

TRENDS AND DEVELOPMENTS

Additions to the U. S. Fleet of Fishing Vessels

First documents as fishing craft were issued to 50 vessels of 5 net tons and over during August 1955, according to the U. S. Bureau of Customs. This was an increase of 8 vessels (19 percent), compared with the 42 fishing craft documented for the first time during the corresponding month of 1954.

All areas, with the exception of the Gulf and Chesapeake areas, showed increases in newly-documented vessels. The New England, Middle Atlantic, and Great Lakes areas each had additions of 1 or 2 vessels to their fishing fleets during August of this year, compared with none during the corresponding month of 1954. The Chesapeake area had 5 newly-documented vessels--the same as reported for August 1954. The Pacific and Alaskan areas each had 3 more vessels during August 1955 than during the same month of last year, while the South Atlantic area showed a gain of only 1 vessel. The Gulf area had 14 newly-documented vessels during August--a drop of 18 percent as compared with the 17 additions reported for August 1954.

Section	August		Jan.-Aug.		Total 1954
	1955	1954	1955	1954	
(Number)					
New England	1	-	16	21	23
Middle Atlantic	2	-	11	13	15
Chesapeake	5	5	32	67	93
South Atlantic	7	6	47	83	119
Gulf	14	17	69	272	313
Pacific	15	12	101	88	117
Great Lakes	1	-	6	3	6
Alaska	5	2	30	22	27
Hawaii	-	-	2	1	1
Puerto Rico	-	-	-	-	2
Unknown	-	-	-	1	1
Total	50	42	314	571	717

Note: Vessels have been assigned to the various areas on the basis of registered home ports.

During the eight-month period ending with August 1955, a total of 314 vessels were documented for the first time as fishing craft, compared with 571 for the corresponding period of last year--a decrease of 45 percent.



American Samoa

TUNA CANNERY EXPANSION: The facilities of the tuna cannery at Pago Pago, American Samoa, and tuna fishing are to be expanded, reports the August 1955 Pacific Islands Monthly. This was the result of a visit from an official of the United States company operating the American Samoa cannery and tuna-fishing operation.

The ice-making and fish-storing capacity will be greatly expanded with the arrival of the Japanese freezer mothership Saipan Maru, which will also be able to store all swordfish, sharks, and shark-bitten tuna previously wasted for lack of storage. Except for a small quantity used on the local market, most of these will now go to Japan.

In the cannery three modern packing lines are being set up to replace the present two out-dated lines. New canning equipment is being installed, and the fish dock improved and extended. An additional fishing vessel, the Kaiko Maru No. 13, has arrived. She is somewhat larger than the others--352 gross tons. She landed 47 tons of fish as her first trip in June 1955.

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JAPANESE FISHING OPERATION CATCHES LESS TUNA THAN PLANNED:

The Japanese fishing company operating off American Samoa with the mothership Saipan Maru, completed early in September its first 3 months under a 6-months' contract to the tuna cannery located in that Island. During the first half of the scheduled operation there was difficulty in locating the fishing grounds because of unfamiliarity with the waters, and the catch of 2,895 metric tons was less than planned. However, recently the fishermen have at last learned the grounds and the catch has picked up to about 3.25 tons a day per vessel. There are thus some prospects that the plan will be fulfilled in the latter half of the operation, reports the September 5 issue of Nippon Suisan Shimibun.

Whether or not the contract will be renewed was scheduled to be decided in discussions to be held when the president of the United States firm operating the American Samoa tuna cannery visited Japan in September.



California

ALBACORE TUNA MAY MAKE ROUND TRIP ACROSS PACIFIC: The albacore tuna, which suddenly appears off the Southern California coast in mid-July and disappears again in September, may be making a round trip across the Pacific Ocean during the period it is gone from California shores.

This possibility came to light recently with the recovery off California of an albacore tagged by California's Department of Fish and Game in almost the same spot 11½ months before, according to an October 21 news release from that agency.

Previously four California-tagged albacore had been recovered by Japanese fishermen--two off Japan and two in mid-Pacific. One of these fish had been tagged at the same time and place as the one just recovered off California, and had been at sea six months--just half the time it took the California recovery to get back to the original tagging spot.

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SARDINE, MACKEREL, AND ANCHOVY ABUNDANCE ASSESSED AND YELLOWTAIL TAGGED BY "YELLOWFIN" (Cruise 55-Y-7): This cruise of the California Department of Fish and Game's research vessel Yellowfin was made to assess the relative abundance of sardines, Pacific mackerel, jack mackerel, and anchovies in Northern Baja California waters, and to tag and release yellowtail. The coast of Baja California from Point San Eugenia to the California-Mexico border and the area around Cedros Island, Mexico, was surveyed. The Yellowfin departed from Los Angeles September 6 and returned September 25.

During the cruise 64 light stations were occupied and sets with the blanket net yielded 12 samples of sardines, 15 of Pacific mackerel, 2 of jack mackerel, and 8 of Northern anchovies. Of the 12 sardine samples taken, 8 contained fish of less than 125 mm. standard length (5¾ inch total length) and most probably spawned during the 1955 spawning season. These were found between Cedros Island and Cape

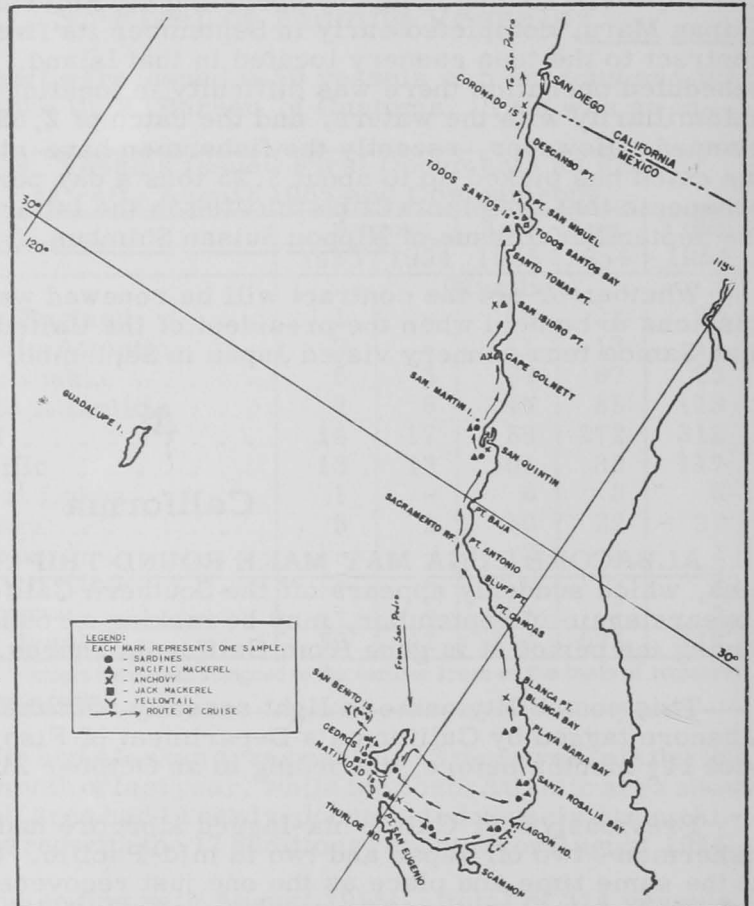
Colnett which includes the total range over which sardines of all sizes were taken. The smallest sardines collected (25 mm. standard length, 1 inch total length) were taken from the stomachs of Pacific mackerel at San Quintin Bay. Although nowhere very abundant, sardines were most frequently encountered in Sebastian Viscaïno Bay and at Cedros Island. Throughout the area the sardine abundance was about the same as in 1954.

Pacific mackerel, the most abundant species in the area surveyed, were sampled from Sebastian Viscaïno Bay in the south to Point San Miguel in the north. Out of the 15 Pacific mackerel samples, 12 contained young fish of either the 1954 or 1955 year-classes. Northern anchovies were taken throughout the range of the survey and the two samples of jack mackerel were taken at approximately the northern and southern limits of the cruise.

Yellowtail were encountered at only two stations and 37 hook-and-line fish were marked and released at West San Benito Island, and six troll-caught fish were marked and released around the southern part of Cedros Island. A juvenile yellowtail (3¼-inch in length) was dipped from the bait tank during the course of fishing activities. Exact position of its capture is unknown but a check of baiting stations indicated it must have come from the southern area of Cedros Island.

The Yellowfin traveled a total of 546 miles scouting for fish schools--194 schools were observed, of which it was estimated that 15 contained sardines, 78 mackerel, 19 anchovies, 3 squid, 58 sauries, and 21 unknown species. Scouting and sampling were considerably hampered by strong winds and rough water between Point Canoas and San Quintin Bay, but weather conditions were favorable throughout the rest of the area surveyed.

Surface temperatures, bathythermograph casts, and reversing thermometer casts were taken at each station regardless of whether fish were observed or collected in the net. Surface temperatures throughout the cruise ranged from a minimum of 13.8° C. (56.8° F.) at Point Santo Tomas to a maximum of 24.1° C. (75.4° F.) at Lagoon Head, Sebastian Viscaïno Bay. Sardines were sampled where surface temperatures ranged from 14.3° C. (57.7° F.) to 23.6° C. (74.5° F.).



Cruise 55-Y-7 of M/V Yellowfin.

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LARGE NUMBER OF YELLOWTAIL TAGGED BY "STELLA MARIS" (Cruise 55-C-5): The commercial purse seiner Stella Maris tagged 10,005 yellowtail (Seriola dorsalis) during a 21-day cruise that ended September 27, 1955. The tagging operations were conducted in the vicinity of the St. Benito and Cedros Islands off the

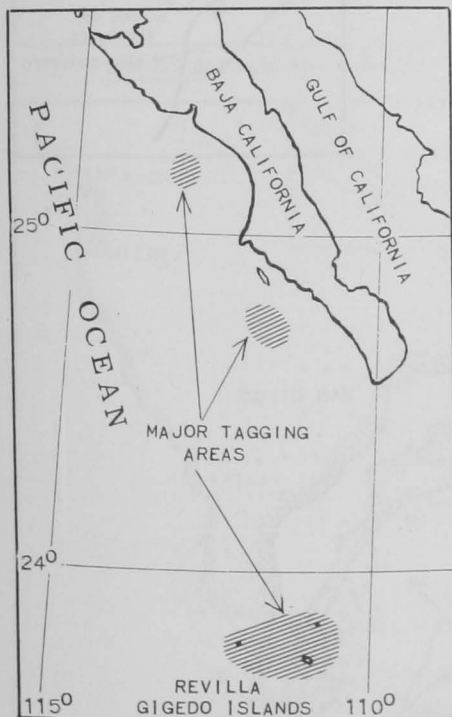
coast of Baja California. In addition to the yellowtail, 50 bluefin tuna (31.5 inches or more in length) were tagged. The Stella Maris was under charter to the California Department of Fish and Game.

The net was set 13 times with six of the hauls providing the fish for tagging. The total number of yellowtail tagged is almost twice as many as had been previously tagged. Twelve of the sets were made in the daytime but the one made at night was the most successful. Following the large set made at night, the scientists and crew of the vessel worked 20 hours to tag 5,730 fish. In a fine spirit of cooperation, the owners and crew of the purse seiner American Venture (fishing nearby) volunteered their services.

A number of the yellowtail were anesthetized in chlorobutanol solution before being tagged. These drugged fish were given an hour or more to recover in a separate section of the net before being turned loose. These fish were infinitely easier to handle and they appeared to be fully recovered when released.

Samples of 25 yellowtail each were saved from the tops of three hauls, before tagging operations started. The body cavities were injected with formalin and the fish were frozen whole to be brought back to the laboratory for later study.

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Tuna-tagging Cruise 55-C-4 of the M/V Southern Pacific.

TUNA TAGGED OFF WEST COAST OF MEXICO BY "SOUTHERN PACIFIC" (Cruise 55-C-4):
The capture and tagging of yellowfin, skipjack, and big-eyed tuna, the collection of specimens, and some limited hydrographic observations were accomplished by the commercial tuna clipper Southern Pacific on a 30-day cruise. The vessel, which operated in waters off Baja California and the Revilla Gigedo Islands, returned to San Diego on September 27. The tagging and collection of the data was performed by employees of the California Department of Fish and Game.

During the cruise a total of 642 yellowfin and skipjack tuna were tagged with type "G" tags and released by area and species as follows.

	<u>Yellowfin</u>	<u>Skipjack</u>	<u>Total</u>
Baja California	383	165	548
Revilla Gigedo Islands	93	1	94
Totals	476	166	642

Due to rough seas only two night-light stations were possible. Most of the fish specimens collected were from bait-net hauls.

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SURVEY OF SARDINE AND ANCHOVY SCHOOLS BY AIR CONTINUED (Airplane Spotting Flight 55-12):

Aerial surveys were made by the California Department of Fish and Game plane of the inshore area between Santa Cruz in Central California to the Mexican border and the offshore area around Santa Catalina and Santa Cruz Islands. Flights of about four hours per day were made daily September 29-October 6, 1955. The purpose was to determine the distribution and abundance of the Pacific sardine and northern anchovy in California waters.

The aerial observations were hampered by coastal fog and on several days only a very limited area could be covered. In general, the abundance of anchovies

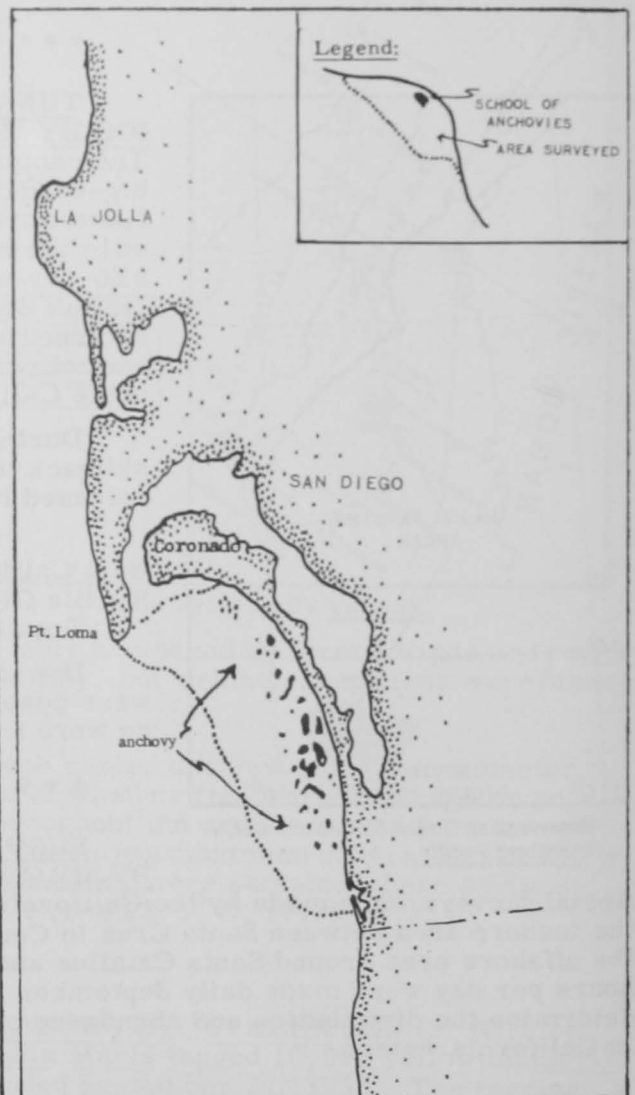
was less in Southern California during this survey than during the survey conducted in July 1955. Sardines were present in much greater numbers than in July and were distributed in two areas--in the area between Pt. Dume and Santa Barbara and in the area between Newport and Oceanside.

Identification of schools observed was checked by interviewing commercial spotters and fishermen fishing in the areas covered by the survey. The following is a summary of the results of the survey by species.

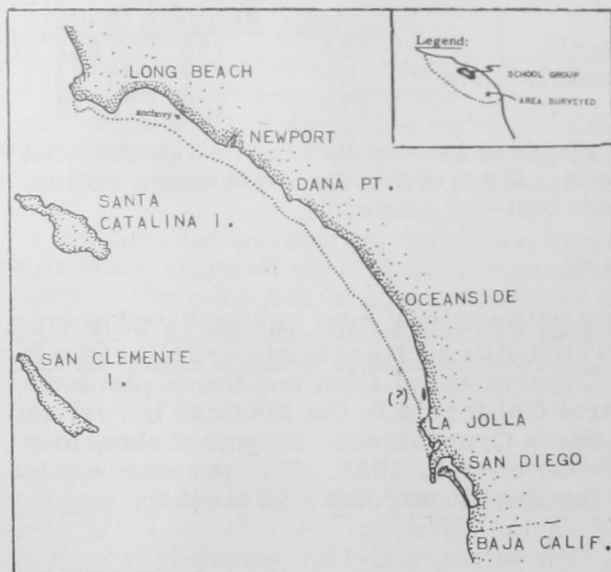


Beechcraft Flight 55-12, September 29, 1955.

Anchovy: Six school groups of anchovies were located in the area surveyed. The school group in Monterey Bay extended from Santa Cruz to Seaside and all schools were sighted within $\frac{3}{4}$ of a mile of the shoreline. Approximately 85 schools were sighted with the greatest concentration at the northern end of the bay near Capitola. Evidence obtained from bait and commercial fishermen indicated that most of the fish seen near



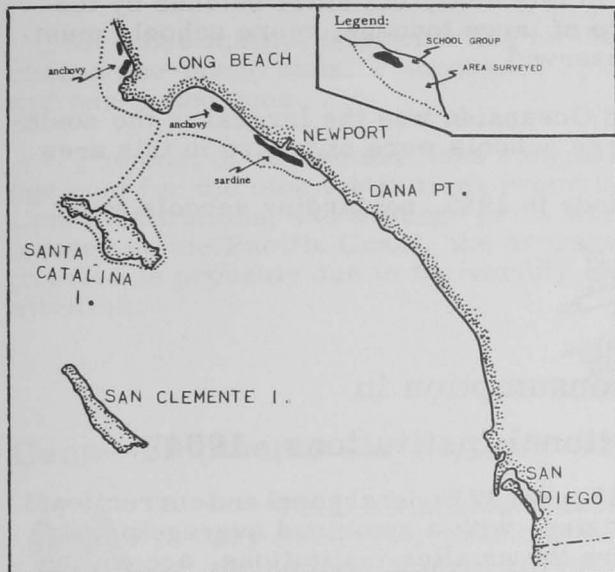
Beechcraft Flight 55-12, October 2, 1955.



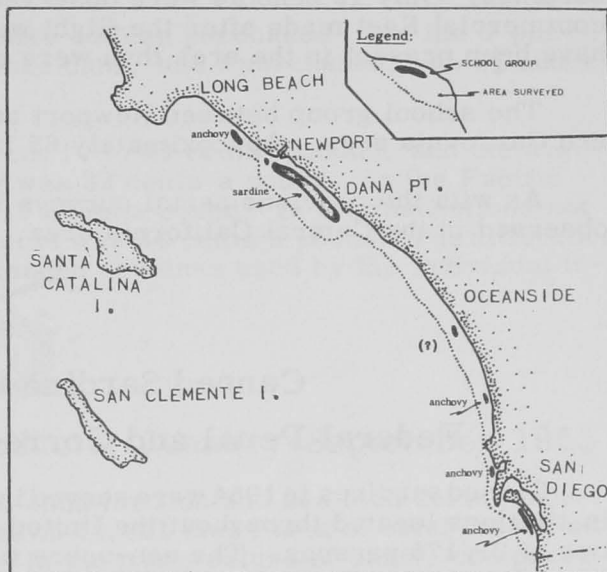
Beechcraft Flight 55-12, October 1, 1955.

Capitola were small 1955 year-class anchovies, whereas the schools near Fort Ord and Seaside were of larger 1954 year-class and older anchovies.

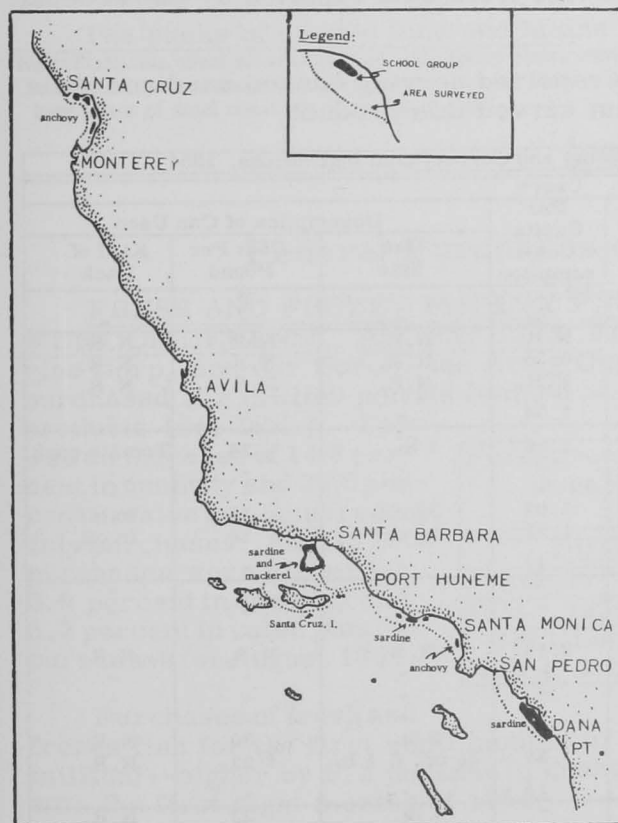
A small school group of anchovies was observed along the beach between Avila and Pismo Beach. Eight large schools were observed in this area.



Beechcraft Flight 55-12, October 4, 1955.



Beechcraft Flight 55-12, October 5, 1955.



Beechcraft Flight 55-12, October 6, 1955.

The school group off Port Hueneme and Ventura consisted of scattered schools and were fewer in numbers than during the previous flight in July, 1955. Foggy weather hampered accurate observation in this area.

The large mass of anchovies observed in Santa Monica Bay in July had apparently spread out or migrated from the area, as only a few very small schools of young anchovies were sighted in this area during this flight.

The large school group off Huntington Beach observed in July was still present, but in much smaller numbers. Anchovies were found northward from Newport toward the Long Beach breakwater and were also found to extend southward into the area occupied by a school group of sardines between Newport and Dana Pt.

The school group off Coronado strand was quite extensive and at least 48 large thin schools of 1955 year-class anchovies were present in this area.

Sardine: Three school groups of sardines were observed in California waters. The large school group of sardines in the channel between Santa Barbara and Santa

Cruz Island consisted partly of Pacific mackerel. The extent of this school group was not determined due to fog conditions and to lack of flying time and an adequate estimate of abundance could not be made.

The school group from Pt. Dume to Malibu was of scattered pure schools of sardines. Only 12 schools were observed in this area, but since catches by the commercial fleet made after the flight were of large tonnage, more schools must have been present in the area than were observed.

The school group between Newport and Oceanside was the largest in the southern California area. Approximately 65 large schools were observed in this area.

As with the previous aerial surveys made in 1955, no sardine schools were observed in the Central California area.



Canned Sardine Consumption in Federal Penal and Correctional Institutions, 1954

Canned sardines in 1954 were served in 13 out of 27 Federal penal and correctional institutions located throughout the United States, with a combined average population of 21,175 persons. The non-users were the smaller institutions, accounting for only one-third of the population interned in the institutions, according to a survey made by the U. S. Fish and Wildlife Service from data supplied by the Federal Bureau of Persons.

Relatively few institutions in the South reported serving canned sardines while all the institutions in the Northeast and West served this product.

Canned Sardine Consumption in 27 Federal Penal and Correctional Institutions, 1954									
Area and State	Non-Users		Users				Description of Can Used		
	No. of Inst.	Avg. Pop. of Inst.	No. of Inst.	Avg. Pop. of Inst.	Annual Consumption	Per Capita Consumption	Can Size	Cost Per Pound	Kind of Pack
	(Pounds)								
NORTHEAST	-	-	3	2,000	1/	1/	-	¢	-
Connecticut . . .	-	-	1	500	N.R.	N.R.	N.R.	N.R.	N.R.
New York	-	-	1	200	150	0.75	N.R.	N.R.	N.R.
Pennsylvania . .	-	-	1	1,300	N.R.	N.R.	N.R.	N.R.	N.R.
NORTH CENTRAL	2	1,975	3	5,025	8,754	1.74	-	-	-
Ohio	-	-	1	1,250	2,356	1.88	1 lb.	24	Tomato pack
Michigan	1	650	-	-	-	-	-	-	-
Indiana	1	1,325	-	-	-	-	-	-	-
Missouri	-	-	1	1,100	1,117	1.02	3¼ oz.	35	In oil
Kansas	-	-	1	2,675	5,281	1.97	3¼ oz.	39	In oil
SOUTH	9	4,090	4	4,890	1/	1/	-	-	-
Washington, D.C.	1	460	-	-	-	-	-	-	-
West Virginia .	2	890	-	-	-	-	-	-	-
Virginia	2	875	-	-	-	-	-	-	-
Georgia	-	-	1	2,600	5,535	2.13	N.R.	N.R.	N.R.
Florida	1	600	-	-	-	-	-	-	-
Kentucky	1	525	-	-	-	-	-	-	-
Alabama	1	240	-	-	-	-	-	-	-
Oklahoma	-	-	1	1,100	N.R.	-	1 lb.	30	N.R.
Texas	1	500	2	1,190	415	.35	3¼ oz. & 1 lb.	2/22	N.R.
WEST	2	775	4	2,420	1/	1/	-	-	-
Colorado	-	-	1	400	N.R.	-	1 lb.	23	N.R.
Arizona	1	275	1	300	1,100	3.67	N.R.	34	N.R.
Washington . . .	-	-	1	1,400	1,400	1.00	1 lb.	17	N.R.
California	1	500	1	320	192	0.60	1 lb.	17	N.R.
Total	13	6,840	14	14,335	1/	1/	-	-	-

1/ Data not available.

2/ One of the institutions did not specify cost for the 3¼ ounce can.

N.R. - Not reported.

The average annual consumption of canned sardines for 9 of the institutions reporting was 1.59 pounds per inmate.

Of the institutions reporting, canned sardine consumption was highest in Arizona, 3.67 pounds per inmate.

Of those institutions reporting on the size of can purchased 5 of the 8 purchased one-pound cans, 2 purchased 3 $\frac{1}{4}$ -ounce cans, and 1 purchased, both 3 $\frac{1}{4}$ -ounce and one-pound cans.

The cost of canned sardines ranged from 17 to 39 cents a pound, and the average cost for the nine institutions reporting was 32 cents a pound. In the Pacific Coast institutions, the average price was 17 cents a pound. In the institutions not located on the Pacific Coast, the average cost was 34 cents a pound. The difference in price is probably due to the variety of canned sardines used by the individual institution.



Cans--Shipments for Fishery Products, January-September 1955



Total shipments of metal cans for fish and sea food during January-September 1955 amounted to 74,851 short tons of steel (based on the amount of steel consumed in the manufacture of cans), compared to 80,651 short tons for the same period last year.

The packs of canned tuna and Maine sardines continue to be below normal.

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

FRESH AND FROZEN FISHERY PRODUCTS PURCHASED BY THE DEPARTMENT OF DEFENSE, AUGUST 1955: For the use of the U. S. Army, Navy, Marine Corp, and Air Force, the Army Quartermaster Corps during August 1955 purchased 2.3 million pounds (valued at \$1.0 million) of fresh and frozen fishery products (see table). This was an increase of 14.8 percent in quantity and 26.6 percent in value as compared to July purchases. August 1955 purchases were higher by 3.9 percent in quantity and 5.3 percent in value than the purchases for August 1954.

QUANTITY				VALUE			
August		Jan. -Aug.		August		Jan. -Aug.	
1955	1954	1955	1954	1955	1954	1955	1954
. (Millions of Pounds) .				. (Millions of Dollars) .			
2.3	2.2	17.5	16.1	1.0	1.0	7.5	6.7

Purchases of fresh and frozen fish for the first eight months in 1955 totaled 17.5 million pounds (value \$7.5 million)--higher by 8.2 percent in quantity and 11.0 percent in value as compared with the first eight months of 1954.

Prices paid for these fishery products by the Department of Defense in August 1955 averaged 44.3 cents per pound as compared with 40.2 cents in July and 43.8 cents in August 1954.

In addition to the purchases of fishery products indicated above, the Armed Forces generally make some local purchases which are not included in the table on the preceding page.



Fish Sticks Leading Frozen Specialty Handled by Major Wholesalers

Fish sticks were reported as being handled in 1955 by over 98 percent of the major wholesale distributors surveyed, according to the trade publication Quick Frozen Foods. Only 92 percent of the same distributors reported handling fish sticks in 1954. French-fried potatoes, which were the leading specialty in 1954, dropped to second place in 1955 and were handled by 95 percent of the distributors.

Breaded shrimp was sold by 91 percent of these outlets in 1955, a small decline from 94 percent in 1954.

Precooked seafoods rose in popularity. Stocked by 65 percent of the distributors in 1954, the survey indicates they were handled by nearly 85 percent in 1955.

Distributors were asked which specialties in frozen-food items were their "best sellers." French fries and pot pies were the number one and two "best sellers" with fish sticks and breaded shrimp in third and fourth place. Fish sticks were reported as being the number one best seller by 19 percent of the dealers; 22 percent reported them as the second best seller; and 36 percent reported them in third place. Breaded shrimp was reported by 7 percent of the distributors as the number one best seller.

Competition is becoming keener in the specialty frozen-food field. The distributors reported that their average mark-up had declined during the past two years from 19 percent to around 17 percent.



Fur-Seal Skin Prices Up Slightly at Fall Auction

Government-owned fur-seal skins registered a small advance (averaging 3.4 percent) at the semiannual fur auction held in St. Louis, Mo., on October 10, the Secretary of the Interior announced on October 12.

The sale was well attended by both United States and Canadian buyers. Bidding was rapid and orderly.

The grand average for all skins sold for the account of the United States Government was \$94.14. At the April 1955 sale the grand average was \$92.81.

A total of 24,610 skins, products of the sealing industry administered by the Department's Fish and Wildlife Service on the Pribilof Islands of Alaska, brought \$2,316,735. This compares with 24,746 skins sold for \$2,296,757 at the April auction, and 26,590 skins sold for \$2,045,326 at the October 1954 auction.

Of the Alaska skins, 15,152 were dyed "Matara" brown, 1,528 were "Safari" brown (a lighter brown), and 7,930 were black. The Matara-processed skins averaged \$91.89, an increase of 4.6 percent above the April auction. The Safari skins sold for an average of \$68.01, up 6.5 percent. The black skins averaged \$103.46, up 1.1 percent.

A total of 1,330 Matara- and Safari-processed skins, representing part of the United States share of skins taken off the Japanese coast in 1952 as part of an international research program, averaged \$46.52, for a total of \$61,868.

In addition to the United States skins, 4,325 Cape of Good Hope fur-seal skins were sold for the South African Government at an average of \$32.98, up 8.4 percent. A total of 680 Uruguay fur-seal skins were sold for the Uruguayan Government at an average of \$44.30.

The tentative date for the next auction is April 16, 1956. At that time the quantities to be offered are expected to be slightly in excess of offerings at this fall auction.



Great Lakes Fishery Investigations

SURVEY OF NORTHERN LAKE MICHIGAN CONTINUED BY "CISCO" (Cruise IX): The ninth in a series of cruises to study the fishery and limnological conditions of northern Lake Michigan was made by the Service's Great Lakes Fishery Investigations research vessel Cisco between September 21 and October 2, 1955.

During the cruise nylon gill nets of graded mesh sizes were set at 4 depths (25, 50, 80, and 135 fathoms) off Frankfort and two depths (25 and 50 fathoms) off Sturgeon Bay. Bloaters (Leucichthys hoyi) dominated all catches. The kiyi (L. kiyi) was taken in larger numbers than previously encountered this year. The increased catch of kiyi in gill nets is related to increased activity prior to spawning as most individuals were in ripe or near-ripe condition, but none had spawned.

One gang each of 1-inch and 2-inch nylon gill nets were set obliquely from top to bottom in 160 feet of water off Frankfort. Bloaters were common at all depths in both meshes but were most abundant at depths greater than 40 feet. Small bloaters taken in the 1-inch mesh were most abundant at mid-depths, 40-100 feet, while larger bloaters taken in the 2-inch mesh were most abundant between the 140-foot depths and the bottom. Lake herring (L. artedii) were taken in the upper 100 feet and yellow perch (Perca flavescens) in the top 80 feet of water. Smelt (Osmerus mordax) were most abundant between 60 and 80 feet but a few were taken between 20 and 60 feet from the surface. Fathometer tracings in this area where this net was set showed a daytime concentration of fish at mid-depth (probably mostly small bloaters and smelt) and near the bottom (mostly large bloaters). At dusk the fish moved off the bottom and distributed themselves evenly between the mid-depth concentration and the bottom. As darkness approached, these fish moved to the area between the surface and the thermocline where they remained for about an hour, after which nearly all fish became concentrated at mid-depth. There was no hypolimnion at this location. The thermocline extended from mid-depth to the bottom.

Drags were made at several depths between 15 and 50 fathoms off Frankfort and between Sturgeon Bay and Manitowoc. Chub catches were light in shallow water and moderate in deeper water. Small chubs retained by a small mesh (1.5-inch stretched measure) outer covering over the regular trawl cod end were abundant on the bottom in shallow water but not in deep water. Small chubs taken in the oblique sets of gill nets were at about the same depth over deep water as those taken by the trawls on the bottom near shore.

An intensive day and night plankton study was made in 25 fathoms of water off Frankfort. Mysis relicta came to the surface after dark in spite of a bright full moon. Pontoporia hoyi, which had been fairly abundant in previous night plankton samples in this area, were nearly absent during this study and only one was taken near the surface where they are usually abundant after dark.

Hydrographic transects were made between Frankfort and Sturgeon Bay and between Manitowoc and Ludington. Routine physical-chemical data were collected and drift bottles were released at 5-mile intervals along each transect. The surface temperature ranged from 10.5° C. (50.9° F.) to 17.5° C. (63.5° F.). Thermal stratification is still present but the thermocline is steadily becoming deeper and thicker. There has been a 50-percent return of drift bottles released so far this year and returns are continuing at a steady rate despite lateness in the season.



Maine

SARDINE PACK AS OF OCTOBER 15: The total pack of canned Maine sardines as of October 15 for the current season was 1,087,932 cases (100 $\frac{1}{4}$ drawn cans of 3 $\frac{1}{4}$ oz.), see graph on Chart 6 in this issue.

Fishing was still spotty and was expected to remain so until the season closure on December 1 because late fall weather is very unpredictable, reports the Maine Sardine Industry.



Marketing Situation for Edible Fishery Products, Winter 1955/56

United States civilian consumption of fishery products during the next 6 months is expected to be at a little lower rate per person than a year earlier. Although average consumption of the fresh and frozen commodities is expected to total close to that in the same period of 1954/55, some decline is in prospect for the canned products. Retail prices of fishery products will likely average a little higher during coming months than a year earlier, in part because of higher prices for fresh and frozen shrimp and canned fishery products.

Commercial landings of fish for sale in the fresh or frozen forms will be declining seasonally from now through late winter. However, total supplies during the period probably will be about as large as a year earlier. Stocks of frozen fish and shellfish in the United States and Alaska on October 1 totaled 191.5 million pounds--5.3 percent smaller than a year earlier, but imports are expected to continue high.

Supplies of canned fishery products during the remainder of the 1955/56 marketing year--until about next July--will be lower than a year earlier because of the smaller packs of important items in 1955. The output of canned salmon was much lower than in 1954 and the smallest in the past 30 years or more, and that of Maine sardines was down considerably. While the pack of tuna will be large in 1955, it will not equal the record volume reached last year. Canned mackerel production probably will be slightly larger than in 1954. Domestic supplies of canned fishery products during the present marketing year will be supplemented to some extent by imports.

Of the canned fishery products consumed by United States civilians in recent years, salmon and tuna together have accounted for 60 to 70 percent of the total. The smaller pack of canned salmon in 1955 points to a decline in civilian consumption of this product, with the reduction likely to be more apparent in 1956 than in 1955. Canned salmon consumption has been shading downward since 1949 when it matched the 1947 postwar peak rate of 1.5 pounds per person. In 1954, it was 1.3

pounds. For canned tuna, on the other hand, supplies may not equal those of a year earlier, but they will be sufficiently large to maintain the long-time upward trend in consumption. In 1954 civilians consumed about 1.7 pounds of canned tuna per person, the highest rate on record.

Imports of major fishery products during the next few months are expected to continue high, relatively close to that of a year earlier. Receipts of fresh and frozen products from abroad may be no higher, and some decrease for the canned commodities is in prospect. Exports during the same period may be lower than in the same period of 1954/55 primarily because of smaller supplies of those types of canned fishery products which are in demand in our foreign markets.

This analysis appeared in a report prepared by the Agriculture Marketing Service, U. S. Department of Agriculture, in cooperation with the U. S. Fish and Wildlife Service, and published in the former agency's November 7, 1955, release of The National Food Situation (NFS-74).



National Tuna Week Supported by Interior Secretary

Support of National Tuna Week, November 3-12, 1955, was announced by Secretary of the Interior Douglas McKay early in November. This tuna industry promotion is a preholiday move to urge consumers to give special attention to one of America's favorite fish foods before and during Thanksgiving, Christmas, and New Year's festivities.

Tuna is especially recommended for winter diet both from its nutritional value and from the ease with which it is converted to a main dish or an appetizing snack. It is particularly recommended as one of the "on hand" foods which can be used on any occasion.

Tuna is available in many packs, regular and "dietetic." The "dietetic" tuna is salt-free and without the usual added oil for those who must omit these from their food. Tuna is available in solid, chunk, grated, and flaked style. Practically all of the packs are available in white, or light meat. There are also speciality packs such as tuna in olive oil, tuna paste, tuna baby food, and tuna and noodles.

The tuna industry is one of the most important of the Nation's fisheries. The product has been a family standby in this country for many years.

The U. S. Fish and Wildlife Service aided national tuna week with special promotional efforts with schools, food trade groups and institutions, as well as attracting general consumer attention.

Fish and Wildlife Service test kitchens at College Park, Md., and Seattle, Wash., have been conducting demonstrations on fish cookery and have developed many new recipes for the use of various fish products, including tuna.



North Atlantic Fisheries Exploration and Gear Research

NYLON AND COTTON COD ENDS TESTED BY "DELAWARE" (Cruise 11) AND "ALBATROSS III" (Cruise 68): An operation unusual in fisheries research was completed on November 5, with the return to port of the Service's research vessel Albatross III and the exploratory fishing vessel Delaware. The two vessels completed

90 bottom drags, with a standard No. 41 otter trawl, in the Georges Bank area. Tows were made at identical speeds, with the vessels as close together as practical.

The purpose of this joint cruise was to determine the escapement sizes of haddock through trawl cod ends made of nylon and cotton twine, and to determine the effects of use on the mesh measurements of these same cod ends. In addition to the primary purpose of the cruise, a comparison of various methods of measuring escapement of haddock through trawl-net cod ends was made.

The two vessels were operated as follows: (1) the first 14 tows were simultaneously made with identical gear and nets, to establish the comparative fishing power of each vessel; (2) the remaining tows were made simultaneously with various sized cod ends of nylon and cotton, to determine:

- (a) the selectivity of the various sized cod ends,
- (b) the after-use measurements of various sized cod ends, and
- (c) the comparative fishing efficiency of cod ends of various sizes.

In general, haddock were found to be scarce throughout the cruise with catches seldom exceeding 2,000 pounds per tow. However, sufficient haddock of medium sizes were taken for successful determination of escapement through medium-size meshes. The study of the effect of heavy loads of fish on cod-end mesh sizes was limited to results obtained from light catches.



North Atlantic Herring Research

SAMPLES OF LARGE HERRING COLLECTED BY "THEODORE N. GILL" (Cruise 6a): The principal objective of this cruise by the research vessel Theodore N. Gill was to collect samples of herring on the spawning grounds. Large spawning herring have been extremely scarce this fall along the northeastern coast of the United States. Only two samples had been obtained since August and both of these were from draggers operating on offshore banks. Few large herring have been reported on their usual spawning grounds near Grand Manan, Mount Desert Rock, Matinicus, Monhegan, and Damariscove. A few scattered schools had been seen by purse seiners at Boone Island and Isles of Shoals.

Gill nets were set around the Isles of Shoals for seven nights and a sample of large mature herring was caught. Purse seiners were also active around the islands, but were unable to locate any schools large enough to set on. There were a few fish with running eggs and milt; most of the herring had spawned within a short period previously.

The gill nets were set one night at Damariscove Island and two nights in the Matinicus group. The only herring catch of these three sets was $\frac{3}{4}$ bushel taken at the southeastern side of Ragged Island, in the Matinicus group.

The vessel started the cruise from Boothbay Harbor, Me., on October 3, 1955.

* * * * *

SAMPLES OF SPAWNING HERRING TAKEN BY "THEODORE N. GILL" (Cruise 7): The principal objective of this cruise (October 19-28, 1955) by the Service's research vessel Theodore N. Gill, was to obtain gill-net samples of spawning herring for use in the study of racial characteristics.

Anchor gill nets were set on the bottom near Matinicus Island on the nights of October 19 and 20. Several bushels of herring were caught in these sets, some of which were in spawning condition with milt and roe running. Small quantities of blueback herring, pollock, cod, hake, and dogfish were also taken. Reports indicated that spawning fish were present near the Whistle Buoy on Seguin SSW Shoals. On the afternoon of October 21 the vessel proceeded to that area where sets were made that evening. A small quantity of large herring just starting to spawn was caught during this set.

Other sets were made in this vicinity on October 22, 23, 26, and 27, and yielded only a very few herring. Winds of 30-40 miles per hour prevented lifting the nets set on October 23 until October 26.

Some whiting, dogfish, hake, alewives, and blueback herring were taken in this vicinity. Many of the fish brought up in this area had been eaten by isopods, small crustaceans related to the terrestrial "sow bug."

Bathythermograph casts and plankton tows were made at each set and when running between the locations fished.



Northeast Pacific Fish Distribution Studied

Carrying out part of the Fish and Wildlife Service's assignments under the International North Pacific Fisheries Commission, the chartered vessels Mitkof and Paragon during August and September 1955 studied the presence and seasonal distribution of salmon, albacore, tuna, pomfret, herring, and other species on the high seas and in the Gulf of Alaska.

These vessels fished south of the Aleutians between 165° W. longitude and 175° E. longitude. The vessel station pattern extended north from 45° N. in an attempt to run beyond the salmon range. Salmon were found at stations above but not below 48° . Albacore tuna were found south of 48° . This finding meant the discovery of the southern limit of the ocean range of the Pacific salmon and increased knowledge on the northern range of albacore. The catches also showed that salmon and steelhead trout are found along the northern fringe of the "Japanese Current."

Fishing at points shoreward, to define salmon distribution immediately along the coast, revealed salmon in a band immediately adjacent to the coast and albacore only in the warmer offshore waters.

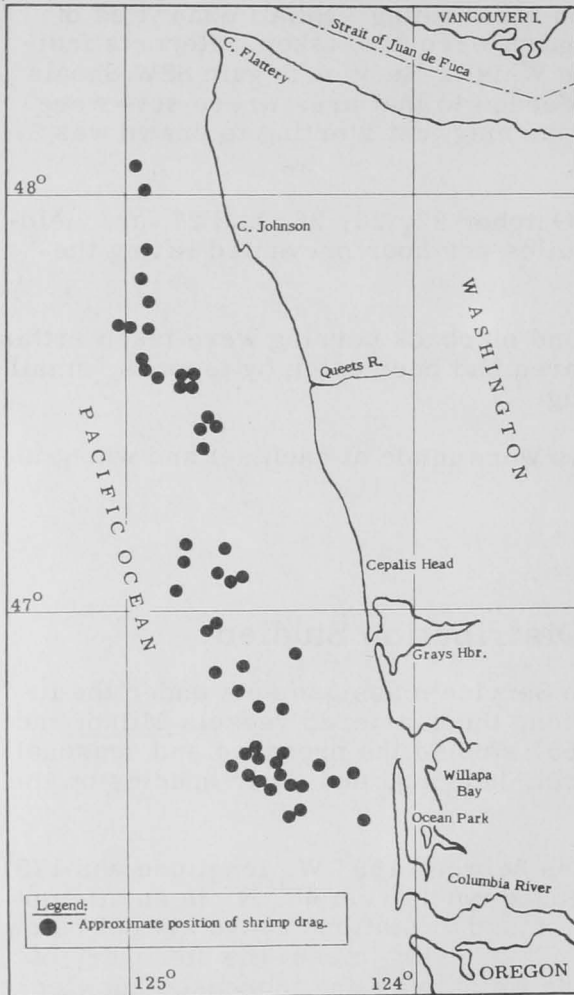
The vessel catches indicated a random distribution of five species of salmon and steelhead trout throughout the area for the summer months.



North Pacific Exploratory Fishery Program

SURVEY OF SHRIMP RESOURCES OFF COAST OF WASHINGTON BY "JOHN N. COBB" (Cruise 24): Small pink shrimp (115-164 head-on to pound), commonly referred to as "cocktail" shrimp, were caught off the Washington Coast from Ocean Park to Cape Johnson by the Service's exploratory fishing vessel John N. Cobb. The four-week cruise for shrimp (which ended November 10, 1955) was carried out in cooperation with the Washington Department of Fisheries.

A total of 52 drags were made at depths of 21 to 116 fathoms, 45 with a 20-foot beam trawl having $1\frac{1}{4}$ -inch stretched-mesh netting, and 7 with a small West Coast box-type otter trawl having a $1\frac{1}{4}$ -inch stretched-mesh cod end.



M/V John N. Cobb Cruise 24, Oct.-Nov. 1955.

another drag resulted in a torn otter trawl.

Samples of shrimp from all localities were collected and frozen by biologists from the State of Washington Department of Fisheries' shellfish division for biological study.

Considerable fishing time was lost during the cruise because of adverse weather conditions.

There has been considerable industry interest in potential shrimp grounds off the Washington coast in recent years. Successful explorations by the State of California in 1950 and 1951 resulted in the establishment of a commercial shrimp fishery off northern California. The State of Oregon also carried out encouraging shrimp explorations off the Oregon coast in 1951 and 1952.



The best catches of shrimp (per one-hour drag) with the beam trawl were made off Grays Harbor where 5 drags at 49 to 71 fathoms caught from 75 to 140 pounds of pink shrimp per drag, and off the Queets River where 5 drags at 57 to 88 fathoms caught from 80 to 150 pounds per drag. Off Willapa Bay 15 drags at 34 to 116 fathoms caught from 14 to 130 pounds of pink shrimp per drag. Side-stripe shrimp were taken in insignificant quantities in several of the deeper drags.

Drags with the otter trawl off Copalis Head at 48 to 80 fathoms caught from 240 to 600 pounds of pink shrimp per one-hour drag. The main purpose of using the otter trawl was to compare its effectiveness with that of the beam trawl. While the otter trawl proved to be more efficient than the beam trawl in taking shrimp, catches with this gear also contained considerable quantities of bottom fish which were difficult to separate from the shrimp. Catches with the beam trawl generally contained only small quantities of bottom fish along with the shrimp.

In general most of the bottom dragged was composed of a mixture of green mud and sand. Favorable dragging bottom was found in most portions of the area; however, one drag resulted in a broken beam and

Pacific Oceanic Fishery Investigations

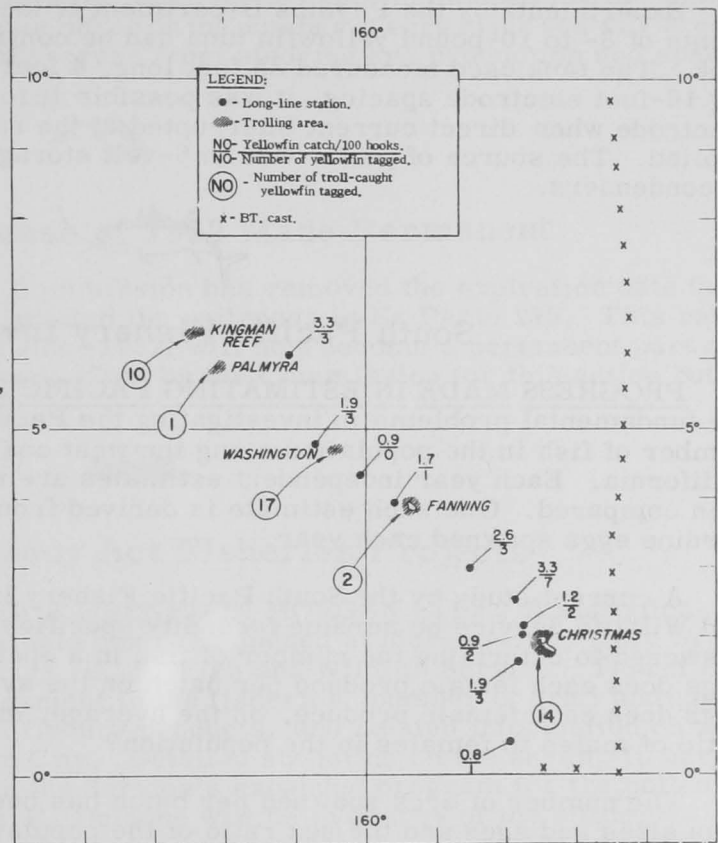
CHARTERED VESSEL "COMMONWEALTH" COMPLETES LINE ISLANDS YELLOWFIN FISHING EXPERIMENTS (Cruise 5):

Intensive trolling around the islands of Christmas, Washington, Fanning, and Palmyra and 10 days of long-line fishing in offshore waters showed tuna abundance to be at a comparatively low level, according to the Fishery Research Biologist in charge of scientific work aboard the Commonwealth. The best day's long-line fishing produced a catch rate of 3.27 yellowfin tuna per 100 hooks fished, which is only about half the rate normally obtained in the area. As usual, the tuna taken on the long lines were much larger than those caught by trolling close to the reefs, averaging around 150 pounds as compared with about 40 pounds for the trolled fish. A total of 25 long line-caught yellowfin and 44 troll-caught fish were tagged and released alive for study of their growth and migrations.

The Commonwealth, a 110-foot chartered commercial fishing vessel returned to Honolulu on October 15, from a cruise of slightly more than one month's duration around the Line Islands about 1,000 miles south of Hawaii. The vessel was chartered for a program of continuous observations on the seasonal fluctuations in yellowfin tuna abundance in the equatorial fishing grounds of the central Pacific. This was the last cruise under the charter; further surveys will be made from government vessels.

A new system for handling long lines was tested on the cruise and showed considerable promise. The conventional method requires that the long-line gear be disassembled as it is brought in and reassembled when it is set. On the Commonwealth the main line was coiled down continuously in a large tub, the branch lines being removed as they came on board. Though it is not anticipated that the new system will greatly increase the over-all speed of the operation, it appears that it will reduce the number of deckhands required, thus helping to make this method of fishing economical.

The scientists aboard the Commonwealth installed a temperature-recording device actuated by clockwork on the sea bottom off Christmas Island. It will record changes in the water temperature over a 6-months period without servicing. The data recorded by this device will be studied for indications of shifts in currents and water masses that relate to the fluctuations in the abundance of tuna.



M/V Commonwealth--Cruise No. 5, September 9-October 15, 1955. Forty baskets of 11-hook gear fished at the 10 long-line stations indicated above. Yielded 78 yellowfin, 4 skipjack, and 1 big-eyed tuna.

PROGRESS MADE IN DEVELOPING ELECTROFISHING FOR TUNA: Significant progress has been reported by scientists of the University of Hawaii in the development of electrofishing for tuna. This research work is being conducted under contract with the Service's Pacific Oceanic Fishery Investigations.

Experiments by the Physics Department of the University show that the movements of 8- to 10-pound yellowfin tuna can be controlled in a large well-grounded tank. The tank used measured 35 feet long, 4 feet deep, and 11 feet wide. By using 16-foot electrode spacing, it was possible to force the tuna to swim to the positive electrode when direct current interrupted at the rate of 20 cycles per second was applied. The source of power was in 6-volt storage batteries that energized a bank of condensers.



South Pacific Fishery Investigations

PROGRESS MADE IN ESTIMATING PACIFIC SARDINE POPULATION: One of the fundamental problems in investigating the Pacific sardine is determining the number of fish in the population along the west coast of the United States and Baja California. Each year independent estimates are made by various methods and then compared. One such estimate is derived from a census of the total number of sardine eggs spawned each year.

A current study by the South Pacific Fishery Investigations of the U. S. Fish and Wildlife Service on sardine fecundity specifies three questions that must be answered to determine the number of fish in a spawning population: (1) How many eggs does each female produce per batch on the average? (2) How many batches of eggs does each female produce, on the average, during a season? (3) What is the ratio of males to females in the population?

The number of eggs spawned per batch has been determined for females of various sizes and ages and the sex ratio of the population is estimated each year by routine sampling methods, but the number of batches of eggs spawned by each female is unknown. Although it is a relatively simple matter to examine a fish and count the eggs present at any given time, the difficulty arises in not knowing how many times such a fish develops and spawns a batch of eggs during a season.

For the past several years sardine population estimates based on the total number of eggs spawned per year have been derived on the assumption that each female spawns three times a season, producing a total of 100,000 eggs. In reviewing all the evidence on this point, however, it may be concluded that the number of batches spawned per year is still a moot question. It is a difficult problem to solve for most egg-laying marine fishes and no method has been devised that will yield conclusive results.

Population estimates based on the total number of eggs spawned per year are further complicated by the fact that the number of eggs present in the ovaries increase with age, or more precisely, with the weight of the fish and also by the fact that some unknown portion of the younger fish is not sexually mature. Current work shows the number of eggs per batch in the ovary varies from approximately 8,000 for the smaller females to 50,000 for the larger females. This relationship can be expressed in an equation from which the total weight of spawning females can be calculated, once the total number of eggs in the sea is known.

The present study also describes incipient egg development in a third of the one-year-old and in over three quarters of the two-year-old sardines, whereas it has been assumed in the past that only a half of the two-year-old fish are sexually

mature. It is clear that more extensive study is needed to estimate accurately the portion of one-year-old and two-year-old fish that spawn each year.

The number of batches spawned per female and the portion of younger fish that spawn can best be estimated from the examination of great numbers of fish captured at regular intervals throughout the year. Such an analysis is planned for the future. Past and future population estimates based on the number of eggs in the sea will be confirmed or modified as information accrues from studying egg production and spawning in the female sardine.



Freight Rate Increase of 1952 Made Permanent

The International Commerce Commission has removed the expiration date for the last 15 percent rate increase granted the railroads in Ex Parte 175. This rate increase, granted in and effective since 1952, will now become a permanent part of the rate structure. No reasons were given by the Commission for this action but a formal opinion will be issued later.



Saltonstall-Kennedy Act Fisheries Projects

FISHERY STATISTICAL OFFICE OPENED IN MORGAN CITY: A statistical office for the collection of fishery data has been opened at Morgan City, La., by the Branch of Commercial Fisheries, U. S. Fish and Wildlife Service. That office will collect detailed data on employment in the fisheries, number of craft and quantity of gear operated, the catch of fishery products, and related information on the fisheries in the vicinity of Morgan City. Detailed statistics on the shrimp fishery will be obtained in connection with the Service's expanded program for the collection of shrimp statistics. Dunbar P. Delaune will be in charge of the office.

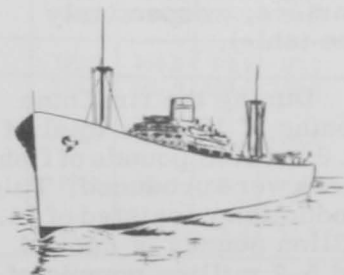
This project is being financed by funds provided by the Saltonstall-Kennedy Act (68th Stat. 376).



U. S. Foreign Trade

IMPORTS AND EXPORTS OF SELECTED FISHERY PRODUCTS, JANUARY-AUGUST 1955: Among the trends observed in United States imports of fishery products during the first eight months of 1955 was the increase in imports of frozen tuna and canned crab meat and the declines in canned salmon, fish meal, and groundfish fillets (see chart 7, p. 81 of this issue.)

Imports of groundfish and ocean perch fillets from Iceland dropped sharply in recent months, according to data compiled by the U. S. Fish and Wildlife Service from reports of the Bureau of the Census. In the first eight months of 1955, these imports from Iceland totaled 13.7 million pounds as compared with 30.2 million pounds in the similar period of the previous year. Imports of these items from Canada showed a gain of 12.2 million pounds.



Increased quantities of frozen tuna--18.8 million pounds more than in the 1954 period--came largely from Japan and Peru. Fish meal imports were substantially below those of the previous year due principally to smaller receipts from Norway, Angola, and Peru. Canned salmon imports, largely from Canada, were 83 percent below those of the period of a year earlier. Canned crab meat imports, principally from Japan, were considerably above a year ago.

Among the January-August 1955 exports, canned sardines and canned salmon showed large gains over the eight months of 1954. Fish oil exports this year, however, were about 24 percent less than a year ago.

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United States Foreign Trade in Edible Fishery Products, July 1955 and Comparison						
Item	Quantity			Value		
	July		Year	July		Year
	1955	1954	1954	1955	1954	1954
	(Millions of Lbs.)			(Millions of \$)		
Imports:						
Fish & shellfish; fresh, frozen, & processed ^{1/} . . .	73.5	82.5	801.7	18.6	17.9	202.8
Exports:						
Fish & shellfish; processed ^{1/} only (excluding fresh and frozen) . . .	4.8	3.3	50.8	1.2	0.8	13.2

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

EDIBLE FISHERY PRODUCTS, JULY 1955: United States imports of fresh, frozen, and processed edible fish and shellfish in July 1955 amounted to 73.5 million pounds (valued at \$18.6 million), according to a Department of Commerce summary tabulation (see table). This was an increase of 20 percent in quantity and 2 percent in value as compared with June imports of 61.5 million pounds (valued at \$18.2 million). Compared with a year earlier, July 1955 imports were down 10 percent in quantity, but increased 4 percent in value.

Exports of processed edible fish and shellfish (excluding fresh and frozen) in July totaled 4.8 million pounds (valued at \$1.2 million)--an increase of 33 percent both in quantity and value as compared with June exports of 3.6 million pounds (valued at \$0.9 million). July exports were higher by 45 percent in quantity and 50 percent in value as compared with a year earlier.



U. S. Fish-Stick Production

JANUARY-SEPTEMBER 1955: In the third quarter 1955 fish-stick production was 18 percent and 13 percent less than that of the first and second quarters, respectively (see table).

During the first nine months of 1955, a total of 50.0 million pounds of fish sticks were produced. This production consisted of 44.3 million pounds of cooked and 5.7 million pounds of uncooked sticks. During the same period of 1954, a total of 34.7 million pounds

U. S. Fish-Stick Production, January-September 1955						
Month	Cooked		Uncooked		Total	
	1955	1954	1955	1954	1955	1954
January . . .	4.4	2.4	.7	.4	5.1	2.8
February . .	4.9	2.9	.9	.3	5.8	3.2
March	6.2	3.6	.9	.4	7.1	4.0
April	5.6	3.4	.7	.4	6.3	3.8
May	4.7	3.5	.5	.4	5.2	3.9
June	5.0	4.1	.6	.3	5.6	4.4
July	4.1	3.5	.5	.4	4.6	3.9
August . . .	4.3	4.0	.4	.4	4.7	4.4
September .	5.1	3.8	.5	.5	5.6	4.3
Total for 9 months.	44.3	31.2	5.7	3.5	50.0	34.7

of fish sticks consisting of 31.2 million pounds of cooked and 3.5 million pounds of uncooked sticks were packed. The total production amounted to 50.1 million pounds in 1954 and 7.5 million pounds in 1953.



Wholesale Prices, September 1955

In spite of labor-management disputes in some areas, good weather increased the landings in September and caused a sharp drop in prices in some instances. The over-all index of edible fish and shellfish (fresh, frozen, and canned) in September 1955 was 109.2 percent of the 1947-49 average (see table)--2.2 percent lower than in August and 4.1 percent below September 1954.

Higher prices for all items included in the drawn, dressed, or whole finfish subgroup index were more than offset by the substantial drop in ex-vessel prices for large drawn haddock at Boston from August to September because of heavier landings and a light demand. The September 1955 prices for both fresh halibut and

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, September 1955 With Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices ^{1/} (\$)		Indexes (1947-49=100)			
			Sept. 1955	Aug. 1955	Sept. 1955	Aug. 1955	July 1955	Sept. 1954
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					109.2	111.7	103.5	113.9
<u>Fresh & Frozen Fishery Products:</u>					113.8	119.7	106.3	124.8
<u>Drawn, Dressed, or Whole Finfish:</u>					125.0	136.6	99.9	144.9
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.06	.17	58.5	167.4	57.4	167.3
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.43	.34	133.1	106.0	90.8	139.3
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.63	.60	140.4	135.4	130.3	127.5
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.95	.59	235.5	146.3	81.8	142.5
Whitefish, L. Erie pound or gill net, rnd., fresh	New York	lb.	1.10	.85	222.4	171.8	131.4	151.6
Lake trout, domestic, No. 1, drawn, fresh	Chicago	lb.	.60	.55	123.0	111.7	93.2	108.6
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.90	.51	211.0	119.6	161.8	129.0
<u>Processed, Fresh (Fish & Shellfish):</u>					107.8	107.3	108.0	104.5
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.23	.34	78.3	115.7	78.3	139.5
Shrimp, lge. (26-30 count), headless, fresh	New York	lb.	.60	.62	94.5	98.0	105.9	77.4
Oysters, shucked, standards	Norfolk	gal.	5.25	4.75	129.9	117.5	117.5	126.8
<u>Processed, Frozen (Fish & Shellfish):</u>					93.8	99.3	106.7	91.6
Fillets; Flounder (yellowtail), skinless, 1-lb. pkg.	Boston	lb.	.39	.39	102.1	102.1	102.1	100.8
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.27	.27	84.7	84.7	83.2	95.7
Ocean perch, skins on, 1-lb. pkg.	Boston	lb.	.27	.27	108.8	108.8	106.7	111.8
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	lb.	.55	.61	84.1	94.1	103.8	74.8
<u>Canned Fishery Products:</u>					102.7	100.3	99.2	97.7
Salmon, pink, No. 1 tall (16 oz.), 48 can/cs.	Seattle	case	21.70	20.70	114.8	109.6	109.6	104.4
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/ cs.	Los Angeles	case	12.80	12.80	92.3	92.3	92.3	95.5
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 48 cans/cs.	Los Angeles	case	7.55	7.55	88.1	88.1	88.1	2/
Sardines, Maine, keyless oil, No. 1/4 drawn (3-1/4 oz.), 100 cans/cs.	New York	case	7.70	7.45	81.9	79.3	71.3	71.3

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

^{2/}Not available.

king salmon continued to inch upward as the season for these species came near to ending. Because of Jewish holidays in September, all fresh-water fish prices rose substantially. Compared with September 1954, prices were higher this September for all the varieties used in this subgroup except haddock and halibut which were priced substantially lower.



rose 0.5 percent from August to September due primarily to higher oyster prices.

Frozen shrimp prices dropped 10.6 percent from August to September, while prices for frozen fillets of haddock, flounder, and ocean perch did not change. The September 1955 index for frozen processed fish and shellfish was 5.5 percent lower than August, but 2.4 percent higher than a year earlier. When compared with a year earlier, September 1955 prices for flounder fillets and shrimp were higher, but fillets of haddock and ocean perch were lower.

Higher canned salmon and Maine sardine prices were responsible for the rise of 2.4 percent in the subgroup index for all canned fish from August to September. Canned fish prices in September 1955 were also higher (5.1 percent) than the same month a year earlier with salmon and Maine sardines priced higher and tuna priced lower.



NEW FILLETING MACHINE

A new filleting machine for flat fish, is reported to fillet over 100 fish the size of a large Dover sole per minute. The machine is 7 feet long and 2 feet wide, completely self-adjusting, and handles fish up to 18 inches wide and 4 inches thick without sorting or manual adjustments. Meat recovery is said to be greater than the average by-the-hand method, with a further saving around the nape. In operation, the fish are placed on a feeding conveyor equipped with an automatic beheading device which, after beheading, carries them to the intake end of the filleting machine in the tail-first position. Both the fillets are removed at the same time and emerge from the discharge end on to a conveyor. The internal parts of the machine are water lubricated and the machine (weighs 600 pounds without the conveyor) is run by a 2 hp. motor.

--World Fisheries Abstracts, July-August 1954