-June 1957 with Comparisons

QUANTITY				VALUE			
June		Jan.-June		June		Jan.-June	
1957	1956	1957	1956	1957	1956	1957	1956
. . . . (1,000 Lbs.)				. . . . . ($1,000)			
2,023	2,737	12,025	12,231	1,039	1,235	6,145	6,090

For the first 6 months of 1957 purchases totaled 12,025,000 pounds, valued at $6,145,499--a decrease of 1.7 percent in quantity but higher by 0.9 percent in value as compared with the similar period in 1956.

Average prices paid for fresh and frozen fishery products in June 1957 averaged 51.4 cents a pound, somewhat higher than the 48.3 cents paid the previous month, and the 45.1 cents paid in the same month of 1956.

Canned Fishery Products: Tuna was the principal canned fishery product purchased for the use of the Armed Forces during June 1957. During the first six months of 1957, purchases of canned tuna, salmon, and sardines were lower by about 17.2 percent as compared with the similar period in 1956.

Table 2 - Canned Fishery Products Purchased by Military Subsistence Market Centers, January-June 1957 with Comparisons

Canned Product	Quantity			
	June		Jan.-June	
	1957	1956	1957	1956
	. . (1,000 Lbs.) . .			
Tuna . .	263	1/	1,450	2,188
Salmon .	-	1/	992	601
Sardines	13	1/	86	227
Total .	276	1/	2,528	3,016

1/ UNAVAILABLE.

NOTE: IN ADDITION TO THE PURCHASES OF FISHERY PRODUCTS REPORTED, SOME LOCAL PURCHASES ARE MADE WHICH ARE NOT INCLUDED. THEREFORE, ACTUAL PURCHASES ARE HIGHER THAN REPORTED.

* * * * *

SHRIMP PURCHASE DESCRIPTION REVISED: Effective with Notices of Intent to Purchase issued on and after June 17, 1957, and with resultant contracts, changes were announced to Purchase Description (BUSANDA) "Shrimp, Raw, Breaded, Frozen," dated August 1, 1952, and amendment dated November 20, 1953.

The changes, as announced by the Military Subsistence Supply Agency were issued in Headquarters Notice No. 14(57), were as follows:

1. The count of raw unpeeled shrimp will be 21-25, 26-30, and 31-35. For 21-25 count, tolerance will be 15 percent of next smaller size; for 26-30 and 31-35 count, tolerance will be 20 percent of next smaller size.

2. The breading percentage shall be not more than 40 percent coating (batter and breading).

3. Coating content of the chilled shrimp shall be determined as follows:

Prior to freezing, sample units will be drawn in accordance with inspection levels, Table VII, Appendix to MIL-STD-105. Lot size shall be expressed in terms of cartons. Depending on conditions existing in the vendor's establishment, sample units shall be selected on a moving or stationary lot basis. MIL-STD-105 shall apply for selection of samples only.

For packaged units of one pound or less, select at random 1 breaded shrimp from each of selected packages, using inspection level L-6; for packaged units over 1 but not more than 3 pounds, select 2 breaded shrimp from each of the selected sample packages, using L-5; for packaged units over 3 but not more than 5 pounds, select 4 breaded shrimp from each of selected packages, using L-5. Weigh the breaded shrimp. Place the shrimp in a container with slowly running water. Remove coarse material by lightly rubbing breaded shrimp with fingers being careful not to rub off shrimp meat. Place the wet shrimp meat and suspension on a No. 20 mesh sieve or equivalent. Wash off adhering coating material by another wash under a tap or spray with particular attention being given to the tail fin. Place wet shrimp meat on a No. 8 mesh screen and allow to drain for 2 minutes, then weigh. Any shreds of shrimp meat or shell removed during the washing process should be weighed with the larger pieces of shrimp.

Calculate the percentage of breading by the following formula: $\frac{A - B}{A} \times 100 =$ percent of breading. Code: A = total weight of raw breaded shrimp; B = weight of shrimp material after debreading operation; A - B = weight of coating material.

Procurement of breaded shrimp for the Armed Services will be affected under the above changes pending final revision and adoption of Federal Specification PP-S-315, May 3, 1957 for "Shrimp, Frozen, Raw, Breaded."

Fish and Wildlife Advisory Group Meets

The Assistant Secretary of the Interior for Fish and Wildlife announced on June 11 that acceptances have been received from 24 persons invited to become members of a new Advisory Committee on Fish and Wildlife. The first meeting of the group was held in Washington, D. C., June 12-13.

The Secretary of the Interior approved the establishment of the committee to give the Department the benefit of additional advice on the implementation of the Fish and Wildlife Act of 1956 which became law in August 1956. Among other things, this Act authorized the establishment of "a sound and comprehensive national policy with respect to fish and wildlife" and the reorganization of the Fish and Wildlife Service, which is now in process.

Officials of national associations in the wildlife conservation, sport fishing, and commercial fishing fields were invited to serve on the committee. They will serve as individuals and advisers rather than as representatives of their organizations.

This committee will serve a dual purpose, according to the Assistant Secret It will enable interested persons to advise the Department on matters concerning fish and wildlife, and also afford the means of informing these persons of proble which confront the Department.

Appointees to the committee will serve for three-year terms ending June 30, 1960. Meetings will be held at least twice a year. At the first meeting the Committee was organized and a chairman and other necessary officers elected by the members.

Among the topics discussed at the first meeting were the possibility of prote ing the polar bear from shooting in Alaskan waters beyond the three-mile limit, t status of oil and gas leasing on Fish and Wildlife Service refuge lands, the intern tional fisheries situation, and the task force report on the Service's proposed expanded conservation program.

Members of the new advisory committee are:

Dr. Ira N. Gabrielson, president, Wildlife Management Institute, Washingto D. C.; C. R. Gutermuth, secretary, Natural Resources Council, Washington, D. Michael Hudoba, conservation director, Outdoor Writers Association of America Washington, D. C.; Carl D. Shoemaker, conservation consultant, Washington, D Mrs. Marion T. Weaterford, chairman, Conservation of Natural Resources Depa ment, General Federation of Women's Clubs, Arlington, Ore.; John H. Baker, president, National Audubon Society, New York, N. Y.

Howard Zahniser, executive secretary, The Wilderness Society, Washington, D. C.; Emanuel Fritz, University of California, Berkeley, Calif.; Sigurd F. Ols president, National Parks Association, Ely, Minn.; J. W. Penfold, Izaak Walton League of America, Denver, Colo.; Ernest Swift, National Wildlife Federation, Washington, D. C.; Albert M. Day, Arctic Institute of North America, Washingt D. C.

Richard Stroud, executive vice president, Sport Fishing Institute, Washingto D. C.; Charles E. Jackson, general manager, National Fisheries Institute, Wash ington, D. C.; Thomas Kimball, chairman, executive committee, International A sociation for Game, Fish and Conservation Commissioners, Denver Colo.; Richa Borden, Massachusetts Conservation Council, Boston, Mass.; William Apple, Ou board Motor Boat Club of America, Little Rock, Ark.; Don McKee, manager, Ta pa Shrimp Producers Association, Inc., Tampa, Fla.

Richard Reed, executive secretary, Maine Sardine Council, Augusta, Me.; Thomas D. Rice, executive secretary, Massachusetts Fisheries Association, Inc Boston, Mass.; John Linehan, general manager, Seafood Producers Association, Inc., New Bedford, Mass.; George Steele, executive director, Fishery Products Division, National Canners Association, Washington, D. C.; W. C. Arnold, Man ger, Alaska Salmon Industries, Seattle Wash.; and W. M. Chapman, director of research, American Tunaboat Association, San Diego, Calif.

Fisheries Loan Fund

A total of 128 commercial fishery loans for $3,457,813 had been approved by the U. S. Department of the Interior as of June 24, 1957, under the loan program inaugurated in October 1956. As of June 24, 1957, a total of 256 applications for loans totaling $10,543,000 had been received. Of that number 37 applications for $687,566 had been rejected and the remainder still are being considered.

The program was authorized by the Congress in 1956 with the establishment of a $10 million revolving fund to provide loans to commercial fishermen for financing and refinancing operations, maintenance, replacement, repairs, and equipment of fishing gear and vessels. The loan unit started operating in the Bureau of Commercial Fisheries of the Department of the Interior's Fish and Wildlife Service on October 22, 1956.

Although applications totaling more than $10 million have been received, the Fish and Wildlife Service has announced that it will continue to accept and list applications for an indefinite period. All applications are processed in the order in which they are received.

Of the loans approved, the New England area leads the list with 50 loans for $1,568,402. The Pacific Coast is second with 38 loans for $1,143,525, and the Gulf Coast is third with seven loans for $414,925. Other loans by areas are: South Atlantic States, eight loans for $164,600; Alaska, 16 for $89,425; Great Lakes, six for $43,220; and Hawaii three for $33,716.

Since March 18, the last date on which public listing was made of loan recipients, 67 loans for $1,566,879 have been approved. These loans are distributed as follows: New England, 25 loans for $688,119; Pacific Coast, 22 for $553,394; Gulf Coast, five for $144,675; South Atlantic, five for $111,800; Alaska, five for $21,175; Great Lakes, two for $14,000, and Hawaii, three for $33,716.

A list of those who have received loans, and the amounts received, between March 18 and June 24 follows:

MAINE--Portland: Trawler Minnie, Inc., $90,000; Russell, Inc., $65,000; Raymond Stoddard, $6,450.

MASSACHUSETTS--Boston: Pattyjean Corporation, $96,125; Rosa B. Corporation, $54,215; Vincent & Rose Guarino, $12,100. Gloucester: Peter E. Doucette, $31,000; Parker B. Knowles, $2,817; Edward Gleason, $8,600; Benedetto Randazza, $23,735; Schooner Joseph Mattos, $40,290; Eugene Naves, $18,500; Charles Melanson, $3,000; Richard Swan, $6,050; Rose Bertolino, $16,357; Frank Foote, $13,000; John W. Martell, $4,998; Sylvester F. Whalen, Inc., $75,000. Fall River: Alfred J. Nassr, $10,000. Fairhaven: Talgo, Anderson, & Hanney, $32,317. Salem: George B. Lilly, $5,676. Medford: Joseph Giacalone, $27,800. Provincetown: Joseph Corea, Jr., $18,989. Plymouth: John M. Pinto, $23,500.

RHODE ISLAND--Narragansett: Stanley Stinson, $2,600.

VIRGINIA--Mt. Holly: Harry Spencer Bullis, Jr., $5,000. Phoebus: Trawler South Seas, Inc., $21,300. Warwick: J. Frank Topping, $25,000.

SOUTH CAROLINA--Mt. Pleasant: Barry J. Wilson, $5,500.

GEORGIA--Savannah: Jackson Seafood Co., $55,000.

MISSISSIPPI--Pascagoula: Cisroe & Eva Ewing, $17,000; Louis Lee Bond, $32,275.

LOUISIANA--New Orleans: Alphen Seafoods Corp., $50,000. Galiano: James Tillman, $35,000. Lake Charles: J. W. Murphy, $10,400.

MICHIGAN--Port Huron: George A. Lixey, $10,000.

MINNESOTA--Knife River: Lawerence W. Bugg, $4,000.

CALIFORNIA--San Diego: Robert Ursich, $68,900; Maurice Bernardini, $100, White Sea Corporation, $84,100; George W. Murphy, $12,077. San Pedro: A. & Pilato, $25,000; T. Austrem & O. Edwards, $35,900; W. H. Hoopes, $9,000; Xitco & Anderson, $31,887. Lakeside: W. H. Babcock, $30,000. Castroville: Francis C. Furber, $10,000. Morro Bay: Sigurd O. Sommersell, $5,900. Ben icia: Ted Bean, $5,630.

OREGON--John Day: Jim Lyons, $12,500.

WASHINGTON--Seattle: Olaf & Sig Hendricks, $12,000; Erling E. Jacobsen $20,000; Thor Botten, $12,700; Ole Lillenes, $3,000; John Lindsley Grover, $3,000; Edwin Knudsen, $7,300. Tacoma: Arthur Carlson, $1,500; Western Ac Corp., $60,000; Chester Kimmerly, $3,000.

ALASKA--Juneau: George J. Katzeek, $4,900; John Pentilla, $4,975; Chris Anita McNeil, $5,000. Ketchikan: Russell Heath, $2,500. Elfin Cove: Leroy Clements, $3,800.

HAWAII--Honolulu: Louis Agard, Jr., $15,000; Oliver Kinney, $14,000; Ma jiro Taki, $4,716.

Freezing Fish at Sea

SERVICE INAUGURATES ENGINEERING STUDY OF TRAWLER-FREEZER-SHIP: A contract has been awarded by the U. S. Fish and Wildlife Service for an engineering study of a new North Atlantic trawler equipped to freeze fish at sea, the Department of the Interior announced July 8.

The $15,000 contract, which may lead to significant improvement in New Eng land's commercial fishing operations, has been awarded to Dwight Simpson and A sociates, naval architects located in Boston, Mass.

The request for this study was made by the New England Committee for Aid the Groundfish Industry. The study will include development of a preliminary de sign and will incorporate the principles and techniques for handling and freezing fish at sea developed over the past six years by the Fish and Wildlife Service. Funds for the study are provided by the Saltonstall-Kennedy Act for improving do mestic fisheries.

The preliminary findings and design will be used by interested segments of t New England fishing industry for calculating the earning capacity of the proposed vessel under conditions met in the New England fishery.

If these determinations are favorable and if the decision is made to construc such a vessel, the actual construction is expected to be undertaken by the industry

Since the fish can be frozen immediately after being taken aboard, the craft will permit fishermen to range farther from port and to remain at sea until a ful load of fish is obtained. It will assure the landing of fish in much better conditio and provide the consumer with a more uniformly high-quality product. It will al permit the processor to stockpile the fish and to establish regular production sch ules for handling them.

Under present conditions, vessels depend upon ice to preserve the cargo an must return to port after ten days of fishing, often only partially loaded. Proce sors are faced with alternate periods of glut and scarcity with little or no chance of stockpiling the catch.

Basic specifications laid down by the Fish and Wildlife Service are that the plans must provide for a steel-hull, diesel-powered trawler capable of operating in any fishing weather and at distances much beyond present limits. It must be more than 140-feet long with sufficient space for the refrigeration equipment necessary for freezing at sea, sufficient "payload" space to permit profitable operation, and have the mechanical equipment necessary to handle fish with utmost care.

The Service's exploratory fishing vessel Delaware in recent months has returned with two 100,000-pound loads of fish fresh-frozen at sea and delivered the loads in a "sea fresh" condition. These were large-scale tests of techniques and equipment. Portions of these fish were used for further experimental studies ashore and the balance sold at auction.

Gulf Exploratory Fishery Program

TRAWLING GEAR TO BE TRIED IN RED SNAPPER FISHERY: The chartered vessel Silver Bay, which is a conventional North Atlantic-type dragger under a two-year charter to the U. S. Fish and Wildlife Service, was scheduled to start a red snapper trawling cruise off the coasts of Texas and Louisiana about the middle of June 1957. The objective of the cruise was to find out whether or not bottom trawling gear can be used in the red snapper fishery of the Gulf of Mexico.

The Silver Bay exploratory fishing operations will be supplemented by the use of the Service-owned M/V Oregon. The chartered Silver Bay is steel-hulled, 96.5 feet in length, has a beam of 22.5 feet, a draft of 12 feet, a 562-horsepower main engine, and a cruising range of 4,500 miles.

The cruise, as planned, will include experimental fishing on the broken bottom areas off Texas and Louisiana in depths of 20-100 fathoms, using both conventional and modified New England-type otter trawls.

Interior Department Approves Proposal to Study Effect of Pesticides on Fish and Wildlife

A comprehensive study of the effect which the use of billions of pounds of pesticides is having upon fish and wildlife is needed for the protection of these valuable natural resources, the Assistant Secretary of the Interior for Fish and Wildlife Leffler advised the Congress in May.

In commenting upon H. R. 783 which specifically directs the U. S. Department of the Interior to make such a study. The Assistant Secretary stated that while he was certain the general powers of the Department provides authority to pursue such investigations, passage of the bill would "express the interest of the Congress in this particular program which we consider to be vital to the conservation of the Nation's fish and wildlife resources."

It was pointed out that last year 65 million acres of cropland--one sixth of the Nation's farm land devoted to crops--and more than three million acres of forests were treated with three billion pounds of pesticides.

"The importance of our forests and agricultural crops is unquestioned," the Assistant Secretary said. "Both are vitally needed. Likewise, insect and other

pest control is necessary. However, pesticide programs have gone ahead without adequate information on the effects which the pesticides have on fish and wildlife resources. A multi-billion dollar recreation and commercial fishery industry of interest to more than 30 million Americans is involved.

He stated that some insecticides in concentrations "ten times the concentratio which can be tolerated by wildlife" are being used with the resultant death of thousands of birds. He also gave examples of huge fish losses following extensive spr; ings of forest trees.

He pointed out that it should be possible for sponsors of spraying projects to have advice on the possible effects of the spraying on wildlife, suggestions as to timing, and the formulations needed to accomplish the desired effect with a minimum damage to fish and wildlife.

Also stressed was the need for pesticide studies because of the Department's obligations under the migratory bird treaties.

He urged that combined laboratory and field investigations be conducted in cooperation with other agencies such as the Forest Service of the Department of Agriculture. Some of the objectives would be: tests of the toxicity of new insecticides for birds, mammals, and fish; development of diagnostic tests to permit determinations of whether or not animals were killed by specific pesticides; studies of the a plication of insecticides in forest pest control; studies of the effects on fish and wi life of the control of grasshoppers, Mormon crickets, Japanese beetle, corn bore and other farm pests; marsh studies on mosquito production and control in relatio to waterfowl habitat preservation.

Irradiated Food--Commercial Production Envisioned by 1960

Initial production by commercial industry of foods preserved by radiation ma start in 1960, according to a report released June 17 by the Interdepartmental Co mittee on Radiation Preservation of Foods.

By 1960, the report states, it is expected that the wholesomeness and econom ic feasibility of radiation-preserved foods will have been determined and large-scale tests conducted by the Army will have ascertained how well these foods are accepted by consumers.

The Interdepartmental Committee was established in May 1956 to conduct wor on the irradiation preservation of food program and includes representatives of th Department of the Army and the Department of State, Interior, Agriculture, Com merce, Health, Education and Welfare, and the Atomic Energy Commission. It i headed by Dr. William H. Martin, Director of Research and Development, Office of the Secretary of the Army.

Various government agencies are expected to expand their participation in the program as it progresses, as funds become available, and as pertinent phases ar developed, according to the report. This is designed to insure a rapid but well-planned transition of this method of food preservation into the industrial communi

Concurrently, the Army Quartermaster Corps, assigned primary responsibil ity for directing the Department of Defense food radiation program, will continue its activities. This includes construction of the Army Ionizing Radiation Center a

Sharpe General Depot, Lathrop, Calif. The Center, first of its kind ever to be constructed for food radiation, is expected to be completed and in operation within two years. It will include a reactor to be supplied by the Atomic Energy Commission and a high energy particle accelerator to be constructed by the Army Quartermaster Corps.

Primary mission of the Center at Lathrop will be to develop methods of utilizing ionizing radiation to preserve food and to develop the economics of the process.

Physical examinations and other tests of human volunteers and animals fed irradiated foods in an initial feeding test indicate that this new method of food preservation does not significantly alter the wholesomeness of food, the report sets forth. A two-year feeding program, using both human volunteers and animals, has been started to determine the wholesomeness of the food according to government regulatory statues.

Outlining what has been done to date in the field of food irradiation, the report states that during fiscal year 1956 the Army Quartermaster Corps completed a preliminary study of 80 selected foods, obtaining general information to be applied in future operations of the pilot plant. During fiscal year 1957, research has been concentrated on developing more specific information on certain foods. Other agencies are completing initial investigations in areas of product and process development. A program for industry participation on the research and development level has been started and will be expanded as phases of the process unfold. There are presently more than 70 industrial firms and educational institutions participating in the research program.

During fiscal year 1958, further taste-testing studies, as well as packaging and storage studies, will continue. It is expected that by fiscal year 1959, with the process in more advanced form, industry participation will sharply increase. At this point, pilot-plant research on 20 foods and subsequent production of selected merchandizable foods will have started. Much of this food will be used in fulfilling the legal requirements of the Food and Drug Administration in animal and human testing. Information on equipment design and production cost data will become available as a result of these studies, as well as information on government economic aid which can be extended to industry.

By fiscal year 1960, according to the report, the Army proposes to conduct large-scale troop acceptance tests. About this time a trial procurement of a few selected items from industry will be made by the Army.

Explaining the radiation preservation of foods, the report states:

"In this totally new process of preserving foods, the properties of gamma rays from fissionable materials, or of electrons from machines, are utilized to extend the storage life of foods by inhibition of sprouting and the destruction of microorganisms, parasites, or insects. The control of the transmission of such diseases as trichinosis from pork or salmonellosis from dried eggs is a related area of application.

"The food preserved by this method is subjected to a minimum temperature rise and a short exposure time and, in cases where the process is applied sucessfully, tends to retain its original characteristics. The process shows promise of extending the shelf life of foods through 'pasteurization' treatment, and while the sterilizing dose has not yet been established, certain food products have been apparently successfully sterilized. The product thus treated may be held without refrigeration after sterilization although the still active enzymes in time will affect the quality of the food. In other cases this enzymatic effect can be utilized to im-

prove the quality of the food; for example, meat may be tenderized through the pro erly controlled action of naturally-occurring enzymes."

Members of the Interdepartmental Committee on Radiation Preservation of Foods, in addition to Dr. Martin, are: Department of State, Gerard C. Smith, Special Assistant to the Secretary for Atomic Energy Matters; Department of the Interior, Arnie J. Suomela, Commissioner of Fish and Wildlife; Department of Agriculture, Ervin L. Peterson, Assistant Secretary of Agriculture; Department of Commerce, H. B. McCoy, Administrator, Business and Defense Services Administration; Department of Health, Education and Welfare, Dr. Aims C. McGuinness, Special Assistant to the Secretary for Health and Medical Affairs; Atomic Energy Commission, A. Tammaro, Assistant General Manager for Research and Industrial Development. Dr. Kevin G. Shea, Office of the Quartermaster General Department of the Army, is executive secretary for the committee.

Japanese Fishery Officials Confer with U. S. Fish and Wildlife Service

United States and Japanese officials concerned with the commercial fishing industry met informally June 27, 1957, at the U. S. Department of the Interior.

The occasion was the courtesy call which Takechiyo Matsuda, member of the Japanese House of Representatives and chairman of the International Tuna Council made upon Ross L. Leffler, Assistant Secretary of the Interior for Fish and Wildlife. Matsuda was accompanied by Takeshi Kimura, Agricultural Counselor at the Japanese Embassy in Washington. In Japan, the fisheries program is part of the Department of Agriculture and Forestry.

Various phases of the commercial fishing activities, including many problems common to Japan and the United States, were discussed during the meeting.

Matsuda, who is in this country with Prime Minister Kishi's party, will be a member of the Japanese group meeting with American tuna industry men in California in mid-August to discuss a joint tuna-advertising program.

Maine

CANNED SARDINES PROMOTED BY BOY SCOUTS AT JAMBOREE: A total of 250 Maine Boy Scouts acted as unofficial ambassadors for their State's sardine industry at the National Jamboree at Valley Forge, Pa., held in July.

When they joined the 50,000 other youngsters from all over the nation at the Tent City, they were wearing long-visored, properly inscribed fishermen's caps to denote that they are "Down-East Herring Choker" members of the "Maine Sardine Sandwich Society."

The little fish also featured the gateway to the Maine section of the campground which was erected by the Scouts. Connecting the entrance made of large fish weir piles was a sign bearing the inscription "Maine--First in Sunshine and Sardines."

In addition, the Pine Tree Scouts used several thousand sardine-can coin bank as their traditional items for swapping with their fellow Jamboree campers.

All this was brought about through the cooperation of the Maine Sardine Council. That organization arranged to have sardines served on the master menu of the Jamboree at least twice during the event and supplied 40,000 cans for the purpose.

As the theme of the New England delegation was tied in with the arrival of the Mayflower at Plymouth, the Maine Scouts chose the sardine industry, which was the first major food-canning operation in this country, as their historical subject.

* * * * *

SARDINE COUNCIL LAUNCHES SUMMER ADVERTISING CAMPAIGN: The Maine Sardine Council launched a 9-week summer radio spot advertising campaign on July 1, 1957 to help move the industry's 1957 pack.

The Council's Chairman stated that the Council would again concentrate its activities in the ten southern states of Virginia, North and South Carolina, Georgia, Alabama, Florida, Tennessee, Louisiana, Mississippi, and Texas.

This formula was adopted last year because of the importance of the market and to enable the Council to better measure and test the impact and results of its advertising and merchandising efforts. Plans to expand the coverage to other areas in future campaigns were being studied.

A total of 97 radio stations in 69 key markets were scheduled to be used with the frequency of spots running from 25 to 35 a week in the various cities.

The message was to be carried through tuneful jingles, supplemented by live announcements telling the story of sardines from Maine, "the convenience seafood in the familiar flat cans that you and your family have been buying for years." In addition, the product's nutritive values and the versatility of the item also were featured.

The campaign was to be backed up with sales promotion and merchandising activity.

Maine Sardines

CANNED STOCKS, JUNE 1, 1957: Distributors' stocks of Maine canned sardines totaled 230,000 cases as of June 1, 1957--70,000 cases or 44 percent more than the stocks on hand June 1, 1956. Stocks held by distributors on April 1, 1957, amounted to 295,000 actual cases, according to estimates made by the U. S. Bureau of the Census--35,000 cases less than stocks held on June 1, 1957.

Table 1 - Canned Maine Sardines--Wholesale Distributors' and Canners' Stocks, June 1, 1957

		1956/57 Season				1955/56 Season				
		6/1/57	4/1/57	1/1/57	11/1/57	7/1/56	6/1/56	4/1/56	1/1/56	11/1/55
Distributor	1,000 actual cases	230	295	344	388	154	160	268	326	354
Canner	1,000 standard cases1/	416	465	879	1,016	315	64	152	475	625

1/ 100 3¼-OZ. CANS EQUAL ONE STANDARD CASE.

Canners' stocks on June 1, 1957, totaled 416,000 cases (100 3¼-oz. cans) as compared with 64,000 cases on June 1, 1956, and 465,000 cases on April 1, 1957.

The new Maine sardine packing season opened on April 15, but there was no significant amount packed until late in May. The season ends December 1, 1957.

The pack April 15 to June 1, 1957, was 126,000 cases. On April 15, 1957, the ryover by the canners was about 426,000 cases.

Market Outlook for Fishery Products

JULY-SEPTEMBER 1957: As the fishing fleets bring in heavy seasonal cat es of many varieties of fish and shellfish, the distribution segment of the indust is planning three promotional campaigns to assure the fullest possible use of th various products, according to Commercial Fisheries Outlook, July-September 1957 published by the United States Fish and Wildlife Service.

The three promotional campaigns are National Fish Week, September 18-2 National Canned Salmon Week, August 23-30; and National Tuna Week, October November 1. The Service's Bureau of Commercial Fisheries will cooperate in these promotional campaigns.

Seasonal highs will be reached in the landings of halibut, ocean perch, whit salmon, lobsters, shrimp and haddock during the quarter. Surf clam, hard cra and Maine sardine landings also will be at their peak. The Atlantic Coast oyste fishery is recovering some from the hurricane damage of recent years and will gin cutting down on the backlog of orders in September when the new season ope

Indications from the Pacific halibut fishery are that the catch this year will equal the 67-million-pound harvest of 1956. Shrimp production will depend upo weather conditions in the Gulf of Mexico, but unless hurricanes interfere the ha vest should be about the same as last year.

Maine lobster landings for the first four months have been 27 percent highe than during a like period in 1956, but somewhat lower than during the first four months of 1955.

Canned Maine sardine inventories should improve as the fishery enters the peak production period.

Prospects are for a light pack of California sardines, but the pack of Pacifi mackerel is 70 percent above that of the same period in 1956.

Fresh-water fish landings will be light during the summer.

Surf clam landings in New Jersey are 68 percent above those of 1956 and 1 percent above those for 1955.

Soft clam landings will be low, but soft crabs will be in good supply.

New York

ADVISORY COMMITTEE APPOINTED TO STUDY MARINE SPORT AND CO MERCIAL FISHING: Appointment of the New York Conservation Commissioner Advisory Committee to study both sport and commercial fishing in the Marine D trict (Long Island) was announced on April 18, 1957, by the Commissioner.

"This committee will be the first of its kind, so far as Department records show," he stated. "Its need was clearly shown by the recent Crossley survey w revealed that more than 600,000 New York sportsmen fish in our Marine Distri

Members of the committee were furnished copies of a recent study made by the management unit of the New York State Budget Division, which made suggestions for improvement of marine district operations and services. The first meeting of the committee was held in April.

The membership of the Committee, all residents of New York, is as follows: Ed Moore, New York Journal-American Chairman; Jim Hurley, New York Daily Mirror; Dick Cornish, New York Daily News; Jack Randolph, New York Times; Dan Lionel, New York Herald Tribune; Frank Keating, Long Island Press, Jamaica; William Paulson, Newsweek Magazine; Russell Crandall, Fishing Long Island Waters, Roosevelt; Harold Kimball, Past President, Southern New York Fish and Game Association, Yonkers; John Suydam, President, National Party Boat Owner's Alliance, Lyndenhurst; Herbert Lieblen, Fishing Station Operator, Long Island Rowboat Association, Southhold; Nicholas Griek, Secretary, Long Island Fishermen's Association, West Sayville; John Binner, Presidnet, Sportsmen's Council of the Marine District, Long Island City; and John Sweek, Member, Sportsmen's Council of the Marine District, Long Island City.

North Atlantic Fisheries Exploration and Gear Research

EXPERIMENTAL LONG-LINE TUNA TRIP SUCCESSFUL (M/V Delaware Cruise 57-5): The second experimental long-line fishing cruise (June 6-July 5) of the Service's exploratory fishing vessel Delaware in the offshore waters of the Western Atlantic resulted in a catch of 18 short tons of tuna. During the cruise the Delaware occupied 17 stations over a 68,000-mile area south and southwest of Georges Bank. The long-line fishing stations were planned to give a broad over-all picture of the distribution of tuna in the Northwest Atlantic and supplemented the long-line cruise made March 15-April 12.

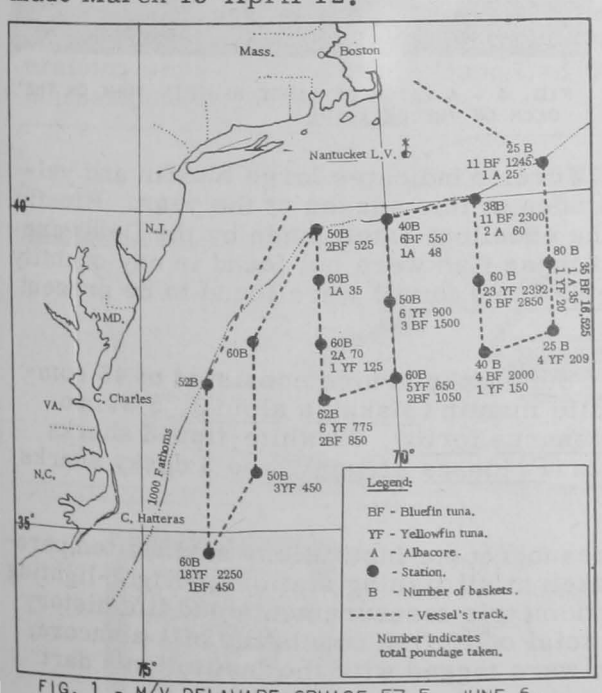


FIG. 1 - M/V DELAWARE CRUISE 57-5, JUNE 6-JULY 5, 1957.

FIG. 2 - LANDING A LONG-LINE-CAUGHT BLUEFIN TUNA FROM THE GULF STREAM OFF GEORGES BANK.

An excellent catch of 16,500 pounds of bluefin tuna (Thunnus thynnus) was made in an 80-basket set 140 miles south of Georges Bank. Two other stations, one 135 miles south of Nantucket, and another 85 miles ESE. of Cape Hatteras, yielded ov-

er one ton of yellowfin tuna (Thunnus albacares). No gear loss was reported dur ing the cruise, although the large bluefin caused gear snarls on several occasion Shark damage to tuna was much less than expected.

The 159 tuna caught by the Delaware weighed 38,039 pounds. The catch co sisted of 83 bluefin (29,845 pounds), 8 albacore (273 pounds), and 68 yellowfin (7,921 pounds).

The general distribution of tuna in the offshore area during June was found t consist primarily of small bluefin and scattered albacore (Thunnus alalunga) a the more northern stations and yellowfin at the southern stations located in the warmer waters of the Gulf Stream.

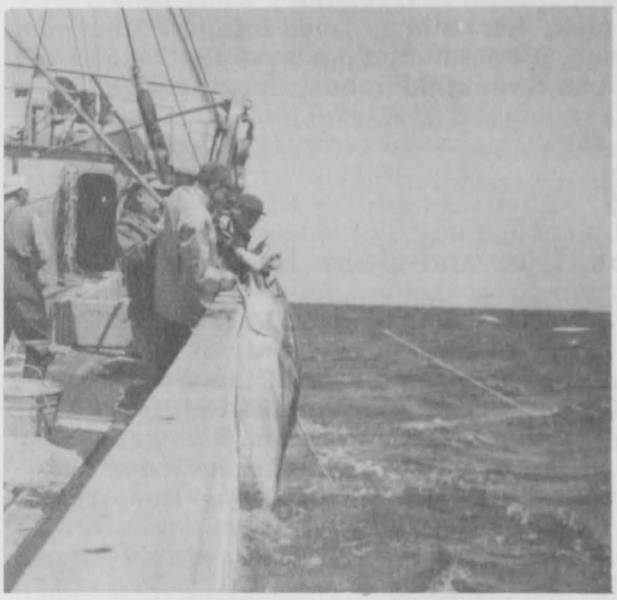


FIG. 3 - SOME OF THE TUNA CAUGHT BY THE DELAWARE, SUCH AS THIS BLUEFIN, IF IN GOOD CONDITION, ARE TAGGED AND RELEASED.

FIG. 4 - A CATCH OF LARGE BLUEFIN TUNA ON T DECK OF THE DELAWARE.

A comparison with the March 15-April 12 cruise indicates large bluefin and ye lowfin are more available in the north latitudes at this season of the year. Blue of the 300- to 350-pound size comprised the excellent catch made by the Delawa in the Gulf Stream during March 1957, but these fish were not found in any quan during the recent cruise. Lancetfish (Alepisaurus ferox) were found to be prese in fewer numbers than in March.

Other species of fish and sharks taken during the cruise consisted of 45 co mon dolphins (Coryphaena hippurus), 6 white marlin (Makaira albida), 5 wahoo (Acanthocybium petus), 3 lancetfish (Alepisaurus ferox), 32 white-tipped sharks (Pterolamiops longimanus), 14 blue sharks (Prionace glauca), and 3 dusky shar (Carcharhinus obscurus).

In cooperation with the Woods Hole Oceanographic Institution, surface temp tures and bathythermograph casts were taken at all fishing stations. Night-ligh was conducted at most stations, and morphometric measurements and life histo information on the tuna was compiled. A total of 15 fish consisting of 1 albacor 5 bluefin, 10 dolphins, and 1 white marlin were tagged with the Institution's dar tags during June 21-July 5.

Unfavorable weather hampered operations during the first and last days of cruise. The Delaware returned to East Boston on June 15 to repair the long-l

puller, obtain additional frozen herring (Clupea harengus) for bait, and repair the ship's refrigeration system.

The Delaware was scheduled to leave on July 16 to conduct otter-trawling operations on Georges Bank or in the South Channel area for haddock. The freezing-fish-at-sea equipment will be used to freeze fish for handling-and-storage tests by the fishing industry.

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, MAY 1957 P. 78.

North Atlantic Fishery Investigations

EFFICIENCY OF SCALLOP DREDGES WITH DIFFERENT SIZE RINGS STUDIED (M/V Whaling City, June 13-23): Thirty drags were made in the Cultivator Shoal and Northeast Peak of Georges Bank areas with two scallop dredges fished simultaneously to test the relative efficiency of 2-, 3-, $3\frac{1}{2}$-, and 4-inch metal rings in the bag of the scallop dredge. The bags of the scallop dredges fitted with the different size rings were tested as follows: the 2-inch ring was tested against the 3-, $3\frac{1}{2}$-, and 4-inch rings; the 3-inch ring was tested against the $3\frac{1}{2}$- and 4-inch rings. During this cruise by the Service-chartered vessel Whaling City, 67,000 scallops were measured and due to the large volume of data collected, no conclusions can be drawn at this time.

* * * * *

FISH BEHAVIOR IN COD ENDS STUDIED WITH UNDERWATER TELEVISION (M/V Albatross III Cruise 96): The behavior of fish within a standard otter trawl was studied with an underwater television camera and the observations were documented with moving and still pictures during a June 19-26 cruise of the M/V Albatross III. The cruise of this Service research vessel was planned to make studies of the effect of covers and chafing gear on the behavior of the fish within the net. Operations were carried out in Cape Cod Bay and in South Channel of the Southern Massachusetts coast.

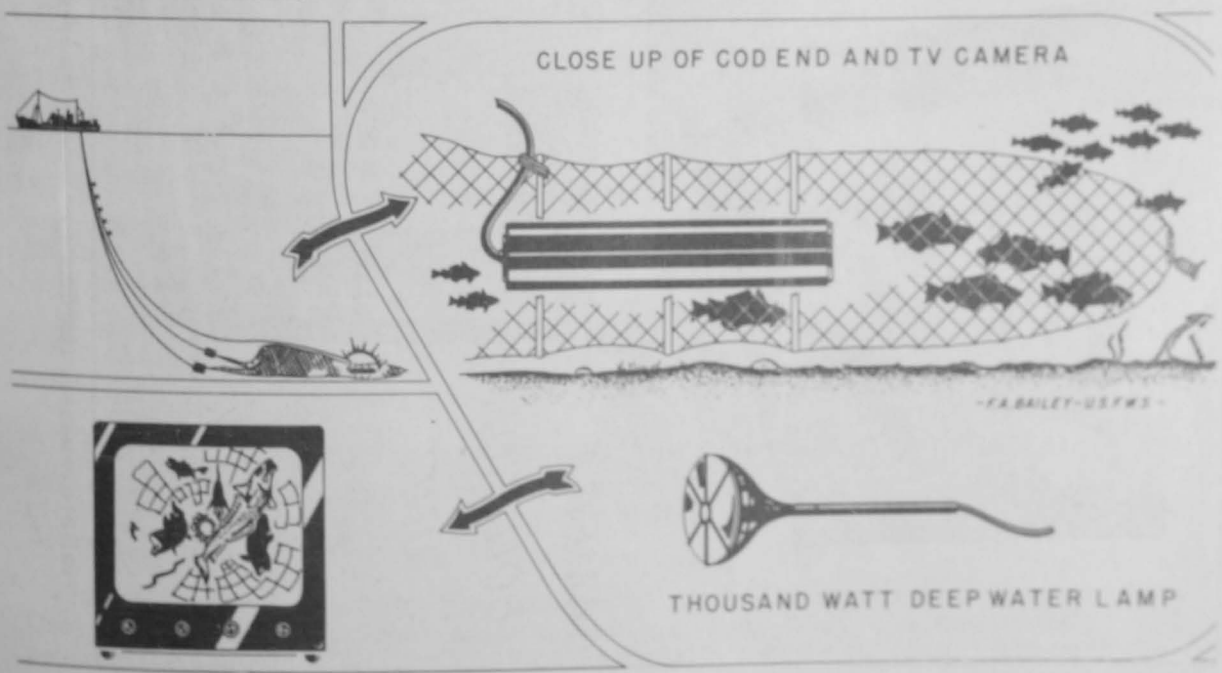


FIG. 1 - DIAGRAMATIC SKETCH SHOWING THE OPERATION OF THE UNDERWATER TELEVISION CAMERA BY THE ALBATROSS III.

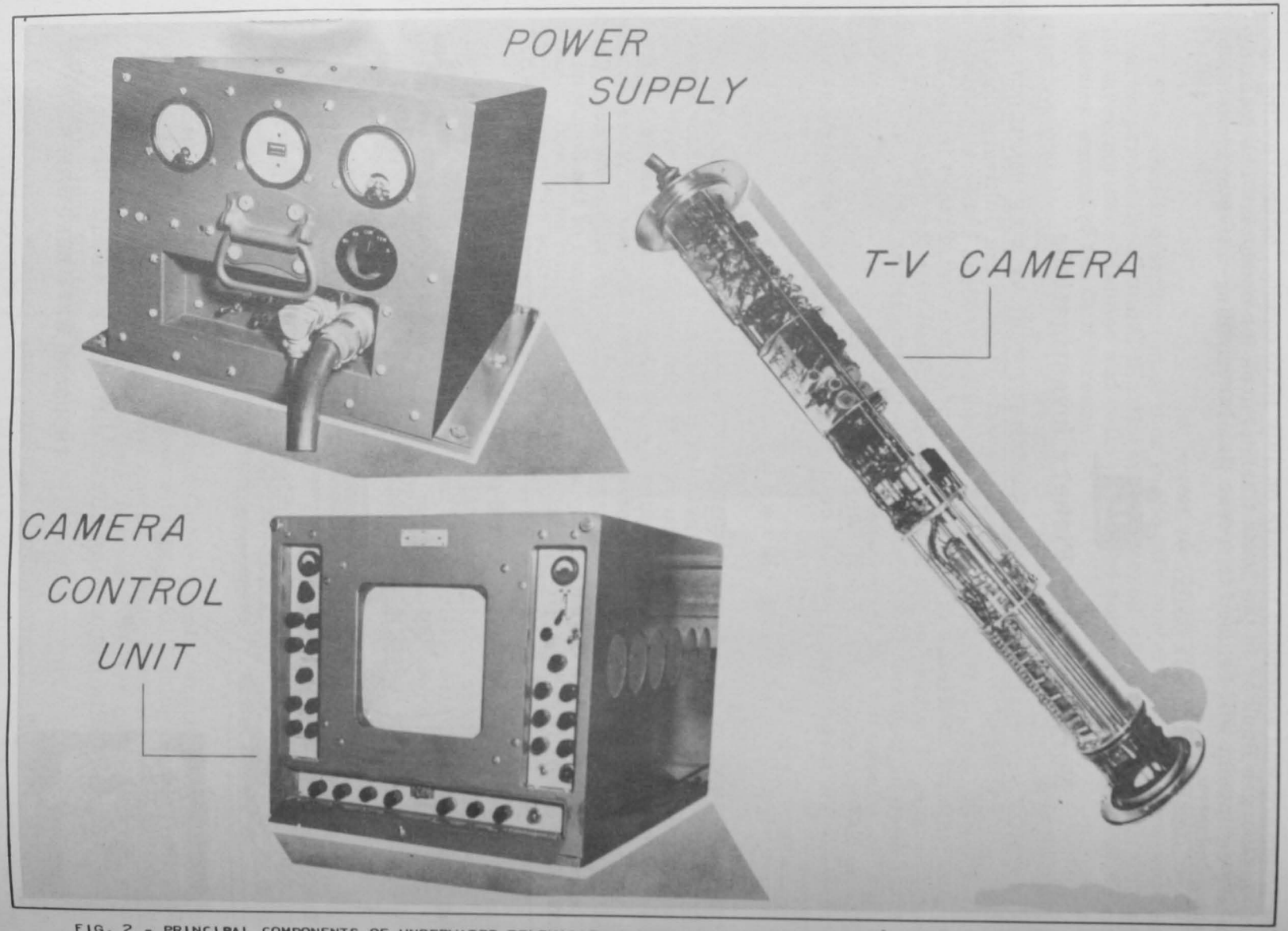


FIG. 2 - PRINCIPAL COMPONENTS OF UNDERWATER TELEVISION CAMERA USED BY THE SERVICE'S RESEARCH VESSEL ALBATROSS III.

The television camera was rigged within a standard otter trawl in the following ways: (1) suspended inside a cod end provided with a standard small mesh cover used in mesh-selection experiments; (2) suspended as in (1) and provided with chafing gear in the top according to International Commission for Northwest Atlantic Fisheries standards; (3) positioned just above the cod end covered with chafing gear; (4) suspended from the top belly of the net (SCUBA divers were employed to check positioning of camera in this operation).

High turbidity in Cape Cod Bay prevented good viewing. Turbidity varied from moderate to nearly absent in South Channel. Good catches of haddock and moderate catches of whiting, cod, and other species in South Channel provided good results in (1) and (2).

Because of damage to fishing gear, time was sufficient to conduct only a preliminary study under (3). SCUBA divers found gear to require only minor adjustments in positioning. High turbidity in Cape Cod Bay prevented satisfactory viewing of gear and fish in (4). These studies will be continued on Cruise 97 with particular reference to whiting.

* * * * *

VESSEL LICENSES FOR USE OF SMALL-MESH COD END DISCONTINUED: Suspension of the "study boat" program involving the Boston offshore haddock trawler fleet was announced by the United States Fish and Wildlife Service Biological Laboratory at Woods Hole, Mass. Licences expired June 30, 1957, and were not renewed, and no additional licenses will be granted.

In this program a group of 5 to 8 haddock trawlers were licensed to fish with a small pre-regulation size net mesh since June 1953, to provide data for determining the effect of the regulation. At a meeting of the scientific advisors for the International Commission for the Northwest Atlantic Fisheries it was agreed that sufficient information has been obtained with the small mesh ($2\frac{7}{8}$" internal size) to provide adequate comparison with the large mesh ($4\frac{1}{2}$" internal size).

The purpose of the small-mesh net study group was to provide an index of abundance of haddock comparable to that obtained in the 1931-1952 haddock studies. With this index biologists are able to determine the relative success of each year-brood of haddock as it enters the fishery. Preliminary studies by Service biologists at Woods Hole have shown that broods of equal initial size are now yielding much greater landings than before the regulation went into effect.

A more intensive analysis of the effect of the regulation will be carried out this year with data already at hand. If these more detailed studies confirm the present findings there will be no further need for small-mesh net study boats in the future.

Oregon

SPRING KING SALMON RUN IN COLUMBIA RIVER GOOD: The 250,000 spring king salmon that were caught by commercial fishermen or escaped into the upper river spawning grounds is the second highest spring run since the completion of Bonneville Dam in 1938.

Additional reports from fish dealers along the Columbia River boosted total Oregon spring king (chinook) salmon landings during May to approximately 1,130,000 pounds, the Oregon Fish Commission reports in a news release. Although the reports were only 95 percent complete, all major fish dealers had reported their May

receipts. The Oregon landings of Columbia River king salmon plus the landings r ceived by Washington dealers during the same period resulted in a combined Oreg Washington catch of about 1,700,000 pounds, the sixth highest spring catch in 20 years.

Oregon Fish Commission biologists estimated that approximately 113,000 spr king salmon were caught in the Columbia this year. The catch represents about 4 percent of the spring king salmon that entered the river. These estimates exclud the Willamette and Cowlitz River runs that, for the most part, pass through the C lumbia River prior to the opening of the spring gill-net season.

Combining the spring catch with the Bonneville counts of spring king salmon gives a fair idea of the size of the upper river spring run. The figure thus obtain for 1957 is close to 250,000 fish--the second highest spring king run to enter the Columbia River since completion of Bonneville Dam in 1938.

Spawning escapements of better than 100,000 spring king salmon above McNa Dam this year is 2.5 times greater than the highest previous McNary count. Mos of the major spring king spawning areas of the Columbia River system are locate above McNary in tributaries of the Columbia and Snake Rivers.

Columbia River commercial fishing regulations, set jointly by the Fish Comm sion and the Washington Department of Fisheries, apparently accomplished the in tended purpose this year. Commercial gill-netting above Bonneville Dam was pro hibited by the state regulatory bodies this year in hopes of increasing upriver spr king escapements.

The large run this year provided an above-average commercial catch as well as the desired escapements. The Commission attributed at least part of the increased spring run this year to improved spawning escapements in 1953.

Oysters

LONG ISLAND SOUND RESEARCH PROGRAM FOR 1957: During the summe of 1956 the Service's Marine Biological Laboratory at Milford, Conn., completed an extensive study of several important aspects of gonad development, spawning, and setting of oysters in Long Island Sound. At present, the data are being analyz and prepared for publication. As soon as the analysis of different portions of the studies is completed, a report will be issued.

Plans for the summer of 1957 include a new series of observations concerne principally with the occurrence, distribution, behavior, and physiological require ments of oyster larvae. This work will be centered in Milford Bay and only 3 set ting stations, instead of the 10 or more of the previous years, will be maintained. Therefore, weekly bulletins with information on the intensity of setting in differe sections of Long Island Sound will not be issued. The Milford Laboratory will be glad to continue examination of cultch for oystermen who bring it to the laborator Occasional bulletins, based on the studies in Milford Bay, will be issued if result are of general interest.

Pacific Oceanic Fisheries Investigations

ALBACORE TUNA ABUNDANT OFF COASTS OF OREGON AND WASHINGTON: Large numbers of albacore tuna were reported off the coasts of Oregon and Washington, centered about 700 miles west of Eureka, Calif., by the Service's Pacific Oceanic Fishery Investigations (POFI) research vessel John R. Manning. Between June 19-23, 1957, albacore weighing between 12-20 pounds were taken by gill net and trolling. The best day yielded 97 albacore. Details of the catches are shown in table.

The John R. Manning was conducting a general reconnaissance preliminary to the Northeastern Pacific Albacore Survey, scheduled to begin July 22. During this survey 9 chartered commercial vessels were expected to search for albacore along predetermined tracks from the coast to 350 miles offshore. The tracks are evenly spaced from central Washington to central California. Reinforcing these chartered vessels were to be the research vessels John R. Manning concentrating on albacore, and the Hugh M. Smith concentrating on hydrography.

The objective of the survey is to define precisely the distribution of albacore off the coast in midsummer, and even more important, to learn the conditions in the ocean that govern their distribution. This knowledge will be a long step towards placing the Pacific Coast albacore fishon a rational basis, as opposed to the hit or miss situationprevailing now.

Gill-Net and Troll Catches of Albacore Tuna, June 19-23, 1957

Date	Longitude	Latitude	Water Temperature	Gill Net[1/]	Troll
June 19	144° W.	37° N.	64°	-	24
June 20	142° W.	37° N.	64°	41	9
June 21	139° W.	39° N.	62°	-	9
June 22	137° W.	40° N.	60°	92	5
June 23	135° W.	41° N.	60°	-	15

1/ GILL NETS WERE NOT FISHED WHERE NO CATCHES ARE INDICATED.

It has been hypothesized that albacore fisheries fluctuate chiefly because conditions in the ocean that control their distribution change. Thus, a good year might result when the ocean brings albacore close to shore, where they are easily found. A poor year might simply mean that ocean conditions hold the the fish 300 or 400 miles offshore--too far off to be discovered by chance.

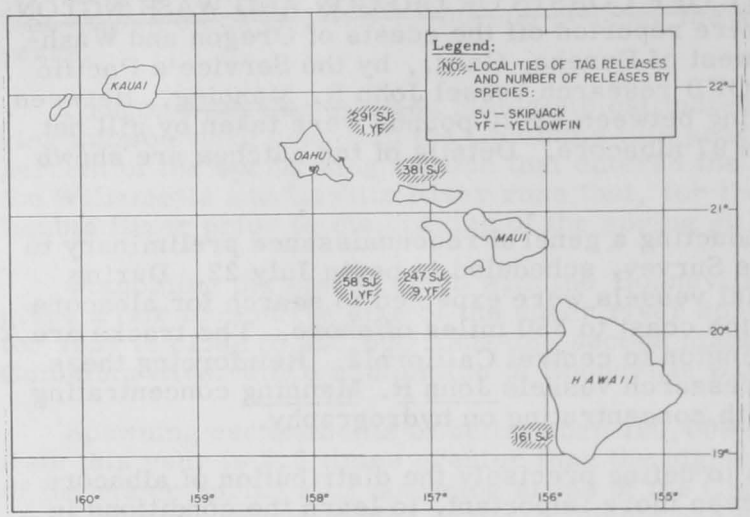
Once the situation is understood, scientists think there is a good chance of predicting when and where albacore can be found, thus eliminating disappointment and waste through fruitless scouting.

* * * * *

SKIPJACK TAGGED BETWEEN ISLANDS OF OAHU AND HAWAII (M/V Charles H. Gilbert Cruise 33): Live-bait fishing for and tagging of tuna was conducted April 23-May 17, 1957 by the Service's research vessel Charles H. Gilbert on this cruise. A total of 1,138 skipjack and 11 yellowfin tuna were tagged with experimental D-2 tags. The cruise was orginally planned to tag and release skipjack tuna in the offshore waters east of Hawaii, but this plan had to be abandoned because of rough seas and the absence of live bait. Instead, tagging operations were focused in the areas between Oahu and the Kono coast of Hawaii. The tagged skipjack weighed 9 pounds or less and the yellowfin between 4 and 5 pounds. The Service's research vessel John R. Manning also tagged tuna as part of this program.

Tilapia was used on 4 schools of fish with inconclusive results. One was a mixed school of skipjack and yellowfin, two were unidentified, and one was dolphin (mahimahi). No fish was caught using tilapia as live bait; however, fish were observed to be feeding momentarily at the surface, probably in response to the tilapia, which tended to sound when chummed.

Three passes, using tilapia as chum, were made on a mixed school of skipja and yellowfin before switching to nehu (Hawaiian anchovy). Fish appeared immediat at the stern after nehu was chum med. Apparently the fish were feeding on tilapia, then surfaced feed on nehu, which characteris cally remains at the surface. O yellowfin was observed to have gorged itself with tilapia.



CHARLES H. GILBERT CRUISE 33 (APRIL 23-MAY 17, 1957).

The lack of success with tila pia may be attributable to two re sons: (1) the poor biting quality fish schools encountered during the cruise (of the 20 schools wo ed with nehu, fish were caught fr only 6 schools), and (2) the large size of the tilapia, which genera ranged between 2 to 3 inches (pa experiences with tilapia have al shown that these larger sizes so when chummed).

During 19 days of scouting, 3 skipjack, 1 yellowfin, 2 dolphin, 5 mixed scho of skipjack and yellowfin, 1 mixed school of skipjack, yellowfin, and dolphin, an 28 unidentified schools were sighted.

Surface trolling with 4 lines during all scouting runs resulted in a catch of 9 dolphin, 4 yellowfin, and 1 skipjack. One 1-hour night surface haul for larval fi was made during the cruise.

Broadcasts of scouting results were made to the local skipjack fleet twice da with few exceptions.

Schools of large skipjack were very scarce; only two schools of medium to lar fish were encountered during the cruise, and these were pursued and chummed a great length without any success. The fish appeared alongside the vessel occasi ally but failed to respond to chum at the stern.

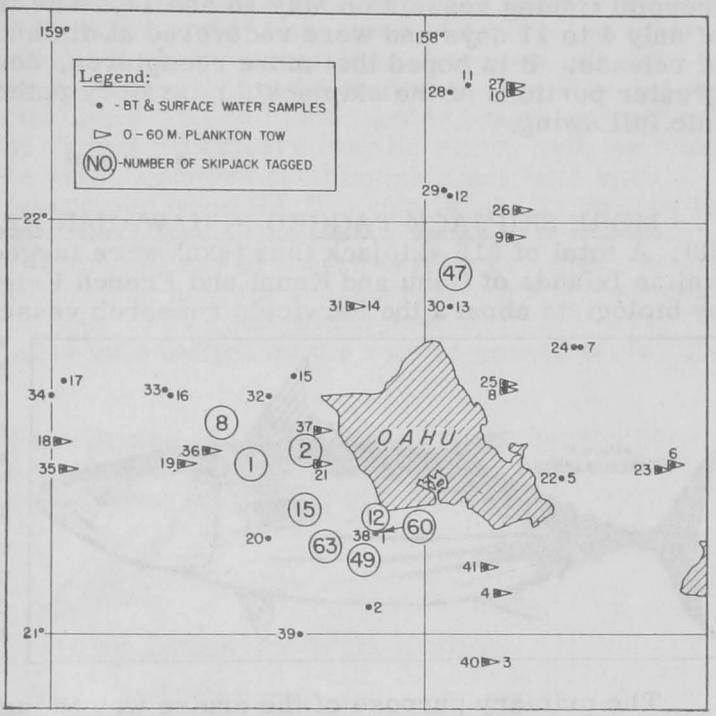
* * * * *

SKIPJACK TUNA TAGGED AROUND HAWAIIAN ISLAND OF OAHU (M/V John Manning Cruise 35): An intensive effort to release as many tagged skipjack tuna Hawaiian waters as possible before the summer fishing season got under way wa nearly completed by the Service's research vessel John R. Manning during this cruise (April 16-May 14, 1957). Within a 20-mile radius of Oahu Island, a tota of 257 skipjack tuna were tagged and live-bait fishing was also conducted. The Service's research vessel Charles H. Gilbert also tagged tuna as part of this pr gram.

The cruise of the John R. Manning was planned to tag and release skipjack tuna w in the area of the skipjack tuna fishery to learn the recovery rate of an experime al "harpoon type" dart tag and to collect environmental data in this area. Durin this phase of the cruise, 20 monitoring stations (see chart) were occupied twice, the beginning and the end of the cruise. On each station a bathythermograph cas was made and surface salinity and phosphate samples were obtained. A total of twenty 30-minute plankton tows to a depth of 60 meters was made.

The tagged skipjack tuna included 63 large "season fish" averaging about 18 pounds each and 194 fish in the 1½- to 7-pound size range. In addition to tagging experiments and the environmentalal studies, tests were made on the effectiveness of tilapia (Tilapia massambica) as live bait.

A total of 50 fish schools were sighted during the cruise, of which 23 were approached and chummed with live bait.



JOHN R. MANNING CRUISE 35 (APRIL 16-MAY 14, 1957).

Some fish were taken from 10 schools, and fish were tagged from 9 of these. After May 8, it was decided that only fish larger than 4 pounds be tagged, as smaller fish would probably not enter into the landings of the commercial fishery during the forthcoming skipjack season. Because of the general scarcity of large fish during the cruise (this was also experienced by the commercial skipjack fishermen), the rate of tagging was greatly reduced thereafter. Several fast-biting schools of small skipjack were chummed to the vessel but were abandoned because of their unsuitable size for tagging.

On May 10, 71 pounds (about 10 buckets) of a mixture of bait-size tilapia and a few mosquitofish (Gambusia affinis) were obtained and acclimatized during the night to sea water. Five pounds (less than 1 bucket) died during the night; most of these were mosquitofish. The tilapia survived the trip in the bait-well until they were used to chum 2 schools on May 12.

One school failed to respond to tilapia and finally sounded after 3 passes were made. The second school was located under a floating log and consisted of a mixture of dolphin (Coryphaena hippurus), small yellowfin tuna, and skipjack tuna, the latter ranging in weight from 3 to 7 pounds. Two passes were made on the school using tilapia, and some fish responded by surfacing. However, the response was not nearly as good as when anchovy (Stolephorus purpureus) was used as chum. A total of 47 skipjack were tagged from this school, but most of the fish were taken when anchovy was chummed. That the skipjack feeds readily on tilapia was shown by the stomach contents of fish taken from this school. All of the stomachs examined contained several tilapia.

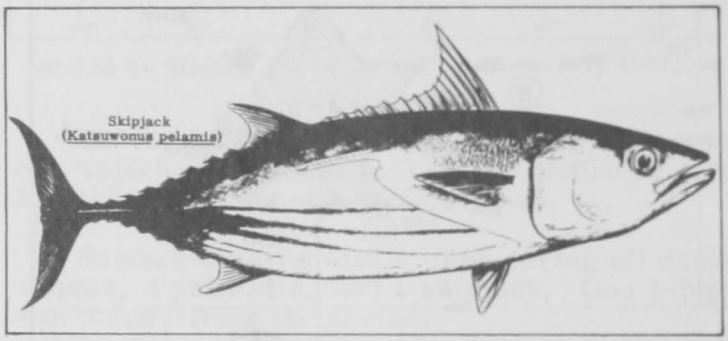
The tag used during John R. Manning and the Charles H. Gilbert cruises is a new type and used on a large scale in Hawaii for the first time this year. It consists of a barbed spearhead of clear plastic attached to a 3-inch piece of red or blue plastic tubing, the flattened end of which bears a serial number. In applying the tag, the barbed end is simply jabbed into the back muscles of the tuna and the tubing is left protruding from the wound. This speed and ease of application are important, for skipjack struggle hard and die quickly when taken from the water. Skipjack fishermen in Hawaii customarily "wing" their fish, that is, they raise the bamboo fishing pole with the right arm and as the tuna, which may weigh nearly 30 pounds, swings in toward them, they receive it under the left arm and hold it tightly while they remove the hook. This affords a perfect opportunity for applying the dart-type

tag and makes it possible to drop the marked fish back into the sea without their ever having touched the deck. Recaptures of fish marked in earlier small-scale experimental taggings with the dart tag have indicated that the tagging wound hea readily, anchoring the barb securely in the tissues of the fish.

Three skipjack released during the tagging cruises were recaptured by com- mercial fishing vessels on May 16 and 17. The fish had been at liberty for perio of only 4 to 11 days and were recovered at distances of 30-50 miles from the poi of release. It is hoped that more recaptures, covering longer periods of time a greater portions of the skipjack's migratory paths, will be made as the season ge into full swing.

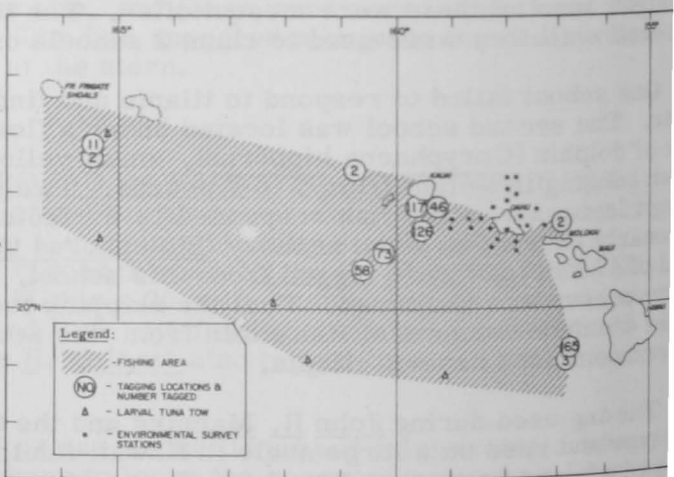
* * * * *

MORE SKIPJACK TAGGED IN HAWAIIAN AREA (M/V Hugh M. Smith Cruis 39): A total of 615 skipjack tuna (aku) were tagged and released between the Ha- waiian Islands of Oahu and Kauai and French Frigate Shoals. The tagging was do by biologists aboard the Service's research vessel Hugh M. Smith during a cruis which began April 19 and ended March 30. This brings the num of skipjack tagged this season t approximately 2,000. The fish were tagged with a plastic dart "harpoon" tag developed by the Service biologists in Hawaii. T cruise of the Hugh M. Smith com pleted a series of three tagging cruises by the three Service re- search vessels operating in Haw ian waters.



The primary purpose of the cruise was to tag and release skipjack tuna in th area south of the areas fished by the commercial fishermen as a means of tracin the movement of the tuna into the fishery. In addition, environmental surveys we made in the vicinity of Oahu Island.

Skipjack tuna were tagged and released in the area south of the major fishery and also within the area of the fishery (see chart). Three factors contributed to the failure to release large numbers of tagged skipjack at a consider- able distance from land: (1) scar- city of skipjack greater than 2 pounds in weight, (2) bad weather during the early portion of the cruise, and (3) high bait mortali- ty. Over the entire area out- lined on the chart, schools of small skipjack were abundant. Many of the schools listed as un- identified may have been skipjack of about 1-2 lbs. in weight, but could not be positively identified as such. Only 1 of the schools were identified as skipjack of greater than 10 pounds.



HUGH M. SMITH CRUISE 39 (APRIL 19-MAY 30, 1957).

Activities during the cruise included 18 days spent in scouting for and catchi bait. Thirty-eight bait sets resulted in a catch of 348 buckets of iao (Pranesus i sularum) and 236 buckets of nehu (Stolephorus purpureus). During the twenty-on days spent scouting and fishing, 42 schools, identified as skipjack (Katsuwonus pe mis) were sighted plus 91 other schools which were unidentified. The 13 schools

fished yielded 713 skipjack tuna and a few yellowfin tuna and frigate mackerel. The majority of the catch of skipjack tuna (533 fish) were small or under five pounds in weight.

The most probable explanation of the seasonal appearance of large numbers of 18- to 22-pound skipjack in the Hawaiian fishery is a movement of these fish into Hawaiian waters from some more distant area. Skipjack tagged a considerable distance offshore and later recaptured by commercial fishermen will reveal at least a part of the path followed by the schools in their migrations. Previous attempts to carry out this work have been hampered by lack of a suitable tag. The dart tag now being used is inserted near the second back fin and has a tubular plastic streamer which protrudes about three inches. These streamers may be white, red, or blue in color and have a number near the end. Persons catching skipjack with such a tag may obtain information as to where and when the fish was tagged by writing to the Pacific Oceanic Fishery Investigations, P. O. Box 3830, Honolulu. Careful measurements of the length (snout to fork of tail) of tagged skipjack should be taken, or if possible recaptured tagged fish may be held for measurement by Service personnel. Such measurements, in the case of skipjack which have been at liberty for extended periods, can furnish valuable information on the rate of growth of this species of tuna.

In most of the area covered by the cruise of the Hugh M. Smith, season skipjack were scarce, but small skipjack were abundant. On the last two days of the cruise large schools of season skipjack were seen north of Kaneohe Bay.

Promotion For Fishing Industry Will Stress "Fish Parade" Theme

Once a year the Fishing Industry conducts a concerted annual promotion for all domestic edible fishery products. This year National Fish Week is scheduled for September 18-28, 1957, and the theme will again be "Fish Parade." Fresh and frozen fish have been placed by the U. S. Department of Agriculture on the list of the Nation's foods in plentiful supply for September and will also be listed at the same time as a merchandising opportunity.

The U. S. Department of Interior through the Bureau of Commercial Fisheries is lending full support to "Fish Parade." Promotional fliers and special recipe fact sheets for radio, press, and television food editors, together with recorded public service radio announcements and press releases, will be some of the tools used in assisting the industry promotion. The Bureau's field staff will cooperate very closely with the industry regional and area task-force chairmen located in principle market areas over the nation. Home economists of the Bureau will be available for some radio and television demonstrations as their schedule permits.

The industry is providing point-of-sale material, window banners, shelf cards, and menu tip-ons. In addition, a retail "Fish Parade" advertisement, which appeared in the July issue of Chain Store Age, also was run in the August issues of Progressive Grocer, Frozen Food Age, and Nargus Bulletin (a publication of the National Retail Grocers Association). Restaurant "Fish Parade" advertisements

A TYPICAL MENU TIP-ON BEING USED DURING "FISH PARADE" WEEK.

were run in the August issues of American Restaurant, Restaurant Management, and Fountain and Fast Food Magazines. The Shrimp Association of the Americ ran their "Shrimp Fiesta" during the same period as the "Fish Parade." Their advertisements appeared in the August and Septemb issues of American Restaurant, Restaurant Management, and Din Drive-In Magazines.

General publicity on "Fish P rade" started early in July through the trade publications. However, all-out consumer publicity was scheduled to go into effect in September and to reach every se tion of the country.

Salmon

NATIONAL CANNED SALMON WEEK: The industry's promotion of canned salmon this year occurred during August 23-30 when the new season's salmon pac entered the market. This was the first time that this promotion took place in the summer. The outlook for the canned salmon market is firm, with an active demand condition. The National Canned Salmon Week Committee in Seattle, Wash., reported that several sets of large- and small-quantity recipes with illustrations were prepared and sent out through their agency to food editors of newspapers and other publications. They also distributed menu "clip on" cards to the restaurant trade.

The Bureau of Commercial Fisheries issued two press releases in connection with the promotion; one featured a salmon sandwich recipe during National Sandwich Month in August, and the other featured a main course salmon recipe during Canned Salmon Week.

* * * * *

PUBLIC HEARING ON PROPOSED PROTECTION OF SPAWNING AREAS IN SALMON RIVER DRAINAGE: The Bureau of Land Management will hold a public hearing in the Senate Chamber of the Idaho Statehouse at Boise, on September 19 and 20, 1957, on a proposed withdrawal of approximately 31,000 acres of national forest lands at the headwaters of the Salmon River in Idaho, the Department of the Interior announced July 11. The hearing will begin at 10 a.m., local time.

According to the United States Fish and Wildlife Service, who requested the withdrawal, the lands would be withdrawn from entry under the mining laws for th benefit of valuable salmon and steelhead spawning areas, including the only known spawning area for sockeye salmon in the Snake River Drainage. The lands embraced by the proposed withdrawal are located in Bear Valley and Marsh Creeks o the Middle Fork of the Salmon River and Valley Creek, Redfish, Pettit, and Altur Lakes, and the headwater reaches of the Salmon River within the Challis, Boise, Salmon, and Sawtooth National Forests.

The Bureau of Land Management Director said that the public hearing was bei held to give local citizens and other interested persons an opportunity to hear all t facts about the proposed withdrawal and to express their opinions on it. The hear

will be conducted by the Idaho State Supervisor of the Bureau of Land Management, who will act as chairman. A complete description of the lands affected by the proposed withdrawal was published in the Federal Register on December 22, 1955.

The meeting will be open to anyone interested.

* * * * *

REGULATIONS FOR INDIAN SALMON FISHING ON COLUMBIA RIVER: An understanding has been reached with three tribes for the regulation of Indian fishing at usual and accustomed fishing places on the Columbia River below The Dalles Dam, the Oregon Fish Commission and Washington Department of Fisheries announced on June 28, 1957.

The Yakima, Umatilla, and Warm Spring tribal organizations have agreed to the following stipulations: (1) dip-netting for salmon will be permitted below the Dalles Dam in 1957, but other forms of fishing are prohibited; (2) commercial dip-netting in the area will be permitted only during the times when it is lawful to fish commercially in the main Columbia River below Bonneville Dam; (3) subsistence dip-netting will be permitted during commercial closures, but not for sale to tourists or others; (4) storage of fish taken during subsistence fishing periods for sale during commercial open seasons will be prohibited.

The tribal organizations will cooperate in enforcing the agreement and initiating a system for recording subsistence catches.

In addition, both the State agencies and tribes reserved the right to adjust their positions according to future legal and conservation determinations, and the States agreed not to adopt closures which would have the effect solely of limiting the Indian dip-net fishery.

The conservation agreement evolved from an initial conference May 3, 1957, among tribal counsel and representatives of the two State agencies, the attorney general offices, and district attorney of Wasco County, regarding the fate of historic Indian fisheries that have been erased or changed by completion of The Dalles Dam. For the first time commercial gill-netting is prohibited above Bonneville Dam, and dip-netting is impossible at Celilo Falls because of the power dam impoundment.

* * * * *

SALMON TAGGING IN NORTH PACIFIC TO BE CONTINUED: The U. S. Fish and Wildlife Service has renewed its contract with the University of Washington to tag salmon in the waters of the North Pacific, according to a July 14 announcement by the Secretary of the Interior. The new contract covers the period July 1, 1957, to June 30, 1958, and is in the amount of $258,000.

The Director of the Bureau of Commercial Fisheries, who signed the contract for the Government, said the work is being done on behalf of the United States section of the International North Pacific Fisheries Commission created by the treaty of June 12, 1953, among the United States, Canada, and Japan.

The University has been working since 1955 on this project to develop basic information on the distribution and migratory pattern of North Pacific salmon.

The program, in addition to extensive ocean tagging of salmon, includes study of the scientific literature as to tags, tag methods, and analysis of results; improvement of tags, methods, and of fish handling; further development of techniques of distinguishing sex in live tagged fish; studying the distribution of both mature and

immature salmon; development of methods of catching fish for tagging, analyzin results, and preparing reports.

The contract covers staff, equipment, supplies, and the chartering of three vessels to handle the operation at sea. It also provides that inventions or disco eries of processes, devices, and methods conceived and developed as a result o the contract shall become the property of the Government.

Work under the contract will be handled through the regional office of the U Fish and Wildlife Service at Portland, Ore.

The award of 17 other contracts by the Service for special research, biolog investigations, and economic studies in the commercial fisheries field was anno recently. The 18 contracts involve a total of $840,600. (See pp. 40 and 41 of t issue.)

Saltonstall-Kennedy Act Fisheries Projects

FISHERY RESEARCH CONTRACTS AWARDED: Seventeen contracts for research, biological investigations, and economic studies have been awarded by the United States Fish and Wildlife Service early in June, the Secretary of the Interior announced on June 10, 1957.

The projects are part of the continuing programs conducted by the Service to assure a sustained supply of fish and to provide for better utilization of fish and fishery products. Money for these contracts was provided through the Saltonstall-Kennedy Act of 1954 which makes available a portion of foreign fisheries import duties to carry out research on means of strengthening the American fishing industry.

Secretary Seaton was advised by Ross L. Leffler, Assistant Secretary for Fish and Wildlife, that in some of the contracts, fishery biologists seek data which would help the Service guard against over-use of a resource. Other contracts would help the Service predict fluctuations in fish populations or perhaps eliminate or modify the fluctuations; three of the contracts deal with fishery economics and certain conditions which affect the systematic harvesting of a resource. Some contracts relate to the "atoms for peace" program by studying the use of radiation in fish preservation, while still others deal with chemical studies of fish oils which may result in new uses for those oils.

Species being studied biologically include salmon, king crab, blue crab, shrimp, and menhaden. The economic studies are being made on Pacific halibut, Maine fish and shellfish, and a third study is on the effect of price changes on several selected varieties of fish and shellfish.

There are four other contracts which relate specifically to the Alaska salmon fishery and one to Alaska's king crab. All salmon contracts are with the University of Washington and include tagging salmon in Cook Inlet and Prince William Sound, $45,000; tagging salmon off Prince of Wales Island, $35,000; observations of red salmon on the Kvichak River system, $56,700; cataloging streams in Southeastern Alaska, $15,000. The University of Southern California has the contract to study the king crab in the Cook Inlet area. This is a two-year project for $62,400.

The research contract with the Gulf Coast Research Laboratory of Ocean Springs, Miss., is for a three-year $100,000 project to determine whether the menhaden in the Gulf of Mexico are all of one race or of many races. Biologists consider this knowledge essential for any scien study of the resource, since fish of various races of t same species are apt to react differently to a given s conditions.

The ultimate objective of this menhaden study is to the biologists predict fluctuations in the menhaden su There is no apparent threat to the menhaden fishery, ogists say, but add that they prefer to make the neces studies while the fishery is in a healthy condition. In late 1800's menhaden was one of the best fisheries in New England area. Then it suddenly disappeared and not reappear in those waters until five years ago.

Tulane University of New Orleans has an $11,000 1 months contract to study the larvae and young of the m den, another phase of the work which will be used in m ment plans for the resource.

With Tulane also the Service has placed a contract $14,000 for a study of the anatomical differences betw the white and brown shrimp. Biologists believe that c scrutiny of the anatomy of the shrimp will give them able clues to the habits and life history of that shellfis

Among the contracts awarded on the use of radiatio the preservation of fish are those to Florida State Uni ty and Oregon State College. Florida State will have to study the effects of radiation on blue crab meat and gon State will have $13,000 for ionized radiation on P Coast shellfish and smoked fish.

The Fish and Wildlife Service has already devoted erable effort to studying the use of radiation for fish vation. It has projects under way at each of its five l tories and has additional contracts with Massachusett tute of Technology, Food Chemical Research Laborat and Maryland State College.

The present study is primarily a screening operati signed to select for possible initial commercial utiliz those of the nearly 200 edible species of fish that are adaptable to the proposed new processing methods. technique is high-level radiation, or "cold sterilizati which kills all bacteria; the other is low-level radiat radiopasteurization, which kills most of the bacteria.

There are three contracts with the University of Minnesota included in the group just awarded. These are: research on the use of derivatives from fish oil, $15,000; determination of the structure of the saturated and unsaturated acids of fish oil, $13,900; and the study of the chemistry of the odor problem in fish oil, $13,000.

A laboratory study of the blue crab will be made by the Oyster Institute of North America. This is a two-year project and will cost $80,000. The factors which affect survival of the larvae and young crabs will be studied. The effects of temperature, the changes in chemical composition of the water, and salinity will be considered. The findings will be related to natural conditions in an effort to learn whether or not there is some way by which the resource can be protected against the vagaries of nature, or by which these effects can be predicted.

One of the contracts dealing with fishery economics is with the University of Washington which will study the possible economic impact of Government fishing regulations and industry-imposed regulations upon the Pacific halibut fishery. Severe fluctuations of boatside prices in 1953 compared with the relatively stable boatside prices in 1956 will be the basis for the study. It is suspected that the 1953 price fluctuations were severely influenced by supplies coming to the docks faster, at times, than the halibut could be economically handled and directed into the channels of trade. During the 1956 season the halibut fishermen established a fleet rotation system which resulted in a steady flow of halibut into the various facilities, with a greater stabilization of the price structure. The Service is asking that all factors affecting both the stable and unstable price structures be documented. The cost will be $39,700 spread over a two-year project.

The interrelationships of biologic and economic forces upon fishery resources are being studied by the Department of Sea and Shore Fisheries of Maine. The study will seek, for example, to determine what effect price declines in one fishery have upon the harvest of the resources of another in that area. In addition, research will be made on the effects of a failure in a particular fishery resource upon the prosecution of other fishery resources. This is a $25,000 contract.

Rutgers University of New Jersey has been awarded a contract for $29,700 for a two-year economic study to determine the basic factors that affect demand and prices paid for principal species of fish and shellfish. Such information assists fishermen and fishery products distributors in making more informed decisions on how their products should be priced to effect the greatest amount of profitable sales. The study will include canned tuna; fresh, frozen and canned salmon; fresh and canned oysters; and fresh Atlantic blue crab.

School-Lunch Program

SCHOOL-LUNCH PROGRAM WORKSHOPS, SUMMER 1957: With the end of the school year, school-lunch personnel assembled in various localities to attend summer workshops.

Home economists and fishery marketing specialists of the Bureau of Commercial Fisheries attended these workshops and demonstrated to the school-lunch personnel how to prepare appetizing, economical, nutritious, and easy-to-prepare fish dishes. The recipes used in these demonstrations are developed in the Bureau's institutional test kitchen at College Park, Md. Special attention is given in developing these recipes to provide 2 ounces of cooked fish per serving so that they meet the Type-A School Lunch requirements.

The fish featured in these demonstrations must be plentiful, low in cost, and easy to prepare. Included are frozen fillets or fish portions--ocean perch, cod, or haddock; canned fish such as tuna, mackerel, and flaked fish; and precooked fish such as frozen fish sticks.

The Bureau scheduled 24 school-lunch demonstrations at the following summer workshops: June 11--Morris, Minn.; June 18--Waseca, Minn.; June 20--Columbus, Ohio; June 20--Pullman, Wash.; June 26--Farmville, Va.; July 9-12--Lubbock, Tex. (4 demonstrations); July 16-18--Stillwater, Okla. (3 demonstrations); July 23--Grand Rapids, Minn.; July 23-25--Stillwater, Okla. (3 demonstrations); August 5-7--Santa Fe, New Mex. (3 demonstrations); August 16--Seattle, Wash.; August 20-22--Kingsville, Tex. (3 demonstrations); August 27--South Bend, Ind.

Shrimp

ICE-HOLDING UNITS FOR VESSELS: One of the chief concerns of vessels shrimp trawling in the Campeche area of the Gulf of Mexico is the need for suffi ice and fuel capacity to allow the vessel to remain on the fishing grounds for a p longed period. The time consumed in steaming back to port to refuel and re-ice cuts heavily into the fishing time and results in a lower profit to the vessel owne and crew.

There have been many innovations applied to the Campeche shrimp vessels help solve this problem, such as insulated holds, freighting catches frequently, the borrowing of ice and fuel from other vessels that have completed a trip. How ever, there is one single adaptation that has proven to be a solution of the prob of sufficient ice for a long trip and has enabled the shrimp vessels to nearly doub their fishing time. This is the "Ice Holding Unit," which is not a freezer, but r er a single-unit refrigerator of $\frac{3}{4}$- to 1-ton capacity with six plates or series of in the hold. The cost of these units is very reasonable and will hold ice adequat for a 40-day trip.

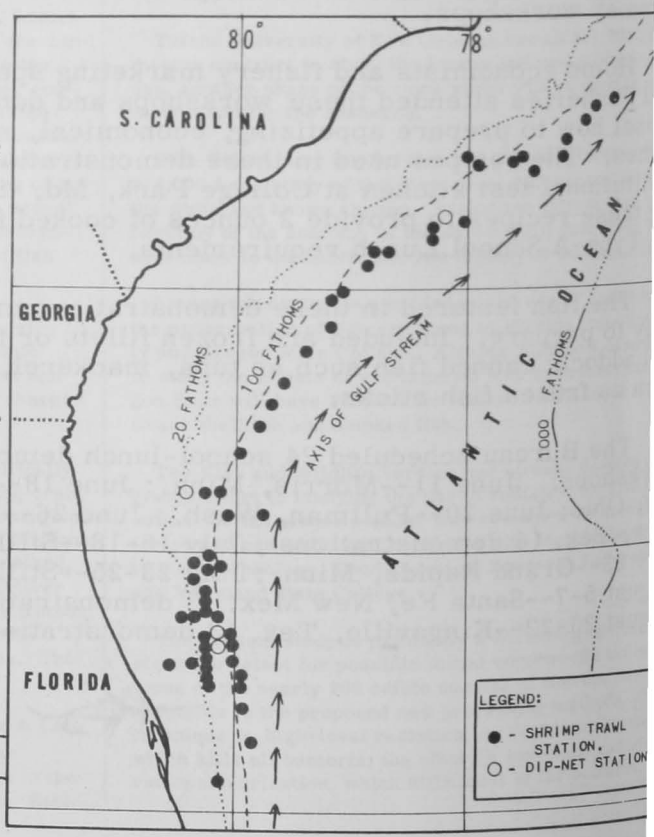
These units create a temperature cold enough to form a crust on top of the i and when this crust is broken the ice is found in the gravelly condition desired f icing shrimp.

Many shrimp vessel owners claim that the refrigerator units are necessary profitable shrimp fishing on distant grounds.

South Atlantic Exploratory Fishery Program

EXPLORATORY DEEP-WATER SHRIMP TRAWLING ALONG SOUTH ATLANTIC COAST (M/V Combat Cruise 9, April 18-June 4, 1957): The Atlantic Ocean offshore areas between Cape Fear, N. C., and Cape Canaveral, Fla., were surveyed by the Service's chartered vessel Combat for possible shrimp fishing grounds. Although the survey period extended from the latter part of April to the early part of June, most of the month of May was lost due to engine trouble.

During April, 33 drags were made southward from Cape Fear, N. C., to Cape Canaveral, Fla., in depths of 150 to 250 fathoms. North of Beaufort, S. C. (32° 22'N. latitude), catches contained small numbers of 40-60 count heads-on Penaeopsis megalops, but no royal-red shrimp, Hymenobeaeus



M/V COMBAT CRUISE (APRIL 18-JUNE 4, 1957

robustus. South of Beaufort to off the St. Johns River, Fla., small numbers of royal-red shrimp were caught in most drags. Bad trawling bottom was found throughout this area. The largest catch was made off Daytona Beach, Fla., in 210 fathoms where 75 pounds of mixed sizes were picked up in a 3-hour drag.

Ten drags were made in 175-225 fathoms between St. Augustine and Cape Canaveral, Fla., during May 29-31. Bad weather and strong currents greatly hampered fishing operations and catches were poor. It was learned that a commercial vessel had caught over 1,200 pounds (heads-off) of royal-red shrimp in a 24-hour period in this area the previous week.

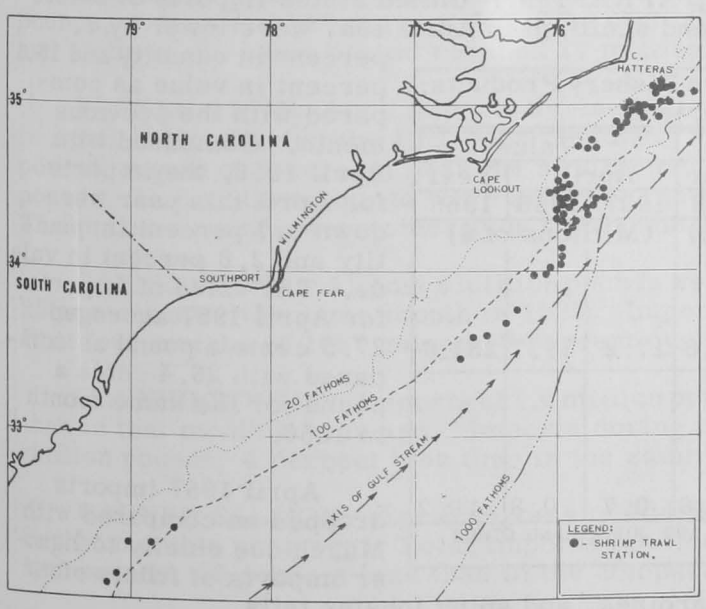
A total of 19 drags with a 40-foot flat trawl were made in 18-38 fathoms between Cape Canaveral and Jacksonville, Fla. (June 1-4) exploring for rock shrimp, Sicyonia brevirostris. Most catches contained small numbers. The best catch was 70 pounds of 35-count (heads-on) rock shrimp, in 32 fathoms off Flagler Beach, Fla. Night catches in 28-35 fathoms between New Smyrna and Flagler Beach, Fla., had about two pounds each of very large (10-15 count heads-on) pink shrimp (Penaeus duorarum).

Large numbers of small scallops (Pecten gibbus) were caught in most of the shallow drags. A 15-minute drag east of Canaveral picked up about $2\frac{1}{2}$ bushels.

Trolling captures offshore included one blackfin tuna, one little tuna, two king mackerel, and numerous dolphin.

* * * * *

CAROLINA COASTS SURVEYED FOR DEEP-WATER SHRIMP (M/V Combat Cruise 10, June 12-26, 1957): Deep-water trawling off the coasts of North and South Carolina yielded only small catches (up to 3 pounds of 25- to 40-count heads-off shrimp a drag) of royal red shrimp (Hymenopenaeus robustus).



M/V COMBAT CRUISE (JUNE 12-26, 1957).

Most of the work was carried out in the offings of Cape Lookout, S. C., to Cape Hatteras, N. C. where shrimp explorations had been requested by the North Carolina Fisheries Association. A total of 74 drags were made using 40-foot flat shrimp trawls--28 drags were made in depths of 170-225 fathoms, 14 in 50-100 fathoms, and 32 in 25-49 fathoms.

Deep-water dragging yielded very small catches of royal-red shrimp at 8 of the 28 stations. Varying quantities of 40-60 count heads-on Penaeopsis megalops were present in most drags. The best drag contained about 40 pounds (heads-on) from a depth of 200 fathoms. Many drags were interrupted due to signs of bad bottom on the depth recorders, and 6 trawls were lost or badly damaged.

Special effort to explore for shrimp in the 25-100-fathom area between Cape Lookout and Cape Hatteras was requested by the Association. Six transects involving 36 drags were made in this area. Small quantities (less than one pound) of

pink shrimp (Penaeus duorarum) were caught in two drags, in 25 and 40 fathom Varying numbers of rock shrimp (Sicyonia brevirostris) were caught in most of drags inside of 50 fathoms. The largest catch contained about 40 pounds (heads- Except for a few scattered red snapper and grouper, no other species of comme cial importance were caught.

On the return trip, 6 drags were made in 21-35 fathoms off the South Caroli coast. These drags yielded rock shrimp at rates of one to two pounds an hour.

Trolling captures during the trip included 2 white skipjack tuna, 1 wahoo, and 5 dolphin. The two skipjack were caught from a large school sighted off Cape Lookout

Tuna

TAGGED YELLOWFIN TRAVELS 900 MILES: The tuna-tagging program of California Department of Fish and Game once again has demonstrated that this f is one of the widest ranging species in the Pacific Ocean.

A yellowfin tagged March 8, 1957, off Acajutla, El Salvador, was caught tw months later off Manzanillo, Mexico, a movement of 900 miles.

Tuna tagged by the Department have been recovered by fishermen in mid-P cific ocean and as far west as the coastal waters of Japan.

U. S. Foreign Trade

EDIBLE FISHERY PRODUCTS, APRIL 1957: United States imports of edibl fresh, frozen, and processed fish and shellfish in April 1957 were lower by 7.7 percent in quantity and 1 percent in value as com pared with the previous month. Compared with April 1956, the imports for April this year were down 6.7 percent in qua tity and 2.8 percent in ue. The value of impor for April 1957 averaged 27.5 cents a pound as c pared with 26.4 cents a pound for the same mon in 1956.

United States Foreign Trade in Edible Fishery Products, April 1957 with Comparisons

Item	Quantity			Value		
	April		Year	April		Year
	1957	1956	1956	1957	1956	1956
	(Millions of Lbs.)			(Millions of $)		
Imports:						
Fish & shellfish:						
Fresh, frozen & processed[1/] . .	62.6	67.0	786.6	17.2	17.7	231.6
Exports:						
Fish & shellfish:						
Processed[1/] only (excluding fresh & frozen) .	3.2	3.8	82.8	0.7	0.8	19.2

1/ INCLUDES PASTES, SAUCES, CLAM CHOWDER AND JUICE, AND OTHER SPECIALTIES.

April 1957 imports dropped as compared w March due chiefly to lig er imports of fillets oth than groundfish, shrimp, canned sardines, and spiny lobster tails.

Exports of processed edible fish and shellfish in April 1957 decreased abou 59.5 percent in quantity from the previous month and were also 15.8 percent un April 1956. The April 1957 value of these exports was lower by 50.0 percent a compared with the previous month, and down 13.5 percent from the same month year ago.

From March to April 1957 there was a sharp drop in canned mackerel exports and substantial declines in the exports of canned sardines and canned salmon.

* * * * *

GROUNDFISH FILLET IMPORTS, JUNE 1957: During June 1957, imports of groundfish fillets (including ocean perch) and blocks amounted to 10.2 million pounds. Compared with the same month last year, this represented an increase of 2.6 million pounds or 35 percent. This gain was due primarily to a 1.7-million-pound increase in imports from Iceland. Canada, Norway, and the Netherlands showed a total increase of 1.1 million pounds, compared with those reported for the same month last year. There were smaller imports from Denmark, France, and West Germany.

Imports of groundfish and ocean perch fillets and blocks into the United States during the first six months of 1957 totaled 66.5 million pounds--an increase of only 12,000 pounds as compared with the corresponding period of 1956. Canada led all other countries exporting fillets to this country with 48.6 million pounds, followed by Iceland with 12.6 million pounds. These two countries supplied 92 percent of the total imports for the first six months of 1957. The remaining 8 percent was accounted for by Norway, Denmark, the United Kingdom, the Netherlands, France, West Germany, and Miquelon and St. Pierre.

NOTE: SEE CHART 7 IN THIS ISSUE.

* * * * *

IMPORTS AND EXPORTS OF SELECTED FISHERY PRODUCTS, APRIL 1957: Imports: GROUNDFISH: Fillet imports of 7.3 million pounds during April 1957 were 31 percent less than in that month of 1956. Imports of fillet blocks and slabs in April totaled 5 million pounds, 75 percent more than in the same month a year ago.

Groundfish fillet imports during the first four months of 1957 totaled 30 million pounds, a decline of 17 percent from the similar period of 1956. Imports of blocks and slabs in the same period reached 17 million pounds, an increase of 43 percent.

FROZEN TUNA: April imports totaled 12.1 million pounds, 2 percent more than in April 1956. During the first four months of 1957, 49 million pounds were imported, a gain of 8 percent over the similar period of a year ago. Of the 49 million pounds, 21.5 million pounds were albacore (43 percent more than a year ago) and 27.3 million pounds were other tuna (9 percent less than a year ago).

CANNED TUNA: Almost 4 million pounds were imported during April, a gain of 25 percent over the same month of 1956. Imports of 12.4 million pounds during the first four months of 1957 gained 17 percent over the same period in 1956.

CANNED BONITO: Imports of 1.4 million pounds in April were 18 percent greater than in that month a year ago. Imports during the first 4 months of 1957 totaled 5.4 million pounds, 4 percent less than in the same period last year.

CANNED SALMON: April imports of 704,000 pounds were 79 percent less than in that month a year ago. Total imports for this year through April totaled 6.9 million pounds, 29 percent less than in the comparable period of 1956.

CANNED SARDINES: April imports of 1.1 million pounds were 24 percent less than in April 1956. Total imports for this year through April of 6.9 million pounds were 3 percent greater than for the first four months last year.

SWORDFISH: April imports of 1.1 million pounds were 19 percent less than in the same month a year ago. Total imports during the first four months of this year were 8 percent less than in 1956 through April.

SHRIMP: The 4.5 million pounds imported in April this year were 40 percer greater than in April 1956. Imports for the first four months of 1957 of almost 2 million pounds were down 13 percent from the comparable period of 1956.

LOBSTERS: April imports of 2.7 million pounds were 18 percent less than i April a year ago. Imports during the first four months of 1957 were 12 percent greater than in that period of 1956.

CANNED CRABMEAT: Imports totaled 530,000 pounds this April, a gain of percent over that month of 1956. Total imports during the first four months of t year of 1.6 million pounds were 5 percent less than during that period of 1956.

FISH MEAL: Imports of 9,480 tons during April were 25 percent less than i April 1956. Imports during the first four months of 1957 of 32,111 tons were 20 percent less than in the same period of the previous year.

Exports: CANNED SARDINES: April exports of 873,000 pounds were 38 per cent less than during April 1956. Exports of 7.3 million pounds during the first four months of 1957 were 62 percent less than during that 1956 period.

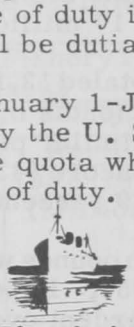
CANNED MACKEREL: April exports totaled 582,000 pounds, a sharp declir compared with the 4.3 million pounds exported during March of this year. Expo during the first four months of 1957 totaled almost 10 million pounds.

FISH OILS: Exports of 13.4 million pounds in April this year were almost three times greater than in April 1956. Total exports during the first four mont of 1957 of 48.7 million pounds were 17 percent greater than during the same peri of 1956.

* * * * *

TUNA CANNED IN BRINE IMPORTS UNDER QUOTA PROVISO: The quantit tuna canned in brine which may be imported into the United States during the cal dar year 1957 at the $12\frac{1}{2}$-percent rate of duty is limited to 44,528,533 pounds. A imports in excess of that quantity will be dutiable at 25 percent ad valorem.

Imports under the quota from January 1-June 1, 1957, amounted to 15,667,(pounds, according to data compiled by the U. S. Bureau of Customs. This leave a balance of 28,861,435 pounds of the quota which may be imported during the ba lance of 1957 at the $12\frac{1}{2}$-percent rate of duty.



Virginia

OYSTER LOSSES THIS SUMMER PREDICTED BY BIOLOGISTS: Planters m experience above-normal oyster deaths this summer in Virginia if the present w er conditions continue, say biologists at the Virginia Fisheries Laboratory at Glou ter Point. The biologists have found that the death rate of oysters rises sharply summer. Careful studies in the past six years have shown that when the warm s mer period is unusually long, especially when it follows a mild winter, the mort ity is greater than usual. Most of these summer deaths are caused by a fungus, Dermocystidium, which attacks oysters in warm weather. The fungus is not har to man.

These findings are extremely important for Virginia's oyster planters. The normal death rate is about 25 to 30 percent a year, but in some summers as ma as 50 percent may die. Such a year was 1954, when a long hot summer followed

relatively warm winter. Much of the blame for the poor oyster harvests of 1954/55 and 1955/56 must be placed on these warm-weather deaths, say the biologists.

The cold winter of 1955/56 and mild summer of 1956, on the other hand, reduced the oyster death rate to the lowest on record. In 1956 less than 20 percent of oysters in the Chesapeake Bay area died, and this was an important factor in the improved yields of the past oyster season in Virginia.

The hot weather of May and June this year brought water temperatures to the highest levels yet observed so early in the season by the Laboratory staff. Last winter, though it included an unusual cold snap in January, was warmer than average. Summer deaths of oysters began 2 to 3 weeks early following this unusual warmth. Serious losses can be expected if temperatures continue higher than normal and particularly if the warm season persists into the early fall.

Planters who harvested all their marketable oyster crops last winter and spring are fortunate, for they probably would fare much worse if they had left their oysters on the grounds for another season. The effects of newly-planted seed are not severe, the biologists say, for they have found that seed from the James River escapes most of the hot-weather mortality in its first summer on planted ground in the Bay.

* * * * *

UPPER RAPPAHANNOCK RIVER HAS ADVANTAGES FOR OYSTER PLANTING: Unseasonably hot summer weather following a warm winter may cause unduly high oyster losses on planted grounds, according to a recent release from the Virginia Fisheries Laboratory at Gloucester Point.

These losses may be expected only on grounds where the water is fairly salty, such as Hampton Roads, the York River, the lower Rappahannock, and Chesapeake Bay itself.

Six years of study of oyster mortality at the State Laboratory have shown that in fresher waters, such as the James River seed areas, the upper Rappahannock, and most of the Maryland waters of the Bay, oyster deaths are not usually hastened significantly by warm weather. This is explained by the absence of the fungus Dermocystidium which attacks oysters in salty waters.

The Rappahannock River is subject to occasional mortality from another cause, however, which brought about the catastrophes of 1949 and 1955. When extremely heavy rains increase the runoff in the River in hot weather, the supply of dissolved oxygen is quickly used up. The oysters may smother, or may be killed by toxic substances formed by bacteria in the absence of oxygen.

Because hot weather deaths are usually low and screwborers are absent in the upper Rappahannock, the yield on planted grounds is usually better than in most other planting areas. But the catastrophic mortalities that occur occasionally from other natural causes create much hardship because they are sudden and unpredictable. These are the hazards that oystermen must face.

Wholesale Prices, June 1957

The change in the over-all edible fish and shellfish (fresh, frozen, and canned) wholesale price index (117.2 percent of the 1947-49 average) from May to June 1957 was less than one percent. But the June 1957 index was 6.8 percent higher than the same month in 1956.

From May to June, higher prices for three fresh-water varieties and Pacific Coast Halibut (due primarily to a change from frozen to fresh halibut prices) more than offset a slight decline in Pacific Coast salmon and drawn haddock prices and a more substantial decline (6.7 percent) in Lake Superior drawn whitefish prices. The June 1957 index for the drawn, dressed, or whole finfish subgroup went up 3.1 percent over May. Compared with the same month a year ago, the June subgroup index was higher by 4.6 percent. Fresh halibut and salmon prices were lower this June as compared with June 1956, but increases of 3.5 to 35.9 percent in the other five items more than offset these declines. The shortage of good quality Great Lakes whitefish, yellow pike, and lake trout this year as compared with last were reflected in the high prices which prevailed this June.

Fresh processed fish and shellfish prices in June were down slightly (1.8 percent) from the previous month because of a drop of about 6.2 percent in fresh haddock fillet prices at Boston and a 2.6 percent drop in fresh shrimp prices at New Uork City. All fresh processed fish and shellfish items in this subgroup were higher (up 10.1 percent) in June this year th the same month a year ago.

There was very little change (down 0.6 percent) in the sale prices for the frozen processed fish and shellfish f May to June. Frozen haddock and ocean perch fillets at ton were lower by one cent a pound in June as compared May. However, this subgroup index this June was highe 16.1 percent than for the same month in 1956 principally cause frozen shrimp prices at Chicago were almost 26 p cent higher this June than in the same month of 1956.

Canned fishery products in June remained at the same as prevailed the preceding May and April. But this subg index was 2.5 percent higher than in the same month of because of higher prices for canned light meat tuna (up percent) and California sardines (up 20 percent). On the hand Maine sardine prices were lower by 6.2 percent th as compared with June a year ago because this year's pa through June was larger. The packing seasons for Main dines and Pacific salmon were gaining momentum as Ju ended, but packs were still too light to indicate the seas price trend. Canned tuna packed from domestic-caught was falling behind a year ago, but heavy inventories of c white meat tuna, plus continuing pressure from both imp canned white meat and frozen tuna keeps the market for types of canned tuna just about steady.

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, June 1957 with Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ ($) June 1957	Avg. Prices 1/ ($) May 1957	Indexes (1947-49=100) June 1957	Indexes (1947-49=100) May 1957	Indexes (1947-49=100) Apr. 1957	J 19
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					117.2	117.0	2/119.4	10
Fresh & Frozen Fishery Products:					128.5	128.2	2/132.2	11
Drawn, Dressed, or Whole Finfish:					111.2	107.9	2/120.0	10
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.08	.08	76.5	77.4	110.0	5
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.33	.29	100.6	89.0	92.3	10
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.62	.65	139.3	145.2	134.8	14
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.67	.67	154.9	166.1	2/229.3	13
Whitefish, L. Erie pound or gill net, rnd., fresh	New York	lb.	.88	.80	176.9	161.8	227.5	12
Lake trout, domestic, No. 1, drawn, fresh	Chicago	lb.	.60	.52	121.9	106.5	163.9	11
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.44	.35	102.0	82.1	75.0	7
Processed, Fresh (Fish & Shellfish):					140.6	143.2	140.4	12
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.30	.32	102.1	108.9	120.8	8
Shrimp, lge. (26-30 count), headless, fresh	New York	lb.	.94	.96	147.8	151.7	143.8	12
Oysters, shucked, standards	Norfolk	gal.	5.75	5.75	142.3	142.3	142.3	13
Processed, Frozen (Fish & Shellfish):					130.1	130.9	130.9	11
Fillets: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.40	.40	103.4	103.4	103.4	10
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.29	.30	91.0	92.6	92.6	8
Ocean perch, skins on, 1-lb. pkg.	Boston	lb.	.28	.29	112.8	114.8	114.8	11
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	lb.	.95	2/.95	145.8	145.8	145.8	11
Canned Fishery Products:					101.2	101.2	101.2	9
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	22.65	22.65	120.0	120.0	120.0	12
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	11.20	11.20	80.8	80.8	80.8	7
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 48 cans/cs.	Los Angeles	cs.	9.00	9.00	105.0	105.0	105.0	8
Sardines, Maine, keyless oil, No. 1/4 drawn (3-1/4 oz.), 100 cans/cs.	New York	cs.	7.70	7.70	81.9	81.9	81.9	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.