

## Atomic Waste

### ISSUANCE OF DISPOSAL LICENSE TO MILITARY SEA TRANSPORTATION SERVICE PROPOSED:

The Atomic Energy Commission has given notice of proposed issuance of a license to the Department of the Navy, Military Sea Transportation Service (MSTS), Washington, D. C., for disposal of low-level radioactive wastes in the Atlantic and Pacific Oceans at a minimum depth of 6,000 feet (1,000 fathoms).

Notice of the proposed license issuance was filed with the Federal Register on August 10, 1959. The license was due to be issued by August 25, 1959, unless a request for a formal hearing was filed with the Commission.

Disposal operations by MSTS would be limited to the handling of waste materials generated in Federal Government laboratories and installations, including those operated by Commission contractors, authorized by the Commission to package waste for sea disposal. MSTS would act as a carrier for the waste material only from the dock to the sea-disposal location.

The types of waste to be handled are low in radioactivity, and generally consist of residual solutions from experiments, contaminated paper, cloth, glassware and equipment, animal carcasses, and sealed sources of radioactivity which have been reduced to unusable levels by the natural process of radioactive decay.

The sea-disposal containers used and the disposal sites would meet the recommendations of the National Committee on Radiation Protection for disposal of radioactive wastes in the oceans.

The proposed license specifies three Atlantic and two Pacific disposal sites, all designated heretofore as waste disposal areas. All proposed disposal sites have minimum depths of 6,000 feet (1,000 fathoms).

The approximate locations of the Atlantic sites are: (1) 200 miles due east of Cape Cod, Mass., (2) 105 miles east southeast of Cape Henry, Va., and (3) 120 miles southeast of Sandy Hook, N. J.

The approximate locations of the Pacific sites are: (1) 185 miles west southwest of Los Angeles, and (2) 115 miles due west of San Francisco.

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### OCEANIC DISPOSAL OF ATOMIC WASTE STUDIED BY COAST AND GEODETIC SURVEY:

Skin-diving oceanographers of the Coast and Geodetic Survey, U. S. Department of Commerce, have completed monitoring of simulated packages of "radioactive waste," dumped into 97 feet of water off the New England coast. This unique oceanographic operation was carried on under contract with the Atomic Energy Commission.

Instead of real atomic materials, the packages contained a brilliant yellow fluorescein dye. The Atomic Energy Commission wanted to know whether such containers break open immediately, gradually disintegrate, or are buried in the bottom.

The Coast and Geodetic Survey reports that the skin divers went overboard from the fantail of the survey vessel Gilbert and stationed themselves at the bottom as the dye-containing packages were dropped from the vessel. The containers

were numbered for identification. These metal drums, weighing up to 1,200 pounds, were packed variously and dropped under varying current conditions. Those solidly-packed with concrete seemed to resist breakage and settle on the bottom.

Slight current did not affect appreciably the downward trek of the "cans;" some moving on a deflected or spiral course. The divers, waiting on the bottom, had to be careful. Underwater "dust" created by the successive bombardment of "cans" limited vision to a few feet at times.

The diving operations were carried on over Browns Ledge, which is twelve miles west from Martha's Vineyard, Mass. The team of four was accompanied by a diving scientist from the U. S. Bureau of Commercial Fisheries.

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

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

The direction and speed of the currents at three depths were taken every half hour for 100 hours with meters lowered at points a couple of miles apart. Every hour during the same period, a record was made with a bathythermograph of temperatures at all depths.

Water temperatures were measured as the survey started and ended, all the way from Boston harbor entrance to a point beyond the disposal area.

Many samples of bottom sediment and sea water were gathered for analysis by the U. S. Public Health Service. At Browns Ledge special current and temperature records were made.

Analysis of the water, together with studies of bottom and marine life, made

by the Public Health Service, are expected to show the extent of absorption of radioactivity. The current data will help to determine where the materials have been carried.

In some new area where dumping is started, it is planned that the Coast and Geodetic Survey will increase its program of sampling the bottom-dwelling organisms. Many marine animals can concentrate trace elements and may prove to be good indicators of radioactive concentration when examined by bio-radiologists of other Government or private agencies.

According to a news release by the National Academy of Sciences on June 21, 1959, a number of other areas are under consideration for studies comparable to those just completed at Browns Ledge. Twenty-seven such sites were listed for possible use for controlled disposal of packaged low-level radio-active wastes. The techniques used by the Coast and Geodetic Survey, especially with diving oceanographers, provide promise as an effective monitoring measure.

The Coast and Geodetic Survey made a preliminary survey on Georges Bank last summer to test the feasibility of observations and sample collections by diving oceanographers and of measuring bottom currents from anchored buoys.



## California

### AERIAL CENSUS OF ABALONE SPORT FISHING CONTINUED:

Airplane Spotting Flight 59-12-Abalone: The shore line from Ano Nuevo to Ft. Ross was surveyed from the air (June 22, 1959) by the California Department of Fish and Game Cessna 180 to estimate numbers of abalone sport fishermen and relative intensity of fishing during a very low minus tide on a week day for comparison with similar conditions on a weekend.

Flight conditions were favorable for observation although surf conditions were not as good for the fishermen as on previous dates. In general, fewer

fishermen were on the beaches during this period than were observed approximately one month previously when tidal conditions were similar on a weekend. As noted on previous flights, it was not always possible to tell exactly what the fishermen were doing, whether collecting clams and abalone, or just looking. At some locations their purpose was obvious and they could be readily classified as to the type of fishing activity.

Note: Also see Commercial Fisheries Review, September 1959, p. 20.

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### BIOLOGISTS PREDICT TIME AND PLACE OF ALBACORE TUNA RUN FOR THIRD YEAR:

For the third consecutive year California fishery biologists have predicted the time and place where the first albacore run of the year would appear off the California coast. The prediction made in May on the basis of ocean water temperature patterns and currents existing in April, came true at noon on June 5.

Tagging studies and log books kept by commercial fishermen were two of the keys which the biologists used to unlock the secret of the albacore's migrations.

Tag returns disclosed they are the widest ranging nomads of the Pacific Ocean, some making round trips to Japan from California. Log records, and other studies, revealed they are present off California when the run is on in a very narrow range of ocean temperatures--60° to 70° F.--from which they rarely stray.

The first school was spotted 85 miles northwest of Point Arguello, Santa Barbara County, by the California Department of Fish and Game research vessel N. B. Scofield. It had departed Terminal Island on a predetermined course June 1 and found the school just as predicted.

The commercial fishing fleet was notified by radio and immediately thereafter boats from Morro Bay and San Pedro set sail to fish for albacore. The initial run was scattered over a tremendous ocean area.

In previous years, the earliest run of albacore approached California from the general direction of northern Mexico. However, warm water conditions, which have prevailed for the last two years, have apparently pushed the runs much farther north. (Outdoor California, July 1959.)



## Canned Fish

### CONSUMER PURCHASES, JUNE 1959:

Canned tuna purchases by household consumers in June 1959, were 964,000 cases of which 54,000 cases were imported. By type of pack, domestic-packed tuna purchases were 228,000 cases solid, 589,000 cases chunk, and 93,000 cases grated or flakes. The average



purchase was 1.9 cans at a time. About 31.2 percent of the households bought all types of canned tuna; only 2.1 percent bought the imported product. The average retail price paid for a 7-oz. can of domestic solid or fancy was 34.9 cents and for a 6½-oz. can of chunk 28.2 cents. Imported solid or fancy was bought at 29.6 cents a can. June purchases were slightly higher than the 919,000 cases bought in May by 4.9 percent; retail prices in most cases were slightly lower.

During June, household consumer purchases of California sardines were 41,000 cases; and 38,000 cases imported sardines. The average purchase was 1.7 cans at a time for California sardines and 2.1 cans for imported. Only 1.7 percent of the households bought canned California sardines and 2.2 percent imported. The average retail price paid for a 1-lb. can of California sardines was 23.1 cents and for a 4-oz. can of imported 24.9 cents. Retail prices were slightly lower for both California and imported canned sardines. Because of the liberal stocks of canned California sardines, there has been a steady increase in purchases since October 1958.

Canned salmon purchases in June 1959 were 225,000 standard cases, of which 114,000 cases were pinks and 54,000 cases

reds. The average purchase was 1.2 cans at a time. About 15.3 percent of the households bought all types of canned salmon; 7.8 percent bought pinks. The average retail price paid for a 1-lb. can of pink was 56.7 cents and for red 86.8 cents. June purchases were up about 0.9 percent from the 223,000 cases bought in May.



### Cans--Shipments for Fishery Products, January-June 1959



Total shipments of metal cans for fishery products during January-June 1959 amounted to 53,800 short tons of steel (based on the amount of

steel consumed in the manufacture of cans) as compared with 47,212 tons in the same period a year ago. Canning of fishery products in January-June this year included tuna, Maine sardines, salmon, and shrimp. Shipments of metal cans were lower by 17.6 percent from May to June this year, but higher by 14.5 percent from June 1958 to this June.

During the first six months of 1959 the total shipments of 53,800 tons included 39,508 tons or 73.5 percent shipped to the West Coast area, 12,019 tons or 22.3 percent to the East Coast area, and 2,273 tons or 4.2 percent to the Central area (includes Gulf States).

Continued heavy canning of tuna on the West Coast and a large pack of canned shrimp are principally responsible for the greater use of cans the first half of this year as compared with the first half of last year.

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: 33.0 base boxes of steel equal one short ton of steel.



## Central Pacific Fisheries

### Investigations<sup>1/</sup>

#### RELATIONSHIP FOUND BETWEEN SEA SURFACE TEMPERATURE AND SKIPJACK TUNA ABUNDANCE:

A curve showing the rate of change of sea surface temperature at the U. S. Bureau of Commercial Fisheries Honolulu Biological Laboratory's Oahu monitoring station exhibited features similar to those found on the curve for 1954, a year during which 14 million pounds of skipjack were landed--one of the best years on record. Further, it was reported that the temporal variation of a feature of these curves (the date when the monthly rate of change of sea surface temperature is zero) had a predictive value, and as this "index" occurred early in 1959, an average or better-than-average Hawaiian skipjack season was predicted. Had the index occurred in the spring (say in March rather than early February), a poor fishing season would have been predicted.

By the end of July the prediction made before the onset of the season was borne out. The landings at the Honolulu cannery during May, June, and July were 1,618,784; 1,560,752; and 2,329,423 pounds. Average landings for those months were 1,026,332; 1,713,269; and 1,940,492 pounds. Landings for 1958 (a poor season) for those months were 168,021; 946,953; and 1,263,489 pounds.

The studies of skipjack behavior were continued in July. The abundance of schools in Hawaiian waters during July provided opportunities for visual and photographic studies aboard the Bureau's research vessel Charles H. Gilbert from the new hull-mounted observation chamber and for comparison of the studies from the chamber with closed-circuit television. Two types of TV were tested; neither was found to be an improvement over observations made from the hull-mounted chamber.

Various types of behavior studies were made; for example, iao (silver-sides) was compared with nehu (an anchovy) as live bait. When nehu was

<sup>1/</sup>Research conducted by the Bureau's Honolulu Biological Laboratory is now listed under this heading instead of "Pacific Oceanic Fisheries Investigations."

thrown as chum, large skipjack (25-30 pounds) would move comparatively slowly and along straight paths while the smaller tuna (4-10 pounds) would move quickly and erratically. When iao were used as chum, the actions of the larger skipjack were similar to those of the small fish when chummed with nehu.

The effects of live and dead nehu were also examined. The skipjack schools would immediately leave the boat when dead nehu were used, but a mixture of live and dead bait could be used to a limited extent.

A form of silvery "tinsel glitter" was investigated as a possible bait enhancer. The skipjack, viewed through the ports of the observation chamber, would move toward the glittering particles and then begin feeding upon nehu which were thrown in the water at the same time. Although attracted to a mixture of glitter and live nehu, the tuna were not interested in glitter and dead nehu; in fact they appeared to be repelled by the dead fish.



### Federal Purchases of Fishery Products

#### DEPARTMENT OF DEFENSE PURCHASES, JANUARY-JULY 1959:

Fresh and Frozen Fishery Products: For the use of the Armed Forces under the Department of Defense, almost 2.3 million pounds (value \$1.2 million) of fresh and frozen fishery products were purchased in July 1959 by the Military Subsistence Supply Agency field headquarters. On the basis of quantity, this was 2.7 percent more than the amount purchased the previous month, but 23.9 percent less than the purchases in July 1958. The value of the purchases in July 1959 were 2.8 percent higher than in June, but 33.5 percent less than in the same month of last year.

QUANTITY				VALUE			
July		Jan. -July		July		Jan. -July	
1959	1958	1959	1958	1959	1958	1959	1958
. . . . . (1,000 Lbs.) . . . . .				. . . . . (\$1,000) . . . . .			
2,272	2,984	13,618	14,579	1,203	1,809	7,190	8,409

For the first seven months of 1959 purchases totaled 13.6 million pounds, valued at \$7.2 million--a decrease of 6.6 percent in quantity and 14.5 percent in value as compared with the purchases for the same period of 1958.

Canned Fishery Products: Tuna and sardines continued to be the principal canned fishery products purchased for the use of the Armed Forces during July 1959. This year through July substantially more tuna and sardines were purchased, and only a very small amount of salmon.

Product	QUANTITY				VALUE			
	July		Jan. -July		July		Jan. -July	
	1959	1958	1959	1958	1959	1958	1959	1958
Tuna	150	779	1,982	2,562	70.0	398.0	938.0	1,288.0
Salmon	1	-	13	1,400	0.5	-	9.5	768.0
Sardine	107	10	776	52	16.0	4.0	116.0	19.0

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

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### MILITARY SUBSISTENCE MARKET CENTERS CHANGE TITLES:

The Military Subsistence Market Centers were redesignated Headquarters, Military Subsistence Supply Agency, effective July 15, 1959. Also, the Field Offices were redesignated either Supply Offices or Purchasing Offices. This change does not affect the responsibilities of the offices involved.

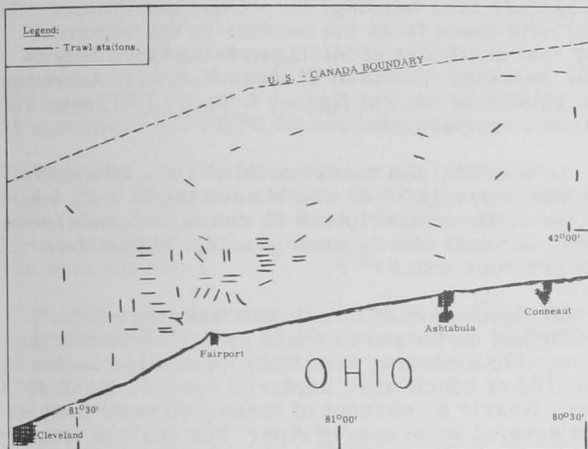


### Great Lakes Exploratory Fishing and Gear Research Program

#### EXPERIMENTAL SMELT FISHING IN LAKE ERIE CONTINUED:

M/V "Active" Cruise 3: Commercial quantities of smelt were taken in trawling operations in South Central Lake Erie during an 18-day cruise of the U. S. Bureau of Commercial Fisheries chartered vessel Active, completed July 23, 1959. Echo-sounding and exploratory-fishing operations were conducted between Cleveland and Conneaut, Ohio, to obtain additional information on the seasonal distribution of smelt and other fish stocks.

A total of 66 tows was completed in the area using a 50-foot two-seam balloon trawl with  $2\frac{1}{4}$ -inch mesh and a  $1\frac{1}{2}$ -inch mesh bag. More than 30 tows were made within a 10-mile radius of Fairport Harbor, Ohio. The smelt were found, as in the previous cruise, generally concentrated in waters deeper than 7 fathoms. Tows made on echo-sounder



M/V Active Cruise 3 (July 6-23, 1959).

indications produced catches up to 500 pounds of smelt an hour and smaller mixed catches of yellow perch, sheepshead, and burbot. Best catch results were experienced during early morning and late afternoon hours when smelt were observed to be just off the bottom. Smelt were taken in three general sizes--12-18 per pound, 30-35 per pound, and 35-40 per pound. Large numbers of the smaller fish were observed escaping from the trawl as it surfaced.

During night-fishing operations smelt were observed to rise from the bottom into midwater regions and to return to the bottom at sunrise. Night operations with lights resulted in the attraction of large quantities of emerald shiners with only a few smelt appearing at the edge of the illuminated area. Small surface schools of fish off Fairport and Cleveland in daylight were also identified as emerald shiners. No seine sets were attempted.

Surface temperatures ranged from  $69^{\circ}$  F. to  $76^{\circ}$  F. Bottom temperatures ranged from  $45^{\circ}$  F. at 12 fathoms to  $70^{\circ}$  F. at 6 fathoms.

The M/V Active departed about August 3, 1959, on the fourth 15-day exploratory fishing and gear research cruise. The area of operations was to be between Conneaut, Ohio, and Buffalo, N. Y., with visits scheduled to the ports of Erie, Barcelona, and Dunkirk.

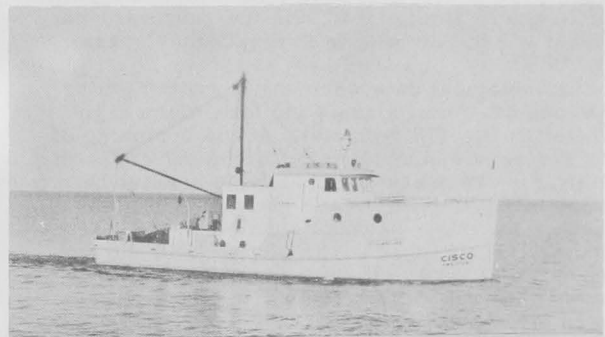
Note: Also see Commercial Fisheries Review, Jan. 1959, p. 33, Feb. 1959, p. 20, and June 1959, p. 36.



## Great Lakes Fishery Investigations

### SURVEY OF SOUTHEASTERN LAKE SUPERIOR CONTINUED:

M/V "Cisco" Cruise 3: Work during Cruise 3, between June 30-July 14, 1959, by the U. S. Bureau of Commercial Fisheries research vessel Cisco in the area of southeastern Lake Superior from Marquette, Mich., to Whitefish Bay duplicated efforts of Cruise 1 to reveal seasonal changes. Standard gangs of gill nets were set at 25, 50, 75, and 100 fathoms off Grand Marais, Mich.; at 25, 35, 50, and 70 fathoms in Whitefish Bay; at 35 fathoms in Munising Bay; and at 2-10 fathoms in the west channel to Munising Bay (south of Williams Island).



Cisco, research vessel of the Service's Great Lakes Fisheries Investigations.

Chub catches in gill nets were generally light and did not differ much from those made during Cruise 1. The average number of chubs per lift was 117, disregarding the set at 25 fathoms off Grand Marais and the one in the west channel to Munising Bay, in which no chubs were taken. The largest number taken was 177 in Munising Bay, of which 169 were Leucichthys hoyi. This species and L. reighardi were the commonest chubs in all catches, except at 75 fathoms off Grand Marais, where L. kiyi was abundant and L. hoyi rare, and at 100 fathoms off Grand Marais, where 59 of the 73 chubs were L. kiyi. L. zenithicus and L. nigripinnis were uncommon at all locations. The spawning period of L. reighardi still had not ended as a few of those taken were ripe or nearly so.

Lake herring were scarce except for 26 large fish (a few near one pound) taken at 25 fathoms off Grand Marais. Seventeen lake trout were netted, none at a depth greater than 50 fathoms. Ten of the lake trout were marked with spaghetti tags and released. The nets set in Munising Bay produced

107 of the unusually slow-growing whitefish which inhabit the deeper water of the Bay. Other species in the gill nets were smelt (numerous in only the 25-fathom set in Whitefish Bay), 1 burbot, 184 round whitefish, 85 longnose suckers, 1 white sucker, 2 alewives, and 2 yellow perch. The last five species were caught only in the shallow set in the west channel to Munising Bay.

Trawls were towed at several depths between 10 and 20 fathoms in Shelter Bay, east of Grand Island and off Grand Marais, and at 50 and 75 fathoms off Marquette. No baby lake trout were taken, despite the fact that in the Shelter Bay area they were present in moderate numbers during the same season in 1953. Catches of slimy sculpins and ninespine sticklebacks in the shallow tows were considerably larger than during Cruise 1. Somewhat over 1,000 of the latter species were caught in a 10-minute tow at 10 fathoms off Grand Marais. Present in only small numbers in the shallow tows were yearling smelt, trout-perch, pygmy whitefish, and small unidentified coregonids. A 20-minute tow at 50 fathoms off Marquette produced 58 *L. hoyi*, 48 *L. reighardi*, 6 *L. kiyi*, 1 *L. zenithicus*, 1 lake herring, 65 deep-water sculpins, 25 slimy sculpins, and 7 ninespine sticklebacks. A 20-minute tow at 75 fathoms produced 31 *L. kiyi* and 2 deep-water sculpins.

Several unidentified fish fry were caught near the surface in half-meter plankton nets of large mesh (No. 32 grit gauze) in Batchawana Bay, Ontario, and in Shelter Bay. No fry, however, were caught in similar tows in several other areas.

Limnological data were collected at regular stations off Grand Marais (45 fathoms) and in Whitefish Bay (70 fathoms). At the beginning of the cruise homothermous water (about 4° C. or 39.2° F.) was present at distances greater than 5 miles offshore from Grand Marais. Considerable surface warming, however, had occurred since Cruise 1 in all other areas visited, and had extended to 18 miles offshore from Marquette by the end of the cruise. Surface water temperatures were mostly 12° C. to 14° C. (53.6° F.-57.2° F.). Extremes of 3.3° F. and 16.3° C. (38.0° F. and 61.4° F.) were encountered.

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#### WESTERN LAKE SUPERIOR FISHERY SURVEY CONTINUED:

M/V "Siscowet" Cruise 3, July 13-22, 1959: This cruise was devoted to studies of the midsummer distribution of the lake herring in western Lake Superior. Work was conducted southeast of Michigan Island, east of Outer Island, north of York Island, northeast of Two Harbors, Minn., west of Bear Island, northwest of Sand Island, and north of Rocky Island.

The research vessel *Cottus* of the Fisheries Research Board of Canada joined the *Siscowet* for five days during the cruise. Both vessels are equipped with fish-magnifying fathometers and large areas were scanned to locate concentrations of lake herring. The vessels operated together on parallel courses to determine the size of individual schools detected on the fathometers.

Fathometer observations suggested very small and scattered schools of lake herring at each location. The schools apparently were small as at no time did both vessels record the same schools even though the vessels were operating as close as 100 feet apart. Nearly all the lake herring observed on the fathometer were located between 5 and 15 fathoms below the surface in waters 20 to 35 fathoms deep.

Bull nets (gill nets 300 feet long and 20 feet deep) with mesh sizes of 2½ and 2⅝-inch were set to capture lake herring. An oblique set of three bull nets made from the surface to the bottom at 160 feet southeast of Michigan Island took only 14 lake herring. Thirteen of these fish were taken in the portion of the net fishing from 0 to 70 feet. The surface temperature was 62.0° F.

An identical set made north of York Island took 30 lake herring, 26 of which were taken from 0 to 70 feet. Three specimens (2 males, 1 female) were ripe. Several others were gravid. The surface temperature was 64° F.

An oblique set of 5 bull nets was made from 0-120 feet on the north shore near Two Harbors, Minn. Lake herring (140 fish) were taken in this set, 135 of which were captured between 0 and 40 feet. Nearly 80 percent of these fish were females and several were nearly ripe. The surface temperature was 53° F.

A floating gang of 5 bull nets was drifted in an area north of Eagle and Sand Islands between the hours of 2100 and 0900. The nets were floated about 18 inches below the surface in water from 20 to 35 fathoms deep. During this operation one end of the gang was attached to the *Cottus* while the *Siscowet* cruised slowly around the nets scanning with the fish-magnifying fathometer. Several small schools of fish were recorded. Between 0100 and 0300 the *Siscowet* took 10-minute horizontal plankton tows with a Clark-Bumpus plankton sampler at 12 feet, 40 feet, and 120 feet. Plankton concentrations at 12 feet were extremely heavy; concentrations at 40 feet were considerably less and at 120 feet practically no planktons were captured. Plankton samples were collected by the same method the following day at 1100 with identical results. The floating gang had drifted about 1.5 miles and the catch consisted of 45 lake herring, 5 chubs (*Leucichthys hoyi*), 2 brown trout, and 1 rainbow trout. The stomachs from about 20 lake herring were examined and all were empty but one which contained several small moths (unidentified). The surface temperature was 67° F.

An oblique set was made in the area where bull nets were drifted a day earlier to cover the depths which were not fished by the floating gang. Five bull nets were set from 0 to the bottom at 120 feet. Lake herring (44 fish) were taken, 38 of which were captured between 20 and 60 feet. Only 4 lake herring were taken between 0 and 20 feet, the area fished by the floating gang. Stomachs from all lake herring were examined and several contained plankton. Other species taken were 13 chubs (9 *L. hoyi*, 4 *L. zenithicus*), 1 lake trout, and 1 smelt. Water temperatures in this area varied from 69° F. on the surface, 44° F. at 75 feet, and 39° F. at 175

feet. It was again demonstrated that herring are not found in abundance in water with temperatures exceeding 50° F.

Four 15-minute trawl tows were made west of Bear Island at depths of 6, 7, 14, and 18 fathoms. Two tows at 6 and 7 fathoms took only 5 ninespine sticklebacks, 3 smelt, and 1 small lake herring. The tow at 14 fathoms captured 53 small (4- to 6-inch) lake herring, 20 smelt, 20 slimy muddlers, and 1 stickleback. The tow at 18 fathoms captured 46 smelt, 10 chubs (L. hoyi), 4 lake trout, and 18 slimy muddlers.

One 15-minute tow was made in 36 fathoms northwest of Sand Island. The catch consisted of 77 chubs (76 L. hoyi, 1 L. kiyi), 75 slimy muddlers, 25 spoonhead muddlers, and 1 lake trout.

Three 10-minute tows were made with a  $\frac{1}{2}$ -meter (No. 32 grit mesh) plankton net on a shallow rocky shoal just north of Rocky Island. Mayfly larvae made up the bulk of the catch; no fish larvae were captured.

Surface temperatures varied from 69.2° F. northwest of Sand Island to 53.6° F. near Two Harbors, Minnesota. Bottom temperatures remained at about 40° F.

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#### WESTERN LAKE ERIE

##### BIOLOGICAL RESEARCH CONTINUED:

M/V "George L." Cruise 5, July 1959: Intensive trawling with the M/V George L. and the auxiliary workboat Madtom continued during July to gather further information on the distribution, growth, and food of the yellow pike (walleye) and other young fish. Young-of-the-year yellow pike were found in abundance along the shoreline from Huron west to Toledo, and north to the mouth of the Detroit River. Most of the young yellow pike were found near shore in water 8-15 feet deep over a sand bottom. In late July, the young-of-the-year fish were about 5 inches long and had begun to move into deeper waters. The largest number of young yellow pike (75) taken in one 10-minute tow was near East Harbor.

Although young fish were common in Sandusky Bay, none were found in Maumee Bay. Young yellow pike were rarely taken by trawling near Pelee, North Hen, Kelleys, or the Bass Islands.

Young fish most commonly taken with young yellow pike were yellow perch, white bass, and spot-tail shiners. These species also made up most of the food of the young yellow pike.

A study to determine the variations in catches of fish by trawls was undertaken. Tows were made at three stations of different depths in the morning, afternoon, and night for 3 consecutive days near East Harbor. Great variations in the catches of young fish were observed. On the first two days all young yellow pike and other species 1-year old or older were fin-clipped and returned to the water in an attempt to determine movement and rate of recapture in the area. Only a few of the hundreds of fin-clipped fish were recaptured.

A 6-inch muskellunge, the first of this species taken by our investigations, was taken by trawl near East Harbor.



## Gulf of Mexico Gear Research Program

### SHRIMP-TRAWL PERFORMANCE OBSERVED BY UNDERWATER TELEVISION:

M/V "George M. Bowers" Cruise 21: To obtain underwater movies of the performance of various types of Gulf of Mexico shrimp trawls, the U. S. Bureau of Commercial Fisheries exploratory fishing vessel George M. Bowers on August 3, 1959, completed the second in a series of cruises. The observations and photographs were made by SCUBA divers from a diving sled towed by the vessel in the vicinity of Panama City, Fla.

A total of 5,100 feet of underwater motion pictures of shrimp-trawling gear was obtained during the cruise. Complete records of the performance of the various components of a 40-foot flat shrimp trawl were obtained. Comparisons were made of chain doors and bracket doors, various amounts of chain on the footrope, various headrope floatation devices, and various bridle lengths at varying vessel speeds.

A 40-foot semiballoon shrimp trawl was photographed with some of the variations noted above, including operation with and without a "tickler" chain.

Cruise 22: The M/V George M. Bowers operated off Panama City on the third of a series of cruises to study the performances of various designs of Gulf of Mexico shrimp trawls. Observations and 2,700 feet of motion-picture film of trawls in action were made by divers who rode a diving sled towed by the vessel. The trip took place August 19-29, 1959.

Performances of two 40-foot trawls, rigged with several different doors and door settings, were recorded under various towing speeds and using different scopes of trawling warp. Towing speeds of over 3.5 knots were realized during these tests.





## Louisiana

### GOOD OYSTER SET INDICATES FUTURE BUMPER CROP:

A big increase in oyster production in Louisiana is expected from shell-planting operations in Balck Bay in Plaquemines Parish, and in the vicinity of Petit Pass Island, Half Moon Island, and Little Raccoon Island in St. Bernard Parish.

The Chief of the Oysters, Water Bottoms and Seafood Division of the Louisiana Wild Life and Fisheries Commission said that some 350,000 barrels of clam and oyster shells had been planted in the designated areas. It further was reported that 92 percent of clam shells in the Black Bay area already have taken on spat and promise to produce a fine crop of seed oysters.

Barring unforeseen eventualities and if the tests continue to prove successful, a bumper crop of seed oysters will be developed within 15 months. The seed oysters then will be available to oystermen for transplanting on their own growing bottom.

The areas being planted by the Commission will be closed to oyster fishing until at least September 1960, it was pointed out. Mississippi oyster firms have returned--without cost to the Commission--200 barrels of steamed oyster shells for each 1,000 barrels of oysters taken in Louisiana waters. Those shells are being planted in the Little Raccoon Island area.

In 1956, the Commission planted 50,000 barrels of oyster and clam shells. From beds thus created, 150,000 barrels of seed oysters were produced. (Louisiana Conservationist, July-August 1959.)



## Haddock

### LANDINGS FOR JANUARY-JUNE 1959 AT RECORD LOW:

Haddock landings from Georges Bank hit a record low for the first half of 1959. The haddock abundance index, maintained by U. S. Bureau of Commercial Fisheries

biologists since 1931, reveals a drop to 9,700 pounds per day per vessel for the first six months of 1959, the first time the catch level for large otter trawlers has dipped below the 10,000-pound-per-day level.

The drop in haddock landings at New England ports to about 59 million pounds during January-June 1959 (8 million pounds less than in the same period of 1958) came as no surprise to Bureau biologists who predicted last fall that haddock catches would be low in 1959.

The Director of the Bureau's Fishery Biological Laboratory at Woods Hole, Mass., reports that haddock is expected to be in short supply for at least another year, with some improvement expected in the summer of 1960.

Reason for the scarcity is thought to be poor survival of young haddock from spawnings in recent years because of unfavorable environmental conditions. What these conditions are is not known at the present time, but they may be related to changes in water temperature, changes in the pattern of ocean currents, increases in predators, decreases in plankton upon which young fish feed, or possibly to disease.

Result of the poor survival in recent years is a particularly severe scarcity of younger fish, two- and three-year-old haddock which are sold on the market as "scrod." Catches of larger haddock have held up fairly well. The shortage is most acute at the eastern edge of Georges Bank, some 250 miles from Boston, probably the world's greatest haddock-producing ground.

On the optimistic side, research vessel surveys of the banks in the fall of 1958 revealed good concentrations of young-of-the-year haddock of the 1958 brood. These baby fish, as yet too small to be taken by fishermen's nets, are due to enter the fishery when they are two years old in 1960. If their abundance lives up to present expectations, haddock catches will improve markedly in the summer and fall of 1960.

Results of the Bureau's 1959 survey, which starts in September, will provide

an up-to date measure of the abundance of the 1958 brood and provide biologists with the basis for a more definite estimate of the 1960 catch level. The survey will also measure the abundance of the 1959 crop, which will first appear in the catches in 1961 and provide the basis for predicting catches for 1961. Stocks of haddock are presently so reduced that several good year-broods will be required to restore abundance to a normal level.



### Maine Sardines

#### CANNED MAINE SARDINE STOCKS, JULY 1, 1959:

Distributors' stocks of Maine sardines totaled 176,000 actual cases on July 1, 1959--down 8,000 cases or 4.3 percent from the 184,000 cases on hand July 1, 1958. Stocks held by distributors on June 1, 1959, amounted to 197,000 cases and on April 1, 1959, totaled 254,000 cases, according to estimates made by the U. S. Bureau of the Census.

Canners' stocks on July 1, 1959, totaled 422,000 standard cases (100  $3\frac{3}{4}$ -oz. cans), an increase of 36,000 cases (9.3 percent) as compared with July 1, 1958, and an increase of 55.1 percent (150,000 cases) from the 272,000 cases on hand June 1, 1959. However, stocks on hand July 1, 1959, were 11.0 percent below the 474,000 cases on hand April 1, 1959.

For the 1958/59 season (beginning April 15, 1958), there was an available supply of 2,434,000 standard cases (413,000 cases carried over from the previous season plus a pack of 2,021,000 cases). The pack from April 15 to July 1, 1959, was 363,000 standard cases and the carry-over as of April 15, 1959, was about 420,000 standard cases.

#### BOYS' CLUBS OF AMERICA "SARDINE SEACOOK" CONTEST:

The Boys' Clubs of three states (New York, excluding Greater New York, Massachusetts, and Connecticut) entered a novel sardine cooking contest, simply called "Sardine Seacook." Some 150 clubs in the four states were involved. The contest was sponsored by the Boys' Clubs of America and the Maine Sardine Council.

In view of the fact that a great many Boys' Clubs have cooking facilities within their clubhouses, the purpose of the contest was to encourage youngsters to learn more about Maine sardines, according to a news release from the Maine Sardine Council.

Existing or original recipes were allowed. Judging was based on taste, appearance, convenience of preparation in relation to the whole dish, nutritive value, and also the boy's age is taken into consideration.

After preliminary judging in the clubs themselves, a panel of food experts in New York City selected three winners from each state as state finalists. These finalists, and their executive directors, were brought to their state capital by the Maine Sardine Council for an all-expense-paid weekend, during which a "cook-off" was held to determine the State Champ. The boys met important officials of their state and were given a guided tour of the capital.

The State Champions and their executive directors went to Maine on August 28 for a week's all-expense-paid vacation as guests of the sardine industry. They met the Maine's Governor, visited points of interest, and enjoyed a full program of boating, fishing, swimming, etc. The final cookoff was held in the model kitchens of the Central Maine Power Co. at Augusta on September 1. The recipes and the

Table 1 - Canned Maine Sardines--Wholesale Distributors' and Canners' Stocks, July 1, 1958, with Comparisons

Type	Unit	1958/59 Season					1957/58 Season			
		7/1/59	6/1/59	4/1/59	1/1/59	11/1/58	7/1/58	6/1/58	4/1/58	1/1/58
Distributors	1,000 Actual Cases	176	197	254	268	312	184	237	293	230
Canners	1,000 Std. Cases <sup>1/</sup>	422	272	474	891	1,037	386	235	476	1,111

<sup>1/</sup>100  $3\frac{3}{4}$ -oz. cans equal one standard case.

sardine dishes prepared by the State finalists at the final cookoff were selected from among more than 1,100 submitted by boys representing 150 clubs in the three states.

\* \* \* \* \*

#### CANNED SARDINES SERVED AT GIRL SCOUT ROUNDUP:

Ten thousand girl scouts from all 50 states enjoyed Maine sardine sandwiches at a July 6 luncheon during their National Roundup, held at Colorado Springs, Colo., from July 6-12, 1959.

The sardines, supplied by the Maine Sardine Council, were served in an attractive manner and hundreds of the girl scouts ate them for the first time.

Maine sardines were also the principal item on the luncheon menu on Friday, July 9, when they were featured in a salad combination.

Council representatives attending the National Roundup to supervise the preparation of the dishes were pleased with the acceptance and popularity of the Maine seafood.

About 35 girls from the Pine Tree State were among the hungry diners who enjoyed an exciting schedule of activities in this beautiful Rocky Mountain area.

A Council spokesman stated that the contribution of 10,000 cans of sardines had been made to assist the Girl Scout movement as well as to introduce the product to many new potential users. Sardines had never before been served at a girl scout Roundup.

Two years ago the Council conducted a similar promotion with the National Boy Scout organization when 50,000 boys were served the item twice during the 4th Jamboree at Valley Forge, Pa.

The sardine cans were packed with a specially-designed cover which made a big hit with the girls and were popular souvenir items.



## Marine Telephone Cables

### TRAWLER-TELEPHONE CABLE MISHAPS ENDANGER LIVES AND PROPERTY:

From Newfoundland to Scotland, California to Hawaii, and from the State of Washington to Alaska, voices now travel beneath the high seas via submarine telephone cables. Like the voices which travel along miles of land cable, the submarine version is ever in danger, but from an unexpected quarter--the fishing trawler.

Conversely, these underwater communication systems provide a day-to-day threat to the livelihood of the trawler fishermen. Unlike telegraph cables, the recently established voice links in the Atlantic and Pacific carry as much as 2,500 volts of electricity. Attempts at severing a voice cable from trawler gear could seriously injure fishermen and, in some cases, even prove fatal.

Because of the immense complexities involved in deep-sea telephone cables, a 3-point plan aimed at reducing trawler-cable mishaps has recently been launched by the Long Lines Department of the American Telephone and Telegraph Company. Trawler captains are asked to: (1) familiarize themselves with charts showing underseas telephone cable routes and to avoid them as much as possible in trawling missions; (2) avoid dragging nets or dropping anchors or heavy gear near cable routes; and (3) avoid starting trawling runs that would bisect cable positions.

Fishermen are urged to use extreme caution in the event a trawling net or other board becomes entangled with an underseas cable. The telephone company will reimburse the fishing trawler for whatever equipment has been damaged or lost in order to save the cable. Application of this 3-point safety formula when trawling near cable positions will protect telephone and telegraph communications as well as trawling equipment. This is a mutual operation and one that must be solved on the basis of mutual consideration. Charts showing the cable areas can be obtained by writing the Long Lines Department, American Telephone and Telegraph Company, 32 Avenue of the Americas, New York 13, New York.

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## Marketing

### EDIBLE FISHERY PRODUCTS MARKETING PROSPECTS, FALL 1959:

Consumption of fishery products per civilian in the United States during the fall of 1959 is expected to average a little higher than a year earlier. Supplies of the processed items--particularly the frozen--will be heavier this fall as compared with the fall of 1958, and retail prices will average somewhat lower for popular items such as frozen fillets and shrimp.

Commercial landings of food fish and shellfish begin to build up seasonally in early spring and usually reach a peak around midyear. Total landings this year may be a little lower than in 1958 but frozen stocks are higher and imports are expected to be heavier this year than last.

At the end of June 1959 supplies were somewhat greater than a year earlier because of stocks carried over from earlier in the year and heavier imports. Commercial landings were about unchanged. Among the major items imported, the increase over the first half of 1958 was heaviest for frozen ground-fish fillets (cod, haddock, hake, pollock, and cusk, and ocean perch), frozen shrimp, and canned tuna in brine. Retail prices of fishery products averaged somewhat higher this January-June than last.

This analysis appeared in a report prepared by the Agricultural Marketing Service, U. S. Department of Agriculture, in cooperation with the Bureau of Commercial Fisheries, U. S. Department of the Interior, and published in the former agency's July 1959 release of The National Food Situation (NFS-89).



## Massachusetts

### FROZEN FOOD LAW ADOPTED:

Late in July 1959 the State of Massachusetts passed a law (containing punitive provisions), which would give the Director of Food and Drug of that State the power to set up and enforce a code to safeguard the handling of frozen foods.

Shortly before that time the Association of Food and Drug Officials of the United States had held its annual meeting in Boston, at which time a model code for the handling of frozen foods was drafted and approved.

The Director of the Food and Drug Division, Department of Public Health, Mass., has announced that the law does not become effective until 90 days after enactment. Industry committees were set up to assist the Director in the implementation of the law, after which a series of public hearings were due to be held in order to obtain the widest possible cross-section of opinion on the operation and enforcement of the law and regulations resulting therefrom.



## North Atlantic Fisheries

### Exploration and Gear Research

#### UNDERWATER TELEVISION USED TO STUDY OTTER-TRAWL PERFORMANCE:

M/V "Delaware" Cruise 59-8: Observations on otter-trawl performance utilizing underwater television apparatus (U/WTV) were carried out by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware during a July 8-23, 1959, cruise. The underwater observations were recorded on film for use in studies on this type of gear.

Fishing activities were carried on near the southern portion of Stellwagen Bank, about 15 miles Northwest of Provincetown, Mass. This location provided smooth sandy bottom and water free from excessive turbidity.

The U/WTV gear utilized during these operations was an "Image-Orthicon" unit, developed and used by the Bureau Fisheries Biological Laboratory at Woods Hole, Mass. With the U/WTV camera positioned near the mouth of the trawl, film recordings from the TV monitor were accomplished using a conventional 16 millimeter motion-picture camera. Motion pictures were made of the foot-rope of a No. 41 New England trawl rig-

ged with rollers and with chain gear. A series of scenes were recorded showing the action of the footrope at varying speeds. Of interest in some of the sequences was the presence of several species of fish--notably cod, dogfish, skates, and flat fish. The location of the U/WTV camera was changed several times to allow different views of the gear.



Taken from a TV monitor aboard the M/V Delaware, research vessel of the U. S. Bureau of Commercial Fisheries. View of trawl net on bottom with rollers on right, net moving from the right towards the left of the picture. The fish are dogfish.

The results obtained were generally favorable, considering the fact that during a large portion of the cruise heavy fog reduced available light to a minimum. Over 2,500 feet of film were exposed during the operations which extended from July 8 through July 23.



### North Atlantic Fisheries Investigations

#### BOTTOM SEDIMENTS AND BOTTOM ANIMALS COLLECTED:

M/V "Delaware" Cruise 59-9: A total of 152 bottom sediment samples

were collected along the southern edge of the Gulf of Maine and on Browns Bank by the U. S. Bureau of Commercial Fisheries research vessel Delaware, during an August 5-11 cruise. The samples were collected over an 800-mile track at 5-mile intervals with a Smith spring-loaded bottom sampler.

The samples of bottom sediment will be studied for particle size and to obtain a quantitative measure of the organic matter contained in the sediments. In addition, 95 samples of various species of bottom animals were collected for further study. Among the many interesting specimens of bottom animals was four specimens of the rare mud crab, Calocaris macandreae.

Bathythermograph casts were made at all stations and drift-bottle hauls were released at 120 stations.



### Oregon

#### LICENSE FEE FOR RETAILERS OF PACKAGED FROZEN FISH AND SHELLFISH INCREASED:

A new law affecting firms retailing packaged frozen shellfish only and packaged frozen food fish was announced on August 4, 1959, by the Oregon Fish Commission. The law requires those dealers to pay \$3 for their packaged frozen food fish and packaged frozen shellfish license instead of the \$1 fee previously charged. The increased fee will be effective August 5.

Those issued the \$1 license between April 1 and August 4, 1959, will be allowed to operate on the license and within regulations until March 31, 1960.

There are approximately 1,182 dealers in the State of Oregon retailing packaged frozen fish and shellfish under the frozen package license regulations, and 1,237 persons are licensed in the general retail category as food fish and shellfish dealers yearly.

The license fee of \$7.50 for dealers operating in the general food fish and shellfish category was not changed.

Persons dealing in only the frozen package business are required to have

the \$3 license and need not purchase the general \$7.50 license.

The \$3 frozen package license as specified by Oregon Revised Statutes 508.180, listed in the Oregon Commercial Fisheries Code, applies only to retail activities dealing in species of food fish or shellfish which are wrapped, frozen, and placed in packages to which a legible label is stamped or printed showing the name, address, brand, and trade name of the original processor or wholesale distributor under which the package is marketed, and the kind of frozen product contained therein, for distribution and ultimate sale in the original package.



## Oysters

### LONG ISLAND SOUND OYSTER AND STARFISH SET LIGHT AS OF JULY 30:

Setting of starfish which began on July 2, 1959, continued virtually without interruption during July, but fortunately was not too heavy. The intensity of starfish setting at the 10 stations surveyed by biologists of the U. S. Bureau of Commercial Fisheries Biological Laboratory at Milford, Conn., varied from a low of 10 (per 40 oyster shells, inside surface only) to a high of 237 over the July 2-30 period.

Although many partially-spawned oysters were observed in July, oyster larvae were virtually absent from plankton collections. The first larvae in Long Island Sound were found in samples taken on July 30, when a few larvae in the early umbo stage were collected at a station in New Haven Harbor in one of the 200-gallon samples.

No oyster set was observed on any of the oyster collectors examined until July 30. (Bulletin No. 2, August 4, 1959.)

\* \* \* \* \*

### BETTER SET PREDICTED FOR CERTAIN MARYLAND WATERS:

The 1959 set of baby oysters in certain lower Maryland waters promises to

be much better than in other recent years, a shellfish biologist from the Chesapeake Biological Laboratory at Solomons, Md., reported on August 11. This was in cheering contrast with the recent announcement that last season's harvest of adult oysters was the smallest in Maryland history.

The count of spat (young oysters) on test shells in St. Mary's River is ten times what it was last year. The Barren Island area on the Eastern Shore across from Solomons is producing four times as much, and is still going strong. These areas, along with Eastern Bay and Holland Straits bars, are the primary sources of seed oysters used in rebuilding the Chesapeake's oyster bottoms. The set in Holland Straits is running about the same as last year, although its spawning season isn't quite over. Honga River is showing no change.

The biologist and his helpers have been checking test bags of oyster shells placed on the bars. The shells are picked up weekly, from late May to early October, and examined under the microscope at Solomons to determine the extent of spat set. The program has been in existence 15 years.

Test-shell examinations on a weekly basis provide another type of information--the time when oysters on a bar spawn. Bars in the Chesapeake vary one from the other as to spawning dates--most start some time in June--but each has its own distinctive "birthday," or several of them.

Such information is useful to Tidewater Fisheries Commission personnel and private planters wanting to know just when to plant shell stock. The shells make good homes for oyster spat if barnacles and other fouling organisms don't arrive first. The best shell planting time is a week before the peak of setting.

Prior to general recognition of the shell-foul problem, thousands of bushels of shell were being distributed by Maryland up to 5 and 6 months ahead of time. This is somewhat changed today; Tidewater Fisheries personnel often work night and day to throw clean shells over-

board during the crucial June days when oyster larvae are ready to set.

Keeping close tabs on test-shell spat attachment is not an exact indication of what will take place on natural oyster bottom, but a trend of the numbers of test shell spat has heretofore been followed by a comparable trend in spat on natural and planted bottoms.

Barring some upsetting act of nature a presentable crop of spat should be noted in St. Mary's River and bay waters near Barren Island this fall. It most likely won't approach the St. Mary's strike of 3,000 spat to the bushel in 1941, but it should be considerably above the 40 or 50 considered necessary for a natural bar to continue reproducing itself.



## Shellfish

### RESEARCH ON CONTROL OF SOFT-SHELL CLAM AND OYSTER PREDATORS:

A lindane barrier experiment to exclude green crabs from clam flats is being conducted at Pope's Creek at Wells, Me., by the U. S. Bureau of Commercial Fisheries. In this experiment, five trawl lines of about 100 hooks each have been placed across the mouth of Pope's Creek and are held on bottom by lead weights. Each hook is baited with an alewife which has been soaked in lindane to make it poisonous to green crabs. Presumably, green crabs coming from the sea will find this bait and feed on it before reaching the clam flats.

A similar barrier was successful in the smaller Upper Landing Creek last year. This experiment is being conducted in cooperation with the town of Wells and the Maine Department of Sea and Shore Fisheries. A similar experiment is being conducted by the town of Kittery, Me., in cooperation with the Maine Department of Sea and Shore Fisheries.

The Bureau's Milford, Conn., Biological Laboratory used certain vital dyes, a saturated salt solution, and chemicals to control and often eliminate fouling or-

ganisms, such as hydroids, tunicates, worms, and mussels. Sulfa drugs, antibiotics, fungicides, and temperature manipulations protected young mollusks from diseases which attack young oysters and hard-shell clams grown under hatchery conditions.

Studies at the Milford Laboratory indicate that creating chemical barriers around shellfish beds to prevent enemies from entering them may be effective, especially against oyster drills and other predacious gastropods.

The Annapolis, Md., and Franklin City, Va., Biological Laboratories developed a promising method of controlling the movement of the drills *Urosalpinx* and *Eupleura* which prey on oysters. This method consists of erecting around an oyster bed a low plastic screen fence with a strip of copper attached to it. Since drills will not cross this copper strip, they do not enter the oyster bed. In a field test of this method in 1958 on a half-acre plot, 75 percent of the oysters survived while nearly all oysters in a nearby unprotected area were lost.



## South Carolina

### FISHERIES BIOLOGICAL RESEARCH PROGRESS, APRIL-JUNE 1959:

Oyster Research: There was no significant change in growth rate of experimental oysters during this quarter as compared to similar periods of time in other years. Spawning and setting began a few days earlier this year, and by the first part of June the set on clean steamed cultch shell in suspended wire baskets was about 10 spat per square inch.

Mortalities began to increase with the advent of warmer weather in June. One catastrophic mortality of unknown cause was noted in a single tray of oysters kept in We Creek. In May over 50 percent of the oysters in this tray died in a three-week period. Strangely enough, other specimen oysters in another tray lying immediately adjacent were not killed.

Young seed oysters from Long Island Sound planted in November of last year have shown good growth and low mortality.

ties. Growth and mortality rates of these imported seed follow step by step with native seed of similar age.

The experiments in the one-acre oyster pond on the affect of exposure to air were continued. In these experiments, approximately 500 adult oysters are exposed to sunlight for six hours a day; 500 are exposed to air, but are shaded from direct sun; and the same number are continuously submerged. The cumulative mortality of these experimental oysters since October 1958 for the continually submerged oysters was 18 percent; for the shaded oysters, 2 percent; and for the sun-exposed oysters, 4 percent. The higher mortalities of the sun-exposed oysters may have been due to extremes of temperature experienced during still, hot days. Monthly checks on *Dermocystidium* infection showed that the air-exposed but shaded oysters had the highest infestation.

**Shrimp Research:** An analysis of 89 experimental trawl hauls made at regular stations throughout the period showed that brown-spotted shrimp (*Penaeus duorarum*) were twice as abundant as during the same period last year. White shrimp (*P. setiferus*) were seven times more abundant; and brown shrimp (*P. aztecus*) were five times as abundant. Commercial shrimp fishermen reported similar trends and all indications are that the shrimp season of 1959 will be the best in several years. However, the sharp decline in price in June may seriously affect the economy of the industry in South Carolina.

**Crab Research:** Data obtained from trawling indicate that blue crabs were about in the same degree of relative abundance from April-June this year as in the same quarter a year ago. One commercial crab plant operator reported a sharp decline in the volume of crabs caught on trot lines and in pots during June. The explanation for this may lie in unusually high tides, easterly winds, and high water temperatures. The shortage was not reflected in the experimental trawls.

Returns from the cooperative crab tagging program carried out by this Laboratory and the U. S. Bureau of Com-

mercial Fisheries at Beaufort, N. C., show that, if the returns are sufficient to be significant, the trend of movement is to the southward. Several crabs moved from this vicinity of Bears Bluff to Savannah and a few went as far south as Sapelo Island, Ga. Additional tagging is planned during August to see if summertime tagging will change the barely apparent directional trend.

**Pond Culture:** Although large-scale experiments in pond culture of shrimp have been curtailed for lack of personnel, some tests are being made to determine the feasibility of using stocking methods in common practice in the Far East.

Using the pressed tea seed cake or "sapolin" supplied to the Bears Bluff Laboratory by the U. S. State Department, some preliminary tests have been made to determine the value of this product in the control of predaceous fishes. With water temperatures about 25° C. or about 77° F. and salinities of about 25 parts per thousand, even minute amounts of tea seed cake were found to be exceedingly effective in killing fish, but leaving shrimp unharmed. Spot, croaker, mullet, Fundulus, and Cyprinodons were killed rapidly without harm to white or brown shrimp. (Progress Report No. 40, April-June 1959, of the Bears Bluff Laboratories, Wadmalaw Island, S. C.)

Note: Also see Commercial Fisheries Review, July 1959, p. 43.



## Tuna

### INDUSTRY PROBLEMS DISCUSSED AT JOINT GOVERNMENT INDUSTRY MEETING:

Representatives of several Government agencies met July 8 with representatives of the Pacific Coast tuna industry to discuss the situation of the industry and to obtain views as to ways the Government might be of assistance. Assistant Secretary Ross Leffler represented the Department of the Interior and Deputy Assistant Secretary for Economic Affairs Thomas Beale represented the Department of State. Officials of the Departments of Commerce and Navy were also present.



A spokesman representing the Southern California segment of the industry made a number of proposals for immediate, intermediate, and long-range action by the Government.

Among these were suggestions for emergency loans, flexibility in the administration of present Government loan programs, a Government-to-Government conference with the Japanese covering a range of topics from conservation to price and volume controls, implementation of a tuna research program developed at the May 19-21 meeting at La Jolla, Calif., and action on vessel mortgage insurance and construction differential subsidies.

Major emphasis was placed on the desirability of holding Government-to-Government discussions with Japan.

Spokesmen for the tuna industry located outside of the Southern California area expressed agreement with certain of the proposals above. They did not support proposals for discussions with Japan with a view to a limitation on certain exports to the United States.

The representatives of the Departments of Interior, Commerce, and State said they would give careful consideration to the plan of action proposed with the understanding that no commitment was made as to the possible attitude of the Government on the plan.



### United States Fishing Fleet<sup>1/</sup> Additions

#### MAY 1959:

A total of 45 vessels of 5 net tons and over were issued first documents as fishing craft during May 1959--35 less than in May of last year. The Pacific area led with 18 vessels, followed by the Gulf with 11 vessels, and the South Atlantic with 8.

During the first five months of 1959, a total of 175 vessels were issued first documents as fishing craft--113 less than during the same period of 1958.

<sup>1/</sup>Includes both commercial and sport fishing craft.

Most of the decline occurred in the Gulf area where 66 fewer vessels were documented in 1959 than in 1958.

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

Area	May		Jan. -May		Total
	1959	1958	1959	1958	
(Number)					
New England . . . . .	1	1	7	8	13
Middle Atlantic . . . . .	-	4	3	7	13
Chesapeake . . . . .	4	7	34	38	99
South Atlantic . . . . .	8	14	31	51	135
Gulf . . . . .	11	27	51	117	270
Pacific . . . . .	18	17	39	46	112
Great Lakes . . . . .	-	1	3	3	10
Alaska . . . . .	3	9	7	17	31
Virgin Islands . . . . .	-	-	-	1	1
Total . . . . .	45	80	175	288	684

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

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

Net Tons	Number
5 to 9 . . . . .	18
10 to 19 . . . . .	9
20 to 29 . . . . .	8
30 to 39 . . . . .	4
40 to 49 . . . . .	2
50 to 59 . . . . .	2
130 to 139 . . . . .	1
280 to 289 . . . . .	1
Total . . . . .	45

\*\*\*\*\*

#### JUNE 1959:

During June 1959, a total of 87 vessels of 5 net tons and over were issued first documents as fishing craft. Compared with the same month of last year, this was an increase of 11 vessels. The Gulf led with 25 vessels, while the Pacific area was second with 20 vessels, and the South Atlantic and the Alaskan areas were next with 13 vessels each.

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

Area	June		Jan. -June		Total
	1959	1958	1959	1958	
(Number)					
New England . . . . .	1	2	8	10	13
Middle Atlantic . . . . .	2	-	5	7	13
Chesapeake . . . . .	11	6	45	44	99
South Atlantic . . . . .	13	10	44	61	135
Gulf . . . . .	25	32	76	149	270
Pacific . . . . .	20	20	59	66	112
Great Lakes . . . . .	2	-	5	3	10
Alaska . . . . .	13	6	20	23	31
Virgin Islands . . . . .	-	-	-	1	1
Total . . . . .	87	76	262	364	684

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

During the first six months of 1959, a total of 262 vessels were issued first documents as fishing craft--102 below the same period of 1958. Most of the decline occurred in the Gulf area where 73 fewer vessels were documented in 1959 last year.

C. Butler from the U. S. Bureau of Commercial Fisheries, Washington, D. C.



**U. S. Foreign Trade**

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

Net Tons	Number
5 to 9 . . . . .	33
10 to 19 . . . . .	20
20 to 29 . . . . .	15
30 to 39 . . . . .	6
40 to 49 . . . . .	7
50 to 59 . . . . .	1
60 to 69 . . . . .	2
140 to 149 . . . . .	1
170 to 179 . . . . .	1
180 to 189 . . . . .	1
Total . . . . .	87

**EDIBLE FISHERY PRODUCTS, JUNE 1959:**

Imports of edible fresh, frozen, and processed fish and shellfish into the United States during June 1959 decreased 3.0 percent in quantity but were up 5.4 percent in value as compared with May 1959. The decrease in quantity was due primarily to lower imports of frozen and canned tuna which more than offset substantially higher imports of frozen fillets of all types, spiny lobsters, and frozen and canned salmon. The increase in value was due to more imports of such high-priced commodities as canned salmon and spiny lobsters and frozen shrimp, salmon, and spiny lobsters.



**United States Fishery Experts Visit**

**Soviet Salmon Centers**

A group of four United States fishery experts left Washington, D. C., in mid-August on a visit of the salmon centers on Russia's east coast. The group arrived at Vladivostok late in August and they were expected to study the big chum and pink runs of the Amur River which contribute heavily to North Pacific salmon fisheries. In addition, the group hoped to visit the Okhotsk Sea to see the salmon fisheries in that area, and the trip is expected to end in the Kurile Islands.

Since much of the North Pacific salmon research has centered around the problem of identifying United States salmon stocks on the high seas from the comingled Asiatic stocks, it is hoped that the fishery experts will be able to obtain more data which will help the research under way.

The United States fishery experts were: W. C. Arnold of the Alaska Salmon Industry, Inc.; C. Pautzke of the Washington Department of Fisheries, C. Atkinson of the U. S. Bureau of Commercial Fisheries Laboratory at Seattle, and

Compared with June 1958, imports in June this year were down 3.9 percent in quantity but up 5.4 percent in value. Substantially lower imports of groundfish fillets, frozen shrimp, frozen tuna (especially albacore), and canned salmon more than offset increased imports of fillets other than groundfish, canned albacore, canned sardines, canned crabmeat and spiny lobsters, and frozen sea scallops. The increase in value was due to higher imports of high-priced products like canned albacore, crabmeat, and spiny lobsters.

Item	Quantity			Value		
	June		Year	June		Year
	1959	1958	1958	1959	1958	1958
	(Millions of Lbs.)			(Millions of \$)		
<b>Imports:</b>						
Fish & shellfish:						
Fresh, frozen, & processed <sup>1/</sup> . . . . .	80.1	83.3	956.8	27.2	25.5	278.4
<b>Exports:</b>						
Fish & shellfish:						
Processed only <sup>1/</sup> (excluding fresh & frozen) . . . . .	4.5	1.9	41.2	1.3	0.6	15.6

United States exports of processed (mostly canned fish and exclusive of fresh and frozen) fish and shellfish in June 1959 were lower by 14.7 percent in

<sup>1/</sup>Includes pastes, sauces, clam chowder and juice, and other specialties.

quantity, but were 8.3 percent higher in value as compared with May 1959. Compared with the same month in 1958, the exports this June were higher by 132.0 percent in quantity and 116.7 percent in value. The higher exports in June this year were due to increased exports of canned California sardines, canned salmon, and canned squid. These items accounted for about 89 percent of total exports of processed fish and shellfish in June this year.

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#### IMPORTS OF SELECTED FISHERY PRODUCTS, JANUARY-JUNE 1959:

With tuna, shrimp, groundfish and ocean-perch fillets, and fish meal leading the way, United States imports of fishery products showed further increases during the first six months of 1959. The first half year's trend showed gains in canned sardines, canned salmon, canned shrimp, canned squid, and fish oils; declines were noted in canned mackerel, canned anchovies, and miscellaneous fresh or frozen fish.

Groundfish and Ocean-Perch Fillets and Blocks: Imports January-June 1959 were 20 percent higher than in the like period of 1958. Imported in greater quantities were cod fillets, up 46 percent; fillets of haddock, hake, etc., up 18 percent; and ocean-perch fillets, up 30 percent. Canadian shipments of groundfish fillets and blocks to the United States were 24 percent below those of January to June 1958; Icelandic shipments were up 101 percent.

Blocks of Bits and Pieces of Groundfish Fillets: During January-June 1959, imports were only 9 percent of the amount imported during the comparable 1958 period. Imports declared as bits and pieces will probably continue at a low level, compared to the quantity received a year ago when importers used a 1957 court ruling to obtain a lower rate of duty on fish blocks.

Tuna, Fresh or Frozen: Receipts of frozen albacore during the first six months of 1959 were 12 percent higher than during the like 1958 period. Japan was the principal supplier. Other countries, however, sent nearly 2 million pounds during January to June 1959, compared with only 10,000 pounds during January to June 1958.

During the first half of 1959, imports of other frozen tuna, mainly yellowfin, were 79 percent above those of the first half of 1958. Receipts from Japan were up 43 percent. Tuna shipments from Peru during the first half of 1959 were at a record high level.

Tuna, Canned in Brine: Imports during January-June 1959 were 17 percent above those of January to June 1958. Under the 1959 quota, the amount which may be imported at the lower 12-1/2 percent ad valorem rate is 17 percent more than under the 1958 quota.

Shrimp: The upward trend in receipts of shrimp continued during the first half of 1959. Imports were 54 percent higher than for the first half of 1958. Mexico was the leading supplier, sending 59 percent of the total. Panama was second. Shrimp imports from Japan increased by over 3 million pounds; imports from Hong Kong fell off by 1.5 million pounds.

Canned Sardines: During the first six months of 1959, imports of canned sardines in oil were up 22 percent over those of the comparable 1958 period owing mainly to larger shipments of Portuguese sardines. Imports of canned sardines not-in-oil were at a low level as a result of the increase in the supply of California sardines last season.

Canned Salmon: Receipts of canned salmon during the first half of 1959 were down 18 percent from those of the

first half of 1958. The increase in shipments from Japan did not offset the large decrease in shipments from Canada.

Fish Meal: January to June imports in 1959 were 81 percent higher than those during the comparable 1958 period. Peru, Canada, and Angola supplied over 87 percent of the imports.

Other Imports: During the first six months of 1959, the following products were received in substantially greater quantities than during the first six months of 1958: canned crabmeat up 57 percent, canned lobster and spiny lobster up 52 percent, oyster (mostly canned) up 39 percent, fresh or frozen sea scallops up 39 percent, and fresh or frozen frog legs up 25 percent.

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#### EXPORTS OF SELECTED FISHERY PRODUCTS, JANUARY-JUNE 1959:

Canned Sardines, Not-in-Oil: During January-June 1959, exports were nearly five times those of the comparable 1958 period. This is the result of the greater pack of California sardines in 1958 as compared with the low pack in recent previous years.

Canned Salmon: The Philippines took over 2 million pounds of canned salmon in March 1959. Owing to the liberalization of trade, the United Kingdom also took larger quantities during the first six months of 1959. Total exports for that period were five times larger than during the first six months of 1958.

Canned Mackerel and Anchovies: Low supplies resulting from small catches continued to keep exports of these products at a low level, compared with like periods of 1958 and 1957.

Canned Shrimp: During January-June 1959, exports were up 119 percent over those of the comparable 1958 period. Canada continued to be the largest buyer, taking 73 percent.

Canned Squid: Ninety-three percent of these exports were sent to the Philippines and Greece during the first half of 1959. Total exports for that period were 42 percent above those of the first half of 1958.

Fresh-Water Fish, Fresh or Frozen: Exports during the first six months of 1959 were 39 percent below those of the like period of 1958.

Fish Oils: Large purchases during the second quarter of 1959, especially by the Netherlands, were instrumental in raising fish oil exports for January-June 1959 52 percent above those of the same period of 1958.

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#### GROUNDFISH FILLET IMPORTS, JULY 1959:

Imports of groundfish (including ocean perch) fillets and blocks in July 1959 amounted to 20.9 million pounds--a drop of 1.6 million pounds or 7 percent as compared with July 1958. Canada continued to lead all other countries in these imports with 14.8 million pounds--a slight decline of 330,000 pounds as compared with the corresponding month of last year. Iceland was second with 2.7 million pounds--2.4 million pounds below those of July 1958, while Denmark followed with 1.6 million pounds representing a drop of 605,000 pounds. The remaining 1.9 million pounds were imports from Norway,

Miquelon and St. Pierre, West Germany, Greenland, the Netherlands, and the United Kingdom.

During the first seven months of 1959, total imports of groundfish and ocean perch fillets and blocks into the United States amounted to 104.8 million pounds. Compared with the same period of last year, this was a gain of 14.5 million pounds or 16 percent. Canada (48.3 million pounds) accounted for 46 percent of the 1959 seven months total. Imports from Iceland--30.5 million pounds--made up 29 percent of the total, while Denmark was next with 12.0 million pounds or 11 percent.

Note: See Chart 7 in this issue.

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**IMPORTS OF CANNED TUNA IN BRINE UNDER QUOTA:**

The quantity of tuna canned in brine which may be imported into the United States during the calendar year 1959 at the 12½-percent rate of duty is 52,372,574 pounds. Any imports in excess of the quota will be dutiable at 25 percent ad valorem.

Imports from January 1-August 1, 1959, amounted to 26,535,173 pounds, according to data compiled by the Bureau of Customs. From January 1-August 2, 1958, a total of 26,636,243 pounds had been imported. The quota for 1958 of 44,693,874 pounds was reached on November 20, 1958.



**United States Fishery Landings, January-July 1959**

Landings of fish and shellfish in the United States during the first seven months of 1959 were 17 percent higher than for the same period of the previous year.

The increased landings were accounted for by a 437-million-pound rise in menhaden landings. Compared with the same period of 1958, the yield of these fish was up 233 million pounds along the Atlantic Coast and 204 million pounds along the Gulf Coast. There were increased landings in New England for Maine herring (up 8 million pounds) and whiting (up 6 million pounds). Ocean perch landings declined 12 million pounds and haddock landings were down 10 million pounds as compared with the first seven months of 1958.

Alaska salmon landings dropped from 239 million pounds through August 16, 1958 to 122 million pounds during the same period of 1959. Herring landings in Alaska increased through August 16 by 10 million pounds. Tuna and jack

mackerel landings in California rose nearly 9 million pounds for each species, while Pacific mackerel declined 4 million pounds during the first half of 1959.

**Table 1 - United States Fishery Landings of Certain Species for Periods Shown, 1959 and 1958 1/**

Species	Period	1959	1958	Total 1958
.....(1,000 lbs.).....				
Anchovies, Calif. . .	6 mos.	1,800	4,536	8,148
<b>Cod:</b>				
Maine . . . . .	6 mos.	1,900	1,987	2,735
Boston . . . . .	7 "	10,900	9,799	16,183
Gloucester . . . . .	7 "	2,000	1,843	3,189
Total cod . . . . .		14,800	13,629	22,107
<b>Haddock:</b>				
Maine . . . . .	6 mos.	1,900	2,407	3,997
Boston . . . . .	7 "	46,000	58,101	81,509
Gloucester . . . . .	7 "	9,700	7,406	9,798
Total haddock . . .		57,600	67,914	95,304
<b>Halibut 2/:</b>				
Wash. and Oreg. . . .	7 mos.	14,000	12,142	16,200
Alaska . . . . .	7 "	18,400	15,421	19,814
Total halibut . . .		32,400	27,563	36,014
<b>Herring:</b>				
Maine . . . . .	6 mos.	31,500	23,926	170,977
Alaska . . . . .	to Aug. 16	93,300	83,578	88,801
<b>Industrial Fish,</b>				
Maine & Mass. 3/ . .	7 mos.	56,700	65,487	108,869
<b>Mackerel, Calif.:</b>				
Jack . . . . .	6 mos.	15,300	6,524	21,698
Pacific . . . . .	6 "	6,100	10,578	24,624
Menhaden . . . . .	7 "	1,135,327	698,754	1,544,700
<b>Ocean perch:</b>				
Maine . . . . .	6 mos.	35,700	36,694	71,068
Boston . . . . .	7 "	1,800	1,404	2,625
Gloucester . . . . .	7 "	33,600	44,619	74,951
Total ocean perch . .		71,100	82,717	148,644
<b>Salmon:</b>				
Wash. 4/ . . . . .	6 mos.	2,500	3,234	53,000
Oreg. 4/ . . . . .	5 "	1,000	1,651	8,157
Alaska . . . . .	to Aug. 16	122,200	239,143	241,255
Scallops, sea, New Bedford (meats) . . .	7 mos.	10,200	8,878	15,253
<b>Shrimp (heads-on):</b>				
South Atl. & Gulf . .	7 "	85,100	83,656	195,808
Washington . . . . .	6 "	1,400	4,813	6,729
Oregon . . . . .	5 "	1,500	621	1,550
Alaska . . . . .	6 "	6,600	3,518	7,862
Squid, Calif. . . . .	6 "	14,900	3,050	4,864
Tuna, Calif. . . . .	6 "	137,700	128,840	307,378
<b>Whiting:</b>				
Maine . . . . .	6 mos.	6,800	8,048	23,577
Boston . . . . .	7 "	400	208	596
Gloucester . . . . .	7 "	33,300	26,661	58,927
Total whiting . . .		40,500	34,917	83,100
Total of all above items		1,939,527	1,597,527	3,194,842
Others (not listed)		307,926	320,748	1,521,158
Grand total		2,247,453	1,918,275	4,716,000
1/Preliminary.		3/Excluding menhaden		
2/Dressed weight		4/Landed weight.		

Table 2 - United States Fishery Landings by States  
for Periods Shown, 1959 and 1958 <sup>1/</sup>

Area	Period	1959	1958	Total 1958
.....(1,000 lbs.).....				
Maine .....	6 mos.	92,800	89,201	316,955
Massachusetts <sup>2/</sup> :				
Boston .....	7 mos.	69,200	81,709	123,764
Gloucester .....	7 "	122,700	113,737	230,218
New Bedford .....	7 "	65,800	69,359	111,669
Provincetown .....	7 "	12,700	10,055	25,754
Total Mass. ....		270,400	274,860	491,405
Rhode Island <sup>3/</sup> .....	6 mos.	63,400	53,434	103,452
New York <sup>3/</sup> .....	6 "	20,100	21,441	42,063
New Jersey <sup>3/</sup> .....	6 "	28,300	24,700	50,933
North Carolina <sup>3/</sup> .....	6 "	32,000	32,142	54,866
South Carolina <sup>3/</sup> .....	6 "	4,100	4,701	15,359
Georgia .....	6 "	6,600	5,815	20,066
Florida <sup>3/</sup> .....	6 "	66,100	74,561	153,832
Alabama .....	4 "	2,400	2,035	10,343
Mississippi <sup>3/</sup> .....	5 "	3,200	3,813	84,988
Louisiana <sup>3/</sup> .....	2 "	5,900	7,453	90,330
Texas <sup>3/</sup> .....	6 "	13,900	19,364	66,112
Ohio (Mar.-June) .....	6 "	12,200	12,029	19,145
Oregon <sup>2/</sup> .....	5 "	14,800	18,003	57,800
Washington <sup>2/</sup> .....	6 "	56,200	61,455	166,000
California:				
Certain species <sup>4/</sup> .....	6 mos.	175,800	153,528	373,770
Other .....	3 "	21,500	22,339	290,138
Total Calif. ....		197,300	175,867	663,908
Rhode Island, Middle Atlantic, Chesapeake, South Atlantic, and Gulf States (menhaden only) .....	7 mos.	1,117,253	695,741	1,540,867
Alaska:				
Halibut <sup>5/</sup> .....	7 mos.	18,400	15,421	19,814
Herring .....	to Aug. 16	93,300	83,578	88,801
Salmon .....	to Aug. 16	122,200	239,143	241,255
Shrimp .....	6 mos.	6,600	3,518	7,862
Total of all above items		2,247,453	1,918,275	4,306,156
Others (not listed)		<u>6/</u>	<u>6/</u>	409,844
Grand total .....		<u>6/</u>	<u>6/</u>	4,716,000

1/Preliminary.  
2/Landed weight.  
3/Excluding menhaden.  
4/Includes catch of anchovies, jack and Pacific mackerel, squid, and tuna.  
5/Dressed weight.  
6/Data not available.

Note: --Data principally represent weight of fish and shellfish as landed except for mollusks which represent the weight of meats only.

## Wholesale Market

### PHILADELPHIA FISH WHOLESALERS MOVE FROM DOCK STREET TO NEW FOOD DISTRIBUTION CENTER:

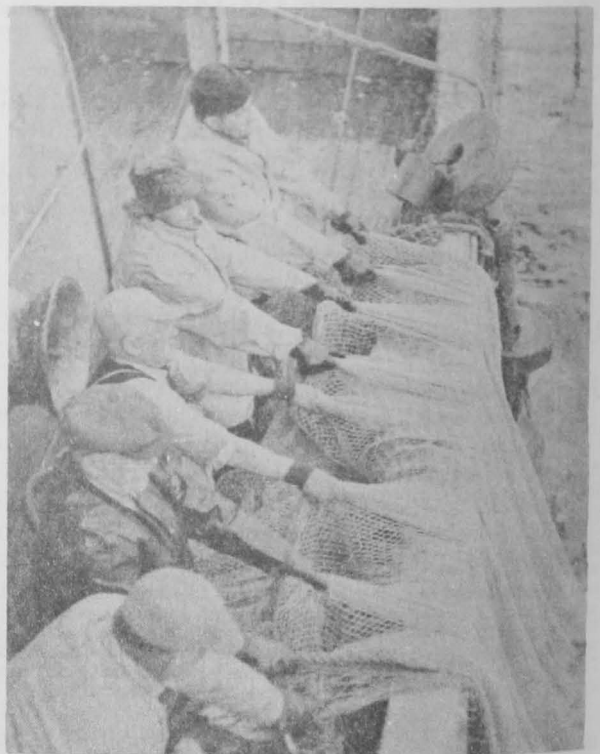
Dedication ceremonies for the Produce and Seafood Markets of the Philadelphia Food Distribution Center were held in mid-June this year. Many of the wholesale firms located in the old Dock Street Market moved to the seafood section of the new Food Distribution Center.



## Wholesales Prices, August 1959

With an improvement in the landings of fish in New England and Northwest areas, and increased supplies of shrimp, August wholesale prices of edible fishery products (fresh, frozen, and canned) were down 2.6 percent from July and were substantially lower (7.8 percent) than a year ago, as measured by the wholesale price index.

Increased landings in the New England area, especially of haddock, were responsible for the drop of 5.0 percent in the price index for drawn, dressed, and whole finfish from July to August. The substantial drop of 35.6 percent in the ex-vessel price of drawn fresh haddock at Boston from July to August was offset to a considerable extent by higher wholesale prices for Western halibut and salmon at New York City, and generally higher prices for fresh-water fish at New York City and Chicago. Landings in the Great Lakes area in August were light which accounts for the higher prices for fresh-water fish. Compared with August 1958, the drawn, dressed, and whole



Hauling trawl aboard large otter trawler.

finfish subgroup index this August was only slightly lower. Price drops for drawn fresh haddock, dressed halibut, dressed salmon, and whitefish at New York City were almost offset by price increases for other fresh-water fish.

Most fresh processed fish and shellfish prices in August were lower than the previous month. Fresh haddock fillets were down 9.7 percent and large shrimp down 3.1 percent. The exception was shucked oysters which rose 2.1 percent in anticipation of the opening of the main marketing season on September 1. The fresh processed fish and shellfish subgroup index this August was 14.7 percent lower than in the same month of 1958 because of lower prices for haddock fillets (down 3.9 percent) and fresh shrimp at New York City (down 29.7 percent). An increase in the landings of shrimp in the South Atlantic and Gulf States and heavier imports were responsible for the drop in shrimp prices.

With supplies generally heavier than they were a year ago and the usual seasonal drop in demand during hot

weather, prices for nearly all frozen fillets and shrimp were 7.1 percent lower this August than the previous month and 15.9 percent below August 1958. From July to August this year, prices dropped for flounder fillets by 3.8 percent, for haddock fillets by 3 percent, for ocean perch by 3.5 percent, and for frozen shrimp at Chicago by 10.1 percent. Compared with August 1958, prices this August were down 7.4 percent for flounder fillets, 7.2 percent for haddock fillets, and 5.2 percent for ocean perch fillets, and 22.4 percent for large shrimp.

Since the salmon and Maine sardine packs this year are smaller than a year earlier, canned fishery products prices were up 1.5 percent from July to August. Even California sardines, which were plentiful a year ago, rose 3.5 percent this August because fishing did not commence on August 1 when the season opened in Central California since no agreement had been reached on the ex-vessel price. But compared with August 1958, prices this August for most canned fishery products were still 3.5 percent lower, except for canned salmon and Maine sardines which were priced somewhat higher.

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

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices <sup>1/</sup>		Indexes (1947-49=100)			
			(\$)		Aug.	July	June	Aug.
			1959	1959	1959	1959	1959	1958
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned) . . . . .					119.8	123.0	123.5	129.9
<b>Fresh &amp; Frozen Fishery Products:</b> . . . . .					132.8	139.0	139.9	147.2
<b>Drawn, Dressed, or Whole Finfish:</b> . . . . .					152.2	160.2	147.9	152.7
Haddock, lge., offshore, drawn, fresh . . . . .	Boston	lb.	.11	.17	109.1	169.5	109.1	113.7
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.35	.34	107.8	103.6	105.2	114.5
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.80	.76	179.7	171.3	175.8	178.7
Whitefish, L. Superior, drawn, fresh . . . . .	Chicago	lb.	.64	.61	158.6	151.2	140.1	132.6
Whitefish, L. Erie pound or gill net, rnd., fresh	New York	lb.	.80	.79	161.8	159.8	177.0	177.0
Yellow pike, L. Michigan & Huron, rnd., fresh .	New York	lb.	.83	.81	193.5	190.0	158.3	179.4
<b>Processed, Fresh (Fish &amp; Shellfish):</b> . . . . .					121.5	123.0	136.7	142.4
Fillets, haddock, sml., skins on, 20-lb. tins . .	Boston	lb.	.37	.41	125.9	139.5	129.3	131.0
Shrimp, lge. (26-30 count), headless, fresh . .	New York	lb.	.64	.66	101.1	104.3	133.5	143.8
Oysters, shucked, standards . . . . .	Norfolk	gal.	6.00	5.88	148.5	145.4	142.3	142.3
<b>Processed, Frozen (Fish &amp; Shellfish):</b> . . . . .					112.3	120.9	122.4	133.6
<b>Fillets: Flounder, skinless, 1-lb. pkg.</b> . . . . .	Boston	lb.	.38	.39	98.2	102.1	102.1	106.0
Haddock, sml., skins on, 1-lb. pkg. . . . .	Boston	lb.	.33	.34	102.0	105.2	105.2	109.9
Ocean perch, skins on, 1-lb. pkg. . . . .	Boston	lb.	.27	.28	108.8	112.8	112.8	114.8
Shrimp, lge. (26-30 count), 5-lb. pkg. . . . .	Chicago	lb.	.69	.77	106.5	118.4	121.1	137.3
<b>Canned Fishery Products:</b> . . . . .					102.0	100.5	100.4	105.7
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs. . .	Seattle	cs.	23.75	23.50	123.9	122.6	122.6	120.0
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs. . . . .	Los Angeles	cs.	10.80	10.80	77.9	77.9	77.9	86.2
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 48 cans/cs. . . . .	Los Angeles	cs.	7.50	7.25	88.1	85.1	83.9	132.4
Sardines, Maine, keyless oil, No. 1/4 drawn (3-3/4 oz.), 100 cans/cs. . . . .	New York	cs.	8.75	8.25	93.1	87.8	87.5	82.2

<sup>1/</sup> 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.

