



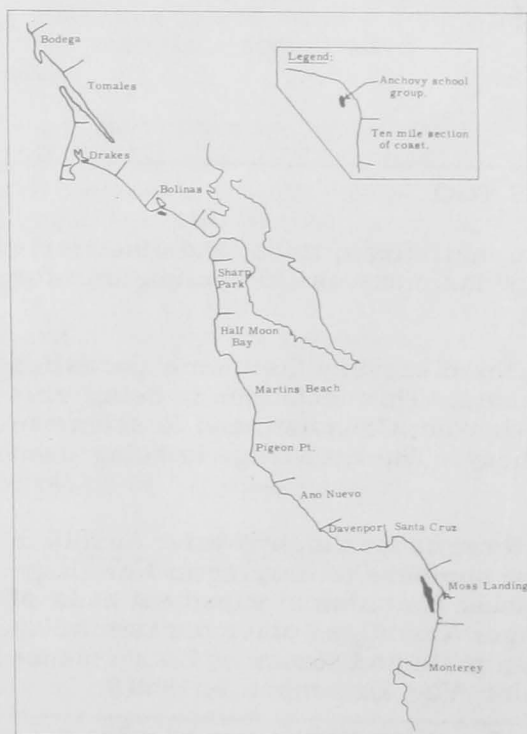
TRENDS AND DEVELOPMENTS

California

AERIAL CENSUS OF COMMERCIAL AND SPORT FISHING CONTINUED: Airplane Spotting Flight 58-19: The inshore area from Los Angeles Harbor to the Mexican border was surveyed from the air (November 7, 1958) by the California Department of Fish and Game Cessna "170" 1359D to determine the distribution and abundance of pelagic fish schools.

Although only a few well-defined schools were seen and positively identified, other signs indicated the presence of a large concentration of fish in the area surveyed. A great number of birds were in evidence from Los Angeles Harbor to the Coronado Strand; many were actively "working" and feeding; and many more were observed on the water. One school of porpoise (with birds) was observed off Ocean-side and fast moving "breezing" schools of fish were seen. These "breezing" schools were numerous, but due to poor light conditions and erratic behavior of the schools, species identification was difficult.

Airplane Spotting Flight 58-20: The inshore area between Monterey and the Russian River was surveyed from the air (November 9-11, 1958) by the Department's Cessna "180" 3632C to determine the number and locations of sport fishermen, abalone pickers, Pismo clam diggers, and pelagic fish schools.



Airplane Spotting Flight 58-20 (November 9-20, 1958).

SPORT FISHERMEN: Heavy surf during this three-day period apparently discouraged surf casters as the numbers tallied dropped sharply since the previous flight early in November. The Sunday tally of shore fishermen was about five times as great as that on the following Monday. This ratio of about five to one between week-end days and week days has persisted throughout the surveys.

ABALONE AND PISMO CLAM: Counts of abalone pickers and ocean clam diggers were made on each day of the flight. Due to the lateness of the tides it was not possible to survey the area to the north of Pt. Montara. The greatest activity during the three-day low tide period occurred on November 11 during a -1.4 low.

PELAGIC FISH: Very few schools were seen on this flight. Two factors may have been responsible: pelagic fish usually remain deep and out of vision during periods of heavy seas, and in past years pelagic fish schools have been noted to leave the inshore area during this time of the year. Several dozen anchovy schools were spotted in Monterey Bay and off Bolinas Bay.

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DUNGENESS-CRAB DISTRIBUTION AND ABUNDANCE STUDIES CONTINUED (M/V N. B. Scofield Cruise 58S7-Crab): To conduct exploratory fishing activities in an effort to determine distribution and relative abundance of dungeness crabs (*Cancer magister*) in areas not normally exploited by the commercial fleet was the principal objective of the October 3-29, 1958, cruise of the N. B. Scofield, research vessel of the California Department of Fish and Game. Other objectives were (1) to tag legal crabs for migration, growth, and population studies; (2) to conduct crab fishing operations on traditional grounds to determine the pre-season distribution, abundance, composition, and condition of crabs on the grounds; and (3) to collect biological and environmental data pertinent to the distribution, abundance, and availability of the dungeness crab. The California coastal waters were surveyed from Point Arguello to the vicinity of Point Arena.

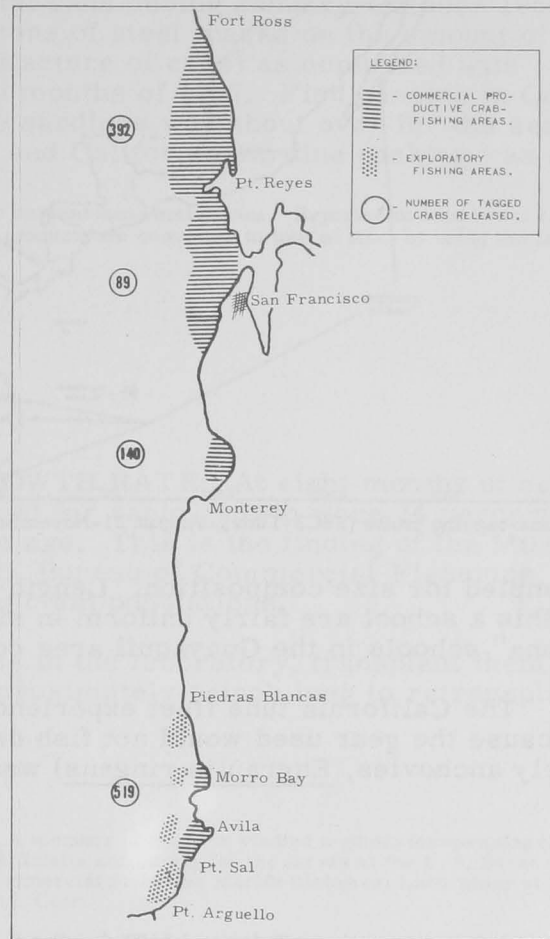
Exploratory Fishing: Exploratory tows were made with otter-trawl gear at 7 locations in the area from Piedras Blancas to Point Arguello. Crabs were taken in 3 tows. Catches ranged from 0 to 3 legal crabs per 30-minute tow. A legal crab is a male 7 inches in greatest width. Towing depths ranged from 24 to 67 fathoms. Exploratory trap sets at 8 stations from San Simeon to Pt. Arguello resulted in catches of 0.1 to 1.0 legal crabs per trap. Trap sets were made in depths ranging from 13 to 22 fathoms. Commercial concentrations of crabs were not located by exploratory fishing in these areas where commercial fishing does not normally occur.

Crab Tagging: A total of 1,140 crabs was tagged and released.

Distribution, Abundance, Composition and Condition of Crabs on the Traditional Fishing Grounds: Otter trawl tows of 30 minutes duration were made at 20 stations in commercially-productive areas. Legal crabs were caught at 13 of these 20 trawl stations.

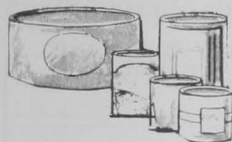
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YELLOWFIN AND SKIPJACK TUNA TAGGING STUDIES CONTINUED (M/V Valiant Cruise 58C3-Tuna): The coasts of Baja California, Ecuador, and Peru were surveyed by biologists of the California Department of Fish and Game who accompanied the M/V Valiant from San Diego on August 21-November 25, 1958. During the cruise 283 yellowfin and 1,360 skipjack were tagged and released. The objectives were: (1) to study, by tagging techniques, the migrations, rates of growth, and other salient features of the eastern Pacific yellowfin tuna and skipjack populations; (2) make routine oceanographic observations that may be related to the occurrence of tuna; (3) obtain biological and other information concerning tuna schooling habits by sampling the size and species composition of individual schools; and (4) to collect and identify marine organisms associated with the tuna.



N. B. Scofield Cruise (58S7-Crab) October 3-29, 1958.

Cans--Shipments for Fishery Products, January-October 1958



Total shipments of metal cans during January-October 1958 amounted to 108,190 short tons of steel (based on the amount of steel consumed in the manufacture of cans) as compared with 103,025 tons in the first ten months of 1957. Fish canning in October for salmon and Maine sardines was about over for the season, but tuna, Gulf shrimp, and California sardine packing was at a high level.

Note: Statistics cover all commercial and captive plants known to be producing metal cans. Reported in base boxes of steel consumed in the manufacture of cans, the data for fishery products are converted to tons of steel by using the factor: 23.0 base boxes of steel equal one short ton of steel.



Clams

SELECTIVE BREEDING INCREASES GROWTH RATE: At eight months of age the second generation of clams selectively bred for rapid growth were 34 percent larger than the normal population of the same age. This is the finding of the Milford (Conn.) Biological Laboratory of the U. S. Bureau of Commercial Fisheries, which is attempting to develop faster-growing clam populations.

The biologists plan to produce seed clams in the laboratory, transplant them to outdoor tanks or pools, and when they are approximately $\frac{3}{4}$ -inch long to retransplant them to marine beds.

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YOUNG REARED IN CONCRETE TANKS: Young clams are being raised in concrete tanks by a commercial shellfish firm on the Eastern Shore of Virginia. Each tank is about 60 feet long, 10 feet wide, and 18 inches deep and rests on a clay bottom which, in turn, is covered with a layer of sand. Young clams for the tanks and food for the clams will be provided by greenhouses, incubators, and a place for culturing larval clams, according to the owner of the firm. During the summer of 1958, about a half million clams were produced at the Watts Bay establishment near Atlantic, Va. When the clams have reached a proper size to survive most predation, it is proposed to replant them on growing grounds until they reach market size.

A member of the firm studied methods for spawning clams artificially and caring for the larvae at the U. S. Bureau of Commercial Fisheries Marine Biological Laboratory at Milford, Conn.

Virginia State biologists believe planters may find it profitable to culture seed clams. Hybrids produced by the Bureau's Milford Laboratory by crossing northern and southern parents have been under study by Virginia biologists for several years. It is within the realm of possibility that a stock of rapid-growing clams can be supplied to planters and the key to supplying such seed clams may be in tank culture. (Virginia Fisheries Laboratory, Gloucester Point, news release, December 5, 1958.)



Crabs

CHESAPEAKE BAY ABUNDANCE PREDICTED FOR 1958/59 WINTER: The blue crab dredge boats during December 1958 in lower Chesapeake Bay were catching the 30-barrel daily boat limit. This substantiates the prediction made in the fall of 1958 by a biologist of the Virginia Fisheries Laboratory (Gloucester Point, Va.) that blue crabs would be abundant the winter of 1958/59.

Although crabs are abundant and should continue to be plentiful in the spring and early summer of 1959, the crab-pot catch will decrease in August 1959 and will continue poor through fall, the biologist stated. The 1959/60 dredge fishery for crabs will be very poor, he added. Scientists have observed that crabs hatched in the summer of 1958 were very scarce, and calculate the fishery will begin to feel the effects of this poor crop by late 1959.

"Reliable predictions of how many crabs will be available to fishermen are valuable to crabbers and producers alike," said the biologist, "for if fishermen know that crabs will be scarce they may elect to spend their time in another fishery, catching oysters or seining, for instance, rather than crab fishing. If dealers know that few crabs will be available six months before the scarcity occurs, they may hold crab meat in storage and profit by a better market, or may seek a supply from southern waters."

The blue crab is Virginia's second most valuable fishery, topped only by oysters and occasionally by menhaden. From being an insignificant fishery in 1880 it expanded rapidly in the early 1900's, and during the past 25 years produced an average of 31 million pounds of live crabs annually. In 1950, the best year for the industry, about 50 million pounds were caught, and since 1948 annual landings have exceeded 40 million pounds five times.

Marketing blue crabs today is quite different from practices in the 1880's. Then, crabs were shipped alive to Atlantic coastal cities only, and could not be successfully handled in hot weather for lack of refrigeration and rapid transportation. Today most hard crabs are steamed and the meat picked out in modern, sanitary plants. Crab meat, live and frozen soft crabs, live and cooked hard crabs are shipped to markets near and far in refrigerated trucks.

When supplies are heavy and market prices depressed, crab meat may be refrigerated, frozen, or pasteurized. Storage by such methods can provide a steady supply at all seasons. Fresh crab meat continues to dominate the market, but quick-frozen crab patties and deviled crabs are increasing in popularity.

As a result of the abundant supply in December 1958, fishermen received about \$4.00 a barrel and many decided to stay in port until prices advanced to about \$6.00. Usually, half the crabs taken in the winter fishery are caught during December.



Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES, JANUARY-NOVEMBER 1958: Fresh and Frozen Fishery Products: For the use of the Armed Forces under the Department of Defense, 1.5 million pounds (value \$908,000) of fresh and frozen fishery

Table 1 - Fresh and Frozen Fishery Products Purchased by Military Subsistence Market Centers, March 1958 with Comparisons

QUANTITY				VALUE			
November		Jan.-Nov.		November		Jan.-Nov.	
1958	1957	1958	1957	1958	1957	1958	1957
..... (1,000 Lbs.) (\$1,000)			
1,499	1,372	20,881	21,696	908	686	1/	11,177

1/ Values for first 11 months of 1958 unavailable.

products were purchased in November 1958 by the Military Subsistence Market Centers. The quantity purchased in October was down 0.5 percent from the preceding month, but 9.3 percent above the amount purchased in the same month of 1957. The value of the purchases in November 1958 was higher by 32.4 percent as compared with November 1957.

For the first 11 months of 1958 purchases totaled 20.9 million pounds, a decrease of 3.8 percent in quantity.

Prices paid for fresh and frozen fishery products by the Department of Defense in November 1958 averaged 60.6 cents a pound, about 10.6 cents a pound above the 50 cents paid during November 1957.

Table 2 - Canned Fishery Products Purchased by Military Subsistence Market Centers, November 1958 with Comparisons

Product	QUANTITY				VALUE
	November		Jan.-Nov.		November
	1958	1957	1958	1957	1958
 (1,000 Lbs.)				\$1,000
Tuna	1,035	339	4,966	2,221	542
Salmon	553	835	3,336	3,111	341
Sardine	18	68	111	193	6

Canned Fishery Products: Salmon and tuna were the principal canned fishery products purchased for the use of the Armed Forces during November. Canned tuna purchases for the first 11 months of 1958 were up 123.6 percent and salmon up 7.2 percent but canned sardine purchases were lower by 42.5 percent from the comparable period of 1957.

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



Fisheries Loan Fund

LOANS THROUGH DECEMBER 31, 1958: As of December 31, 1958, a total of 514 applications for fisheries loans totaling \$17,780,883 had been received. Of these 278 (\$7,176,756) have been approved, 169 (\$4,987,770) have been declined, 38 (\$1,634,126) have been withdrawn, and 29 (\$3,058,761) are pending. As several of the pending cases have been deferred indefinitely at the request of the applicants and collections have been increasing, sufficient funds have been available to process all applications when received. Funds are expected to be available to assure prompt handling of new applications. The Fisheries Loan Fund has been in operation for a little over two years.

The following loans have been approved between October 20, 1958, and December 31, 1958:

New England and Middle Atlantic Area: U. S. Trawler One, Inc., Yonkers, N. Y., \$62,000; U. S. Trawler Two, Inc., Yonkers, N. Y., \$63,000; Edward M. Schall, Jr., Point Pleasant, N. J., \$6,559; Joseph S. Randazza, Gloucester, Mass., \$25,000.

South Atlantic and Gulf Area: Irven J. Lafont, Golden Meadow, La., \$16,940.

California: Trygve Hamlot, Cupertino, \$10,000; Slavko Ivanic, San Pedro, \$20,000.

Pacific Northwest: Ragnar Nergaard, Seattle, Wash., \$12,000; Roland E. Berger, Orchards, Wash., \$5,000; Aage Hammer, Westport, Wash., \$2,200; Clayton C. Howe, Anacortes, Wash., \$2,500; George W. Krubeck, Longview, Wash., \$2,900; Lars Pedersen, Bellingham, Wash., \$6,000; Stanley F. Buginnis, Gig Harbor, Wash., \$2,500.

Note: See Commercial Fisheries Review, December 1958 p. 35, November 1958 p. 35, September 1958 p. 35, July 1958 p. 24, and March 1958 p. 31.



Fish-Cookery Demonstrations

More than 100 fish-cookery demonstrations will be made this spring by U. S. Bureau of Commercial Fisheries home economists and fishery marketing specialists. Already this schedule includes 14 states, and additional demonstrations are expected.

These demonstrations will be given for school lunch, Extension Service, and restaurant personnel; college and university students; Navy Cooks and Bakers School; seafood merchandising clinics; stewards and caterers meetings; and home economists, dietitians, and homemakers.



Typical fish-cookery demonstration by a home economist of the U. S. Bureau of Commercial Fisheries.

The Bureau's home economists will present appetizing, economical, nutritious, and easy-to-prepare fish and shellfish dishes. Six recipes will be prepared, garnished, and served attractively, and menus including these recipes will be suggested. Large-quantity recipes will be demonstrated for institutional, restaurant, and school-lunch personnel. Family-size recipes will be demonstrated for Extension Service personnel, students, and homemakers. The purpose of these demonstrations is to show the proper preparation of fish and shellfish as well as to educate the public to use the wide variety of fish and shellfish available. Each demonstration also will include information on market forms, nutritive value, and care and storage of fish and shellfish.

To date, the Bureau has scheduled demonstrations in Alaska (2), California (20), Idaho (8), Maryland (3), Massachusetts (14), New York (7), Ohio (1), Oregon (3), Pennsylvania (11), Rhode Island (1), Tennessee (20), Virginia (1), Washington (1), Wisconsin (3).



Fishery Landings at Boston Down Again in 1958

Fishery landings at the Boston Fish Pier in 1958 continued their downward trend. A record-low volume brought higher ex-vessel prices. Haddock scarcity on the fishing grounds was the most serious problem the past year. But ever-present were the old headaches--fewer vessels, higher operating costs, record-high foreign imports, and apparently limited capital. There are no definite prospects that any of these problems will be solved in 1959.

Boston's fishermen and fishing vessels operated at peak capacity in 1958. The offshore fishermen made more trips with the fewer aging large trawlers. But generally the results were poor. Boston's medium trawlers also worked to capacity, and fewer medium trawlers from other ports landed trips in that port. The average age of all Boston fishing vessels is now close to 20 years.

Total landings at the Fish Pier in 1958 amounted to only 123.8 million pounds, the lowest in 36 years, or since 1922. The 1958 landings were 11.8 million pounds less than the 1957 total of 135.6 million pounds.

There were 829 trips by large trawlers at Boston in 1958, 1,288 by medium trawlers, and 303 by smaller vessels. The 1957 totals were 812, 1,334, and 311, respectively.

One bright note in the Boston fishery scene in 1958 was the higher value of the fish landed. The total value was \$12.6 million, compared with \$11.2 million in 1957. In 1945-54 the average annual value was \$14.0 million. The 1958 average ex-vessel price of 10.2¢ a pound was 2.0¢ a pound higher than the previous year. Ex-vessel prices were very high the last half of 1958.



Unloading a small trawler at low tide at Boston Fish Pier.

The higher value for fish at the caplog brought some relief to vessels and fishermen, and generally they had a better year than 1957. But the higher cost of raw material further squeezed processing plants, which have been hard-pressed after a number of poor years. The plants are equipped to process large volumes of frozen fillets, but the 1958 ex-vessel prices precluded this during most of the year.

Haddock continued as the leading species landed by the Boston fleet. In 1958 the catch of haddock was only 81.5 million pounds, a drop of 12.3 million pounds from the previous year. The greatest decline was in the smaller or scrod haddock. Cod and flounder landings were also lighter at Boston in 1958. Pollock was the only species to increase in volume, due to very good fishing the last two months of the year.

Imports of groundfish fillets into the United States--the leading foreign competition for Boston's haddock fishery--reached a new high in 1958. An estimated 145 million pounds were brought to this country from abroad, 4 million pounds above the previous record received in 1957. Canada continued as the leading supplier of foreign groundfish fillets, but in 1958 shipments also arrived from Iceland, Norway, Denmark, United Kingdom, Netherlands, France, West Germany, Japan, Greenland, Miquelon & St. Pierre, and South Africa. More and more foreign countries are sending groundfish fillets to the lucrative United States market, while Boston's share of the market has dwindled each year.

Leaders in Boston fisheries once again were unsuccessful in getting the financial aid they sought from the Federal government for new vessels, plant improvements, etc.

Only very few new vessels have been added to Boston's fishing fleet since World War II. The situation has now become critical. Investment capital apparently is lacking due to the generally poor prospects. However, in 1958 a group of Boston fishery leaders proposed a plan to construct a number of vessels. Financial

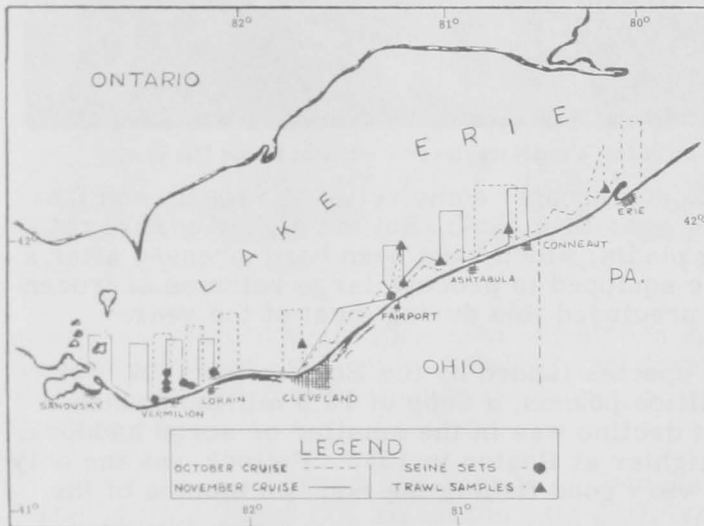
aid was sought from all sources--vessel owners, processors, wholesalers, and others. Initial response was good and some relief might be forthcoming from this source in the future.

--John J. O'Brien, Supervisory Market News Reporter,
Market News Service, Division of Industrial Research
and Services, U. S. Bureau of Commercial Fisheries,
Boston, Mass.



Great Lakes Fisheries Exploration and Gear Research

EXPERIMENTAL SMELT FISHING WITH LAMPARA SEINES CONTINUED (M/V Thelma H. Cruise 2): The second exploratory fishing cruise (November 1-28, 1958) in the American waters of Lake Erie was made by the U. S. Bureau of Commercial Fisheries chartered vessel Thelma H. Aimed at locating and determining



M/V Thelma H. Cruise 2 (November 1-28, 1958).

the availability of smelt to seine gear during the fall months, fishing operations were conducted between Conneaut, Ohio and the islands of Western Lake Erie.

As in the previous cruise, the offshore Ohio waters were systematically scouted and sounded with a Bendix DR-16 recorder. Few surface or close-to-the-surface schools of fish were observed. Three sets with a 100-fathom long lampara seine in 40- to 50-foot depths off Vermilion, Ohio, took only trace amounts of adult and young-of-the-year smelt and emerald shiners. Two similar sets off Lorain took the same species in trace amounts. It was apparent from specimens taken that indi-

vidual fish were of a size too small for the mesh size in use. A total of 9 seine stations was made. Night-fishing efforts to attract schools to lights were unsuccessful.

Relatively large concentrations of fish were noted over most of the area. Samples from these schools taken with a 16-foot trawl at Vermilion, Fairport, Ashtabula, and Conneaut, Ohio, were identified as yellow perch, adult smelt, and emerald shiner. Water temperatures ranged from 52° F. in early November to 41° F. at the end of the cruise. With the gradual cooling of the lake waters, young-of-the-year smelt and shiners began to show close to the surface during short periods of calm weather.

Generally poor weather conditions permitted fishing operations only about one-half of the cruise. Hazardous snow and ice formations on the vessel forced termination of the cruise three days ahead of schedule. The experimental seining work is scheduled to continue about March 15, 1959.

Note: Also see Commercial Fisheries Review, January 1959, p.33.



Great Lakes Fishery Investigations

WESTERN LAKE SUPERIOR HERRING AND WHITE FISH SPAWNING SURVEY (M/V Siscowet Cruise 7A and 8): The lake herring investigation was continued in the Apostle Island area of Lake Superior by the U. S. Bureau of Commercial Fisheries research vessel Siscowet during cruise 8 (November 24-December 5, 1958). Gill nets and/or trawls were fished at three stations: (1) south of Stockton Island, (2) northwest of Madeline Island, and (3) northeast of Sand Island. Sweeps were made with a fish-magnifying fathometer over large areas among the Apostle Islands. Although high winds and subzero temperatures restricted operations, valuable data were collected relative to lake herring concentrations during the spawning season in the island area.

The fish-magnifying fathometer indicated heavy concentrations of herring in all waters visited during the cruise. In some areas, south of Stockton Island, concentrations appeared as scattered schools in a zone from 5 fathoms below the surface to about 3 fathoms off the bottom. The depth in this area ranged from 30 to 50 fathoms. In areas less than 30 fathoms deep, northwest of Madeline and northeast of Sand Islands concentrations appeared as tight schools from 10 fathoms to the bottom.

On November 24, three gill nets (2-, $2\frac{1}{4}$, and $2\frac{1}{2}$ -inch mesh) were set in 50 fathoms south of Stockton Island. This set caught 208 herring and 350 chubs. The herring averaged 7 ounces in weight. About 50 percent of both the herring and chubs were ripe.

Three gill nets (1, $2\frac{1}{4}$ - and 2, $2\frac{1}{2}$ -inch mesh) were set in 27 fathoms northwest of Madeline Island on December 1. These nets took 80 herring and 33 chubs. The herring also averaged 7 ounces each and 90 percent of them were ripe. None of the chubs were ripe.

Trawl tows were made in the area northeast of Sand Island to capture fish which appeared just off the bottom on the fish-magnifier. It was assumed that these fish were herring as commercial nets set in the immediate area were taking up to 12 tons a lift. A 35-foot semi-balloon trawl towed in this region for 15 minutes at approximately 4 miles an hour at 25 fathoms caught 1 herring. A second 15-minute tow in the same area but at a slower speed ($2\frac{1}{2}$ miles an hour) took 2 herring, 13 chubs, and 96 smelt. It was concluded that the first tow was either fishing improperly or was not on the bottom. In either case the catches of herring indicate that fish appearing near the bottom were not herring or that the herring were able to escape the trawl.

Plans include trawling at night but severe weather conditions made it impossible.

During this cruise surface temperatures ranged from 37.2° F. among the islands to 42.6° F. on the open lake. Bottom temperatures in all areas remained at about 40° F. Cruise 8 concluded the operations of the Siscowet for the 1958 season.

A 4-day nonscheduled cruise (7a) was conducted from November 10-13, inclusive, to establish the time and place of whitefish spawning.

Eight gill nets, ranging from $2\frac{1}{2}$ - to 6-inch mesh were set in waters just north of Rocky Island at depths ranging from 3 to 6 fathoms. The bottom was clearly visible and consisted of boulders from the size of golf balls up to 4 feet in diameter. The total catch from 2 gill-net sets made in this area was: 17 whitefish, 2 menominee whitefish, 227 herring, 28 longnose suckers, and 1 lake trout. The whitefish averaged 3 pounds each and were all ripe males. No female whitefish were taken. The herring were all taken in the 2-inch mesh and averaged 12 ounces each.

Stomachs from the herring and a large number of menominee whitefish caught by a commercial fisherman in the area were examined for possible predation on whitefish eggs. Eggs were found in the stomach of one menominee which were tentatively identified as either whitefish or menominee eggs. Many of the menominee whitefish examined were ripe.

Gulf Exploratory Fishery Program

DISTRIBUTION AND AVAILABILITY STUDIES OF BOTTOM FISH IN GULF OF MEXICO CONTINUED (M/V Silver Bay Cruise 12): Commercial quantities of red snapper (*Lutianus* sp.) were taken on Campeche Bank during a 21-day experimental trawling trip (completed December 4, 1958) by the U. S. Bureau of Commercial Fisheries chartered exploratory fishing vessel Silver Bay.

Best fishing was encountered on the broken bottom south and southeast of Cay Arcas in 23-35 fathoms at 20°05' north latitude and 19°51' west longitude. Approximately 90 percent of the total marketable catch of 22,973 pounds of snapper and grouper was taken during 11 days of trawling operations in this area. Catches averaged approximately 1,800 pounds of marketable snapper and grouper per 12-hour day, with catches ranging from 150 to 1,050 pounds per 90-minute tow. The total snapper and grouper catch of 24,233 pounds was comprised of 7 species of snapper and 3 species of grouper.

The catch was composed of approximately 35 percent large (10 pounds and over), 19 percent medium (5 to 10 pounds) and 45 percent small fish ($\frac{1}{2}$ to 5 pounds). Negligible amounts of very small snapper and scrap fish were taken due to the use of a $5\frac{1}{2}$ -inch mesh cod end, though the vessel's electronic fish finders continually indicated dense shoals of bottom fish in most of the areas fished. These tracings were verified as concentrations of scrap fish by the intermittent use of a 2-inch mesh liner inserted in the cod end. Juvenile snapper were absent inside of 30 fathoms.

Modified "New England" type fish trawls were used throughout the trip. The trawls were constructed from $\frac{3}{16}$ -inch diameter braided nylon cord, $4\frac{1}{2}$ -inch stretched mesh in the body and $5\frac{1}{2}$ -inch stretched mesh in the cod end. The foot rope was fished its entire length with 20-inch diameter wooden rollers. Standard V-D rig was used with twenty fathoms of ground cables between the doors and the wing tip. An "Exocet" rising panel device was used on the headline in conjunction with standard trawl plane floats. Preliminary trials with this device, which is designed to insure maximum vertical opening of the trawl mouth at high towing speeds, indicated superior effectiveness.



M/V Silver Bay Cruise No. 12 (November 13 to December 4, 1958).

Though rough and broken bottom was prevalent in the areas fished, the operation of the gear was highly successful. Only occasional minor tears occurred throughout the trip.

Note: Also see Commercial Fisheries Review, November 1958, p. 38.

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UNDERWATER TELEVISION OBSERVATIONS OF RED SNAPPER REACTIONS TO FISH TRAPS (M/V Oregon Cruise 54): Film recordings of underwater television observations of the reactions of red snapper to various designs of fish traps were made by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Oregon during a cruise in the Gulf of Mexico from November 11 to December 8, 1958. A total of 900 feet of film was recorded of 14 trap sets.



The Bureau's exploratory fishing vessel Oregon.

31 to 35 fathoms at $22^{\circ}10'$ north latitude and $91^{\circ}20'$ west longitude. Concentrations of red snapper were found south of Cay Arcas in 21 to $25\frac{1}{2}$ fathoms; however, the presence of a 10-15 foot layer of turbid water over the bottom limited observations. In other more shallow areas south of Arcas where water clarity was good, no red snapper were found.



Maine Sardines

FISHERY FEATURED IN COMIC STRIP: Maine's sardine fishery was featured in a half-page colored comic strip in 90 metropolitan Sunday newspapers in January 1959. Some 40 million people read about the adventures of "Smockey the Bear," "Little Smockey," and "Specs," the fictitious characters created by a cartoonist. The Council collaborated with the producers of the widely-syndicated cartoon strip in development of the idea and the script.

The series of drawings depicts Smockey taking his pals on a tour of the sardine fishery and explaining the many interesting phases of the operations.

"We are fortunate to have such a nice and popular way to bring our industry and its products to the attention of the Nation," the Maine Sardine Council's Executive Secretary stated.

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INCLUDED ON GIRL SCOUT NATIONAL ROUNDUP MENU: Canned sardines from Maine will be featured on the menu of the National Roundup of the Girl Scouts of America to be held at Colorado Springs, Colo., in July 1959.

The Maine Sardine Council Chairman announced on December 10, 1958, that the industry's product would be served twice as the luncheon staple to the 10,000 girls from 8 to 18 who will attend the nine-day camp-out.

The Council is cooperating with the National Girl Scout Organization on the same basis as it did with the Boy Scouts of America when 50,000 youthful campers ate and enjoyed Sardines from Maine at the 1957 Jamboree at Valley Forge, Pa.

The Council will donate 10,000 cans of sardines while the Girl Scout Organization will reciprocate by means of surveys, publicity, promotion, and other activities.

"We are not only helping the good cause of scouting but are also getting an opportunity to expose our industry's product to a cross-section of America's future homemakers," the Council Chairman stated.

Present plans are to serve the sardines for luncheon on two successive Fridays and the Girl Scout food experts are now working out suitable recipes.

The Sardine Council has a number of other plans for the event.

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PACK FOR 1958 UNDER TWO MILLION CASES: Preliminary figures on the Maine canned sardine pack for the 1958 season, which closed December 1, 1958, indicates a pack just short of 2 million cases.

The Maine Sardine Industry Executive Secretary said that the total was about 120,000 cases less than the 1957 output and well below the average for the past ten years. The 1957 pack was 2,177,151 standard cases.

He said that the comparatively light pack combined with a good sales and inventory position had resulted in a favorable outlook for the canners to profitably move all stocks to market before the actual start of 1959 canning operations in late May (season opens April 15). He also predicted that shortages are very likely to occur in some areas of the country by early spring.

Industry sales for the first eleven months of 1958 were up 200,000 cases over the same period in 1957 while packers' inventories on December 1, 1958, were 200,000 cases less than a year earlier.

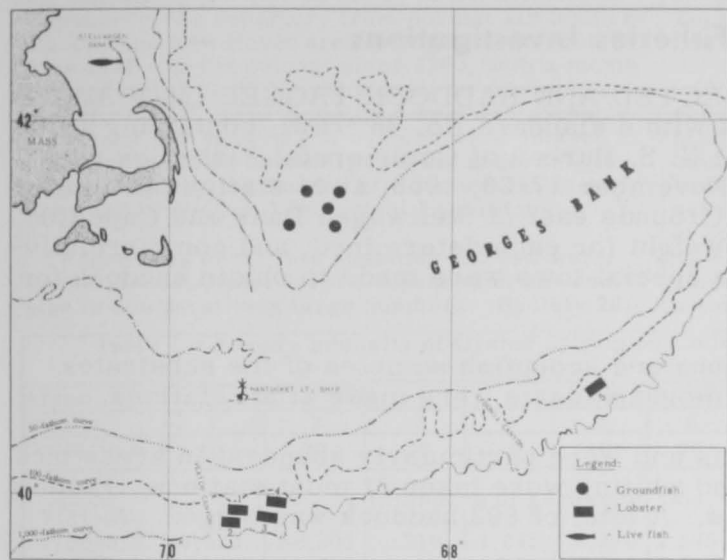
"Any shortages will most likely occur in standard keyless types as there is less than five months' supply available under ordinary selling conditions," the Executive Secretary stated.

Furthermore, he reported, consumer sales of all Maine sardines have shown a constant monthly gain for more than a year.

Thirty plants operated in 1958 with the bulk of the pack made in the Western and Central areas of the Maine coast. Sizable fish runs failed to materialize in Washington County and Bay of Fundy waters for the fifth year in a row.

North Atlantic Fisheries Exploration and Gear Research

DEEP-WATER LOBSTER ABUNDANCE RESURVEYED AND HERRING EGGS AND LARVAE COLLECTED OFF NEW ENGLAND COAST (M/V Delaware Cruise 58-7): Approximately 2,740 pounds of lobsters (*Homarus americanus*) were taken by



M/V Delaware Cruise 58-7 (December 10-20, 1958).

total catch consisted of 685 lobsters. Approximately 500 pounds of egg-bearing lobsters were kept alive in the Delaware's 5,000-gallon sea-water tank and were turned over to the State of Massachusetts for hatchery stock at Martha's Vineyard.

In cooperation with the Maine Herring Investigations, plankton samples and temperature casts were made at selected locations to gather further information on the distribution of herring eggs and larvae in the offshore areas. Eleven plankton stations were occupied during the cruise, and 132 drift bottles were released to assist in mapping current flow in the areas important to herring spawning.

In addition, a number of live haddock and cod were trawled on the west side of Stellwagen Bank and were brought alive to East Boston. Technological protein-analysis tests will be run on these fish.

* * * * *

TUNA FISHING EXPLORATIONS IN NORTH ATLANTIC CONTINUED (M/V Delaware Cruise 59-1): Tuna fishing explorations in the Gulf Stream area of the North Atlantic, conducted by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware, were scheduled to begin on January 12, 1959.

This is the first tuna exploration into the Gulf Stream area at this season of the year. A comprehensive survey of oceanographic conditions and tuna abundance is expected to better define the limits of the Atlantic tuna resources.

In 1957, explorations were conducted in this area during a later period--March 1957--and concentrations of bluefin, yellowfin, and albacore tuna were found to be present. The distribution of these species of tuna is unknown

the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware in only 5 tows in depths of 150 to 300 fathoms off the New England coast. This cruise was made (December 10-20, 1958) to check the abundance of these deep-sea lobsters in areas previously explored during 1956/57. The areas explored included those which had previously shown excellent concentrations of lobsters.

A standard no. 41 otter trawl (79' headrope, 100' footrope) with 45' of rollers was used on all tows, and no obstructions or gear damage was encountered.

The estimated average weight was 4 pounds per lobster, and the



The Bureau's research vessel Delaware.

during the winter season, and the planned exploration survey will attempt to answer some of the questions on the oceanic distribution of the Atlantic tunas.



North Atlantic Fisheries Investigations

BOTTOM FISH SAMPLES COLLECTED AND HADDOCK TAGGED (M/V Albatross III Cruise 122): Half-hour tows with a standard No. 36 trawl, containing a fine mesh cod-end liner were made by the U. S. Bureau of Commercial Fisheries research vessel Albatross III between November 17-26, 1958, at 44 stations in an area 30 miles x 20 miles off the Highland Grounds east of Stellwagen Bank and Cape Cod. All species were enumerated, gross weight for each determined, and commercially important species measured. Fifteen special tows were made to obtain haddock for tagging.

Dredge samples of the bottom fauna and scoopfish samples of the substrates were taken at 32 stations. Bathythermograph casts were made at all stations.

Haddock were taken at all stations and were particularly abundant in areas rich in bottom fauna. Dogfish, sea dab, and whiting were taken at most stations. Pollock were abundant only at certain stations. A total of 692 haddock was tagged.



Oregon

ALBACORE TUNA FISHING SEASON FOR 1958: The 1958 albacore tuna-fishing in Pacific waters off the Oregon coast brought over \$2 million in income to commercial fishermen, the Oregon Fish Commission reported on December 5, 1958. Approximately 9.5 million pounds of fresh tuna was delivered to buyers at Astoria, Newport, and Coos Bay, Ore.

The season's landings are rated seventh largest since the fishery was discovered by Oregon and California pilchard fishermen in 1936, a Commission statistics officer stated.

Appearance of the tuna schools in Oregon waters in 1958 is credited with providing a timely income for commercial fishermen who were having difficulty in attempts to obtain normal poundage from their salmon fishing activities.

"A majority of the deep-water boats stored their salmon trolling gear and switched to tuna fishing as soon as the schools were discovered," the statistical officer stated. "Unusual water conditions evidently had altered the normal pattern of commercial salmon trolling and catches had been light. The tuna's arrival put the fleet back to work and added a much needed supplement to financial success of the season," he added.

Oregon landings of tuna increased steadily from 1938 until 1944, when a peak catch of 22.5 million pounds was landed. During the following 10 years albacore tuna landings varied between 12.2 and 0.5 million pounds, but since 1954 have shown a steady increase.

Cooperative study by Pacific Coast fishery agencies has created a broad program aimed at developing and maintaining the albacore tuna stock.



Oysters

SPAWNING AND SETTING IN LONG ISLAND SOUND, SUMMER 1958: The spring and early summer of 1958 were colder than usual. According to the climatological data of the U. S. Department of Commerce, the departure from normal air temperature in the New Haven area during May was -3.1° F. June 1958 was the coldest since 1903, with a monthly average of 62.3° F. and a departure from normal of -3.5° F. Due to the cold weather, gonad development and spawning of oysters were delayed and resulted in an unusually late set according to observations by the Bureau of Commercial Fisheries Milford (Conn.) Biological Laboratory.

Regardless of the late spawning and low water temperatures, oyster larvae appeared in our samples in comparatively large numbers. By July 28,

an increase, especially at Stations 1 and 2 in the Milford area. A day or two later, setting again began to be of a general nature and the peak of the second wave occurred between September 5-11. This peak, however, was not as high as that of the first wave.

From then on setting continued in a rather irregular pattern, especially at the first two stations in the Milford area, where no definite trend in intensity was noted, as short periods of light setting were followed by periods of comparatively heavy setting. The last set was recorded October 9-10 at Station 5 on the State spawning bed in New Haven Harbor. This was the latest setting ever recorded in Connecticut waters in a quarter of a century.

Table 1 - Weekly Intensity of Oyster Setting on Collectors at Each of Ten Sampling Stations in Long Island Sound, Summer 1958.

Areas Station Depth (in ft.)	MILFORD			NEW HAVEN				BRIDGEPORT			TOTAL
	1	2	3	4	5	6	7	8	9	10	
Dates	(Numbers of Larvae on One Side of 100 Shells)										0
7/21-27	0	0	0	0	0	0	0	0	0	0	0
7/28-8/3	21,525	58,305	310	1,075	4,870	2,575	25	4,965	2,940	1,355	97,945
8/4-10	3,845	19,790	15	1,970	2,680	2,220	20	1,035	355	420	32,350
8/11-17	560	1,770	15	155	1,025	870	40	65	130	10	4,640
8/18-24	200	2,415	15	100	210	140	5	250	435	50	3,820
8/25-31	250	390	0	15	65	120	0	110	25	5	980
9/1-7	2,165	1,955	25	95	865	565	20	355	750	100	6,895
9/8-14	985	1,295	40	535	450	255	10	260	200	1,920	5,950
9/15-21	430	210	10	25	315	55	5	90	165	45	1,350
9/22-28	705	610	5	5	25	5	0	65	25	45	1,490
9/29-10/5	40	0	0	0	5	5	0	5	0	5	60
10/6-12	0	0	0	0	5	0	0	0	0	0	5
Total	30,705	86,740	435	3,975	10,515	6,810	125	7,200	5,025	3,955	155,485

from 100 to 320 oyster larvae of all stages, ranging from straight hinge to those ready-to-set, were found in the 200-gallon water samples collected at each of the three Milford stations. The number of ready-to-set oyster larvae per 200-gallon sample had increased to 720 at some stations by July 31. In 1957 the total number of larvae found in all the samples collected during the entire summer was only 3 or 4.

It is significant that at no time after their first appearance, and until near the end of the season, were mature ready-to-set larvae completely absent from our samples. The summer of 1958 was radically different from many previous summers, when finding mature, eyed larvae in the plankton samples was considered an unusual event. Considering that the number of parent oysters was the smallest in years, the 1958 observations conclusively demonstrated that the number of mature larvae present during the period of propagation is not directly proportional to the number of spawners.

Setting of oysters started on July 28 at Station 10 in the Bridgeport area, and a day later at the Milford stations (table 1). After July 31 it began to be of a general nature, occurring at all stations and rapidly increasing in intensity. The maximum of the first wave of setting took place July 31-August 4. Following the peak, the intensity of setting decreased rapidly until August 27.

The beginning of the second wave of setting occurred about August 29. Between that date and September 2, the intensity of setting began to show

Intensity of setting greatly varied from station to station. For example, at Station 2 in the Milford section, which received the heaviest set of all the stations in the Sound, a setting of 86,740 spat per 100 shells was recorded for the entire season (table 1). If all the young oysters that set on the shells at or near this station during the summer had not died, there would have been about 867 young oysters on each shell in this area by the first of October. At Station 1, a heavy set of 307 spat per shell was recorded for the season; yet, the intensity at this station was about three times lighter than that at Station 2. Still a greater discrepancy was noticed when the setting at Stations 2 and 3 was compared, the latter gathering only about 4 spat per shell for the entire season.

Although the Milford area showed the heaviest setting, the two other areas, namely, New Haven with Stations 4, 5, and 6, and Bridgeport with Stations 8, 9, and 10, also showed commercial sets. The only exception was Station 7, located at a 30-foot depth in the New Haven area, where the set was too light to be considered of commercial importance.

The set of 1958 was the heaviest since the Laboratory began systematic observations in 1932. It took place regardless of the low temperatures during the spring and early summer preceding the reproductive season, and in spite of the fact that the population of adult oysters serving as parents was probably the lowest ever recorded in the history of Connecticut oyster fisheries. Therefore, the heavy

setting of 1958 demonstrates once more that, the old assumption that good setting occurs only during the summers when the temperature is above normal is not correct.

The second contention, which is even at this time supported by some oyster biologists, namely, that the intensity of setting is roughly proportional to the number of adult oysters found on the beds

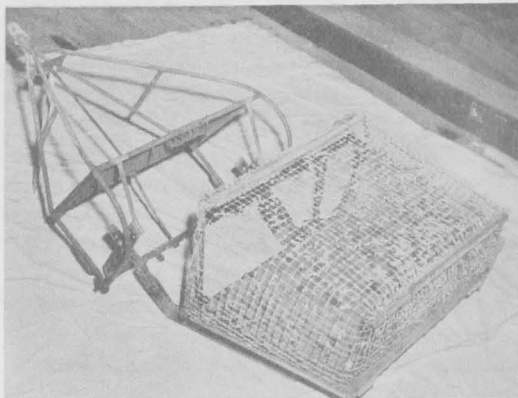


Fig. 1 - Starfish dredge designed and constructed at Milford, Conn. Biological Laboratory.

during the spawning season, is obviously also not well founded. This conclusion is strongly supported by the earlier observations of a Bureau biologist, who reported that the setting in Long Island Sound in 1925 was one of the heaviest in the history of Connecticut fisheries for shellfish. By the summer of 1926 the oysters were so numerous that representatives of the industry were worried that no market would be found for such an abundant supply. Regardless of this tremendous number of spawners, setting of oysters in Long Island Sound in the summer of 1926 was a complete failure; whereas, in 1958, although the number of spawners was probably the lowest in the history of the industry, the intensity of setting was one of the heaviest.

Unfortunately, the heavy set of 1958 did not contribute significantly to the oyster reserves of Long Island Sound because the majority of the young oysters were killed by starfish and drills soon after setting. The observations showed that by the end of September a live spat was a rarity among the young oysters recently killed by starfish and drills. Because of the industry's inability to control starfish which showed a ten-fold increase in population in 1957, large oyster areas have been abandoned. For example, the entire Milford section, comprising Stations 1, 2, and 3 where the heaviest setting was recorded (table 1), has been given up. The same is true of other districts, with the exception of a few comparatively small areas, such as Lot 152 in New Haven and several lots in the Bridgeport area, where all available means have been employed by the oystermen to protect the set from starfish.

The fate of the 1958 oyster set supports the view that the open Sound is not only an unreliable place for obtaining set regularly, but also a place where, if a set does occur, it is difficult and expensive to protect the young oysters from enemies. Furthermore, hurricanes and storms often severely damage the cultivated beds in open waters. Many of us still remember the storm in November 1950, which

killed millions of oysters of all sizes and ages, almost entirely ruined many beds, and placed several oyster companies on the verge of bankruptcy. Nothing can be done to prevent these calamities since such storms usually come with little warning.

Due to these considerations, the Laboratory has emphasized for years the desirability of transferring a substantial portion of the seed-producing operations from the open Sound to more protected areas, such as estuaries of rivers, protected bays and harbors, and natural and artificial ponds. This suggestion should not be interpreted as a recommendation to abandon entirely the oyster beds of Long Island Sound proper because they can still be used for some aspects of oyster cultivation, such as for holding large oysters, which are relatively safe from attack by enemies. It is recommended, that as much seed production as possible be transferred to protected areas, where extensive natural oyster beds existed in the past.

There are several important advantages of shifting seed-producing efforts to inshore areas. Observations show rather clearly that oyster sets rarely fail in inshore waters. Furthermore, beds located in bays and harbors are better protected against storms. Finally, because the salinity of the water in many inshore areas where oyster beds could be established is comparatively low, the oysters, especially young set, would be protected by nature itself against starfish and drills, which require a comparatively high salinity to exist and propagate. This consideration alone is of tremendous practical significance because it eliminates from the debit side of the ledger astonishingly high sums of money spent on pest control. A specific example of the difference in survival of spat in open Long Island Sound and in estuaries of rivers is that at Station 2 in the Milford section where the heaviest setting of the season was recorded, and that at an auxiliary station in the Milford River in front of the laboratory where a small experimental bed was established. At Station 2 practically none of the 1958 set of oysters survived until the end of October, while at the auxiliary station established in a protected area, where starfish and drills are usually either entirely absent or not too numerous because of low salinity, about 63 percent of the 1958 summer's set was still alive.

The chief obstacles to the utilization of the most promising, natural oyster-producing bottoms are believed to be the archaic regulations, many of which were passed more than a century ago, and which designated most of the inshore waters as public grounds. These areas, consequently, cannot be rented to private individuals or companies. Since neither the State nor municipalities are engaged in the cultivation of oysters, these regulations, which were perhaps desirable in the past, have eventually led to the present condition where the majority of our potentially most productive oyster areas are almost entirely barren due to lack of care and cultivation. Thus, both economically and biologically these areas are now virtually wasted, whereas proper cultivation and management of these grounds could assure the industry of a more abundant annual supply of oysters.

The shellfish biologists hesitate to suggest a definite method on the basis of which the future oyster industry of Connecticut should be built. It

is known that the solution of the problem is within reach. Some approaches have already been suggested in Bureau publications or expressed in discussions with oystermen and biologists. Before any constructive steps can be undertaken to ameliorate present conditions, however, the cooperation of all parties will be necessary. This means that a working agreement should be reached between

representatives of oyster companies, natural growers, and municipal and State authorities who are in charge of shellfish resources. Several plans can be suggested for the management of newly-established oyster beds, which will be of advantage to all groups concerned. (Bulletin No. 5, Fisheries Biological Laboratory, Milford, Conn.)

* * * * *

BEST SEASONS FOR CROPPING IN CHESAPEAKE BAY: Predicting when Chesapeake Bay oysters will yield the greatest amount of meats is possible, point out the biologists of the Virginia Fisheries Laboratory, Gloucester Point, Va.

In the lower part of the Bay, in recent years, oysters will reach their best condition in May or early June and meat yields have been greatest at that time. But in the Rappahannock River and upper Chesapeake Bay oysters grow rapidly and fatten in fall, soon after spawning, and they again fatten in spring. On the other hand, oysters in the lower Bay do not follow this pattern since sometimes they fail to fatten appreciably in fall and in some years lose weight as winter progresses.

The differences are explained by pointing out that oysters in saltier waters become infected with the parasite Dermocystidium during hot summers and are unable to fatten until they free themselves of this pest in winter. When food becomes abundant in spring, they are able to profit from it. Variations in occurrence of Dermocystidium and in the amount of food available affect the fatness of oysters from year to year.

Oysters in Hampton Roads and lower York River often show similar patterns of fattening. They are sometimes better than Rappahannock oysters during spring and summer; whereas, in fall, Rappahannock River oysters may hold the edge over those in the lower Bay. It would be biologically sound to harvest up-river and upper Bay crops early in the season leaving lower river and Bay oysters for harvesting in the spring and summer.

Unfortunately, demand for oysters is greatest in fall, when they are poor and yield minimum volumes of meats per bushel. How to get top prices for oysters harvested in spring, when flavor is best and yields are greatest, is a problem that the industry would like to solve.

* * * * *

STUDIES ON HANDLING AND PROCESSING BEGUN: A joint study by the U. S. Food and Drug Administration, U. S. Bureau of Commercial Fisheries, and the oyster industry to obtain basic and practical data on the biological, chemical, and physical characteristics of the oyster has been initiated, according to an announcement by Assistant Secretary of the Interior Ross Leffler. Research will be concentrated on the handling and processing of fresh shucked oysters.

The data will be used as the basis for improving packing and marketing practices and for the evaluation of present Food and Drug Administration standards of identity. The necessity for such a study became evident as the result of court cases concerning the amount of solids in a given unit of oysters.

Each of the government agencies and the oyster industry is supplying a technical employee to participate in the research under the direction of Dr. Benjamin Willier

of Johns Hopkins University, selected as a disinterested scientist. Work has begun at the Virginia Fisheries Laboratory, Gloucester Point, Va.

The laboratory is located on the western shore of Chesapeake Bay near a typical oyster-shucking plant. This centralized location will facilitate the plans for the research group to study oysters from all the major producing areas. The three-man team will have an excellent opportunity for active plant study on the effect of processing variables on the composition and characteristics of packed oysters at the nearby commercial oyster plants.

Note: Also see Commercial Fisheries Review, December 1958 p. 42 and October 1958 p. 34.



Pacific Oceanic Fishery Investigations

FIVE TAGGED SKIPJACK RECAPTURED IN NOVEMBER 1958: During November 1958 five tagged skipjack were sent to the Laboratory of the Pacific Oceanic Fishery Investigations. These were all from recently-tagged skipjack and showed little movement from the point of tagging. Four of the skipjack were tagged and released near the Hawaiian Island of Lanai and recovered in that area. The fifth tagged skipjack was released in August 1958 near Lanai and recovered on Oahu. These five tagged fish brought the recoveries from the 1958 releases up to 11.4 percent.

* * * * *

TILAPIA REARING EXPERIMENTS CONTINUED: In November 1958 the Pacific Oceanic Fishery Investigations Maui experimental tilapia rearing station produced 57,000 fry. This amount was about one-third of the October 1958 production and indicated that the adult spawners were reacting to a drop in water temperatures. The November crop of tilapia fry brought the total produced by that station since the beginning of the experiment to 1 million young fish.

The Kewalo Basin tilapia rearing plant produced 18,300 fry in November, but of this amount 3,218 fry were lost due to disease. The losses were attributed to infectious pancreatic necrosis, believed to be incurable virus disease.

Experiments on the concentration and sex ratios of the tilapia brood stock indicated that an allotment of 4 square feet of pond bottom for each male and a ratio of three females resulted in the maximum number of young.



Salmon

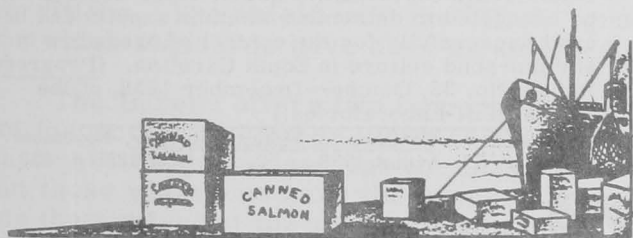
PROGRESS REPORT ON COLUMBIA RIVER SALMON RESEARCH: As part of the Bureau of Commercial Fisheries program of research on salmon protection, the electrical installation at Cascade Reservoir, Idaho, for controlling squawfish, which prey on salmon, was continued in operation during July and concluded on August 1, 1958. Cascade Reservoir was chosen as an experimental site in May 1958 for evaluating the effectiveness of an electrical installation for blocking and trapping squawfish moving upstream from the reservoir to spawn. During July the electrical installation was 80-percent effective as a control device when 24-hour "power on" and "power off" tests were conducted. The data collected indicate that large numbers of squawfish move out of the reservoir to spawn during June.

During the peak of the fall king salmon migration, a one-hour test was conducted in which all fish moving up the 35-foot wide Washington shore fishway at Bonneville Dam were diverted into an experimental fishway 6 feet in width. Approximately 500 salmon were diverted and passed through the experimental section during the test period. Observations indicated that the fish passed through the 8-pool test section with no apparent sign of distress or delay. Other experiments have been conducted which substantiate these results. A Technical Committee, composed of representatives of Oregon, Washington, and Idaho fishery departments, and U. S. Bureau of Commercial Fisheries personnel, reviewed the results of these experiments. They concluded on the evidence presented that the fishway with a one-foot rise in each 8 feet of length showed no difference on the rate of passage of fish upstream than the one-foot-in-16-foot fishway, provided that proper hydraulic conditions were satisfactory. The Committee, therefore, recommended that a one-on-10 fishway be constructed at Ice Harbor on an experimental basis provided that it can be demonstrated that suitable hydraulic conditions will be obtained and a program of evaluation of this ladder financed by the Corps of Engineers and satisfactory to the Committee be provided.

The diurnal fluctuations of behavior of adult king salmon migrants was examined in the forebay of Bonneville Dam with sonic tracking equipment. Preliminary examination of the data indicates that the rate of upstream movement in daylight was about 0.70 mile per hour, but in darkness about 0.07 mile per hour; the rate of movement in darkness may be influenced by increased light intensity on moonlight nights. Many fish which had migrated 3 to 5 miles upstream during the day returned slowly downstream in darkness; a few fish returned to the spillway section of the dam about 300 yards below their point of release.

* * * * *

UNITED STATES AND ALASKA CANNED PACK, 1958: The 1958 United States canned salmon pack in the Pacific Northwest and Alaska totaled more than 3.6 million standard cases (48 1-lb. cans), according to preliminary estimates. This was the best pack since 1954 when almost 4.2 million cases were packed. The 1958 pack was 14.3 per cent more than in 1957 when almost 3.2 million cases were packed, and slightly better than 1956's 3.5 million cases.



The increase in the 1958 salmon pack was due to the good pack of pink salmon in Alaska.

Table 1 - United States and Alaska Salmon Pack, 1958 (Preliminary Data)

Species	Alaska	Puget Sound	Columbia River	Wash. Coast	Total 1958	Total 1957
(1,000 Standard Cases--48 1-lb. cans)						
Chinook	51.1	1.0	78.9	0.6	131.6	142.1
Chum	758.9	56.0	2.5	5.0	822.4	924.5
Pink	1,583.2	0.7	-	-	1,583.9	943.6
Sockeye	491.9	417.0	1/43.7	1.0	953.6	963.6
Silver	104.2	25.0	10.6	0.5	140.3	203.5
Steelhead	-	-	7.7	-	7.7	7.6
Total	2,989.3	499.7	143.4	7.1	3,639.5	3,184.9

1/ Includes 33, 137 cases of Puget Sound sockeye salmon packed on the Columbia River.



South Carolina

FISHERIES BIOLOGICAL RESEARCH PROGRESS, OCTOBER-DECEMBER 1958: Oyster Research:

South Carolina oysters, for the most part, are intertidal. With a normal six-foot tide in the vicinity of the Bears Bluff Laboratories, most oysters are exposed to the air from 6 to 8 hours in every tidal cycle. Such exposure to temperature changes, sunshine, and rainfall, must have a decided effect on oysters. In order to study this more carefully, a manually-operated elevator was constructed and a tray containing 1,000 oysters was placed on it. Another tray of 500 oysters was placed beneath the elevator on the bottom. No attempt was made to duplicate tidal cycles, but daily, from 8 a.m. to 1 p.m., the oysters in the tray are raised above the surface. For the remainder of the day they are completely submerged. A total of 500 oysters in the tray are left completely exposed while 500 are automatically covered by a sheet of plywood when the elevator is raised. The 500 oysters in the tray on the bottom are, of course, submerged at all times. Each month a sample of the oysters under the three conditions are analyzed to determine growth, mortality, and condition. Continued study of the oysters throughout the year will give some clues as to the affect of drying, airing, sunshine, shade, and total submersion on oysters in South Carolina.

In connection with seed oyster studies, experimental shipments of young seed were made to Solomons, Md., Pensacola, Fla., and New Orleans, La. Small seed oysters were imported from New York to South Carolina for study.

Shrimp Research: During the last quarter of 1958, shrimp were relatively scarce at all regular established trawling stations off South Carolina. Except for a few scattered runs, the wintering-over crop of small white shrimp appear to be below normal. Likewise, the commercial catch of white shrimp during the October-December quarter was relatively scarce. Had it not been for an abnormally large catch of brown shrimp in mid-

summer, South Carolina's crop would have been seriously curtailed in 1958 and fallen below the 5.5-million-pound average. The severe cold winter of 1957/58 is held responsible for the decline in white shrimp.

One exploratory shrimp fishing cruise was made in waters to a depth of 40 fathoms. Good trawling bottom was encountered and reasonably large catches of rock shrimp were made during the two nights of the cruise.

Pond Cultivation: One of the experimental ponds which has been in operation without any planned program of management since February 1958 was drained on October 9, 1958. This pond, which is slightly over an acre, yielded a harvest of 342 pounds of fish, crab, and shrimp. The greater weight was in mullet, spot, and blue crabs. The size of the blue crabs is particularly worthy of note. The 89 crabs harvested weighed almost 68 pounds. Of the 75 males, 20 weighed a pound or more each. The largest was 7.75 inches from spine to spine, and weighed 19 ounces.

One of the smaller ponds was again stocked with sexually-mature brown shrimp in hopes of spawning these in the pond. However, no larval shrimp developed in the pond.

With the help of the U. S. State Department and the American Consul at Singapore, Bears Bluff Laboratories is being shipped a small sample of "sapolin" (pressed tea seed) which has long been used in the Orient for the control of predacious fish in shrimp ponds. When this material arrives, small-scale experiments in sea water aquaria will be conducted to determine whether sapolin can be used successfully for the control of predators in shrimp-pond culture in South Carolina. (Progress Report No. 38, October-December 1958, of the Bears Bluff Laboratories.)

Note: Also see Commercial Fisheries Review, November 1958 p. 53, August 1958 p. 50, and May 1958 p. 40.



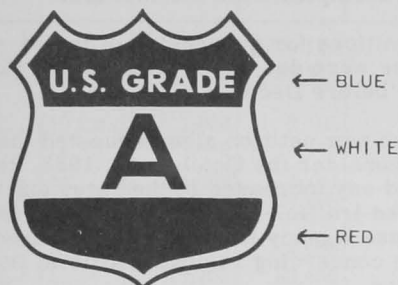
Standards

QUALITY STANDARDS FOR MORE FISHERY PRODUCTS: The Department of the Interior shield--the housewife's assurance of quality fishery products--will be in greater evidence in American retail food markets next year because:

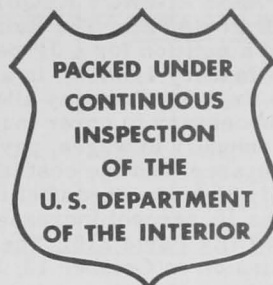
1. The Bureau of Commercial Fisheries, U. S. Fish and Wildlife Service, plans to establish voluntary quality standards for 5 additional fishery products in 1959, bringing to 8 the total which will be entitled to bear the shield showing either Grade A or Grade B, both of which are good.

2. The Bureau expects that several additional fish-processing firms will request the Department's continuous inspection service, thereby joining the 18 firms which now have the right to use the Department shield showing "continuous inspection," and that other firms will avail themselves of the sampling service and earn the right to state that the products offered the housewife are part of a lot which was officially sampled by Bureau inspectors.

In addition to these direct efforts to assure quality, the Bureau is continuing its research on methods for "handling for quality"--methods which begin with the catching of the fish and which follow through to assure the processor the type of raw material which he can use for quality products.



Shield using red, white, and blue background.



Shield with plain background.

The first of the five new standards of quality will apply to haddock fillets. These standards will become effective March 1. Considerable advance notice was given before these standards were promulgated. Meetings were held in several cities before the proposed standards were published in the Federal Register and a comment period was provided after publication. Processors and consumers indicated satisfaction with the proposals.

Other voluntary standards scheduled for promulgation during the year include those for halibut steaks, raw breaded fish portions, cod fillets, and ocean perch fillets. Standards already in effect are for frozen fried fish sticks, frozen raw breaded shrimp, and frozen fish blocks. Since the fish blocks are used in making fish sticks, they are not apt to be seen on retail counters.

To meet Bureau standards of quality, the fishery products must be made out of wholesome material of good odor and taste and must be processed under sanitary conditions. The shield with the "U. S." grade designation is used only on products for which standards have been established.

The Bureau offers two types of inspection service, continuous and sample or lot inspection. In either instance the processor pays for the service. It is not mandatory that a processor use the inspection service or accept the quality standards but those who do so have the opportunity to announce that fact to the person purchasing the product at the retail counter.

In spite of the fact that Interior's inspection service did not begin until July 1, 1958, by mid-December 18 firms had accepted the opportunity for continuous inspection and oral and written inquiries about the inspection service indicate that many more will avail themselves of it during the coming year.

The "handling for quality" research of the Bureau has been going on for several years. Included in the work are methods of landing fish with minimum bruising; icing and storage in the hold to avoid spoilage; washing the decks and holds with chlorinated sea water to reduce the possibility of bacterial action; unloading and transporting techniques and refrigeration. In addition the Bureau is conducting research on preservation by radiation, on rancidity, and on numerous other things which influence the quality of the product that reaches the consumers' tables.



Transportation

RAILWAY EXPRESS AGENCY REQUESTS ANOTHER INCREASE IN RATES: The Railway Express Agency filed a petition for a 3½-percent increase (effective January 1, 1959), in all rates and charges. The Express Company alleged that the increase was necessary to cover increases of about \$12 million annually in wages, payroll taxes, unemployment insurance, and the cost of materials and supplies, all of which occurred after it asked the Commission for the 15-percent increase in rates and charges in 1957 (Ex Parte 210). The Interstate Commerce Commission on October 13, 1958, granted the 15-percent general increase in railway ex-

press rates and charges, but most fishery products were exempted from the increase.

Petitions for suspension of the 3½-percent increase were due in the office of the Commission on or before December 20, 1958.

The new petition also requested the Commission to reconsider the October 13, 1958, decision that denied any increases in the rates and charges for carload traffic. The new petition by the Railway Express Agency is apparently confined to the evidence concerning carload traffic in fresh fruits and berries.



Tuna

OCEAN WEATHER STATIONS MAY AID FISHERMEN LOCATE SCHOOLS: Devices now envisaged should make possible, in a few years' time, predictions about tuna availability in some areas. Scripps Institution of Oceanography, University of California, has an Australian who is the leader of such a project. In a letter to the Australian Director of Fisheries, the leader of the project states:

"... the most interesting thing we are doing is attempting to install fixed automatic temperature- and wind-recording stations in the open ocean. This type of equipment is sure to become a very important tool of marine science one day. . . . I

think these devices will enable us to make useful predictions about tuna availability in some areas in a few years' time, as well as helping other people in other ways."

An area in southern Mexico is of special interest, he continues. This area is windy and much precious time tends to be lost in mere scouting for tuna. It is hoped eventually to be able to say where tuna are most likely to be found after a blow of such and such a kind, and how long after it. This could give the fishermen more time for actual fishing. (*Australian Fisheries Newsletter*, November 1958.)



United States Fishery Landings, January-November 1958

Landings of fish and shellfish in the United States and Alaska the first 11 months of 1958 were about 5 percent less than for the same period of the previous year. The total domestic catch of fishery products in 1958 should amount to about 4.6 billion pounds. While the catch will be far below the record 5.2 billion pounds in 1956, it will be only 2 percent below the average catch during the past ten years and will be the seventh largest for the United States.

The principal declines occurred in the landings of menhaden, down 205 million pounds; jack mackerel, down 65 million pounds; Alaska herring, down 37 million pounds; Pacific mackerel, down 33 million pounds; anchovies, down 31 million pounds; whiting, down 19 million pounds; and haddock, down to 10 million pounds.

While landings of many important species declined sharply, the catches of several were up substantially. Landings of Pacific sardines through December 20 were nearly five times as large as in 1957, totaling over 200 million pounds--an increase of 181 million pounds. Salmon landings in both the Pacific Coast States and Alaska were up, with the total catch about 48 million pounds greater than in 1947. Tuna landings were about 23 million pounds more than in the previous year; ocean perch were up 15 million pounds; and Maine herring up 12 million pounds.

Table 1 - United States Fishery Landings of Certain Species for Periods Indicated, 1958 and 1957 ^{1/}

Species	Period	1958	1957	Total 1957
..... (1,000 Lbs.)				
Anchovies, Calif.	11 mos.	7,352	38,110	38,408
Cod:				
Maine	10 mos.	2,624	2,195	2,352
Boston	11 "	15,403	16,976	17,487
Gloucester ...	11 "	2,880	1,727	2,020
Total cod		20,907	20,898	21,859
Haddock:				
Maine	10 mos.	3,629	4,220	4,667
Boston	11 "	78,702	89,456	93,617
Gloucester ...	11 "	9,393	8,492	8,898
Total haddock		91,724	102,168	107,182
Halibut ^{2/}:				
Wash. & Ore. . .	Year	15,634	15,430	15,430
Alaska	"	19,972	20,733	20,733
Total halibut		35,606	36,163	36,163
Herring:				
Maine	10 mos.	154,139	141,885	153,621
Alaska	Year	80,828	118,290	118,290
Industrial fish,				
Maine & Mass. ^{3/}	11 mos.	127,360	128,796	130,275
Mackerel:				
Jack	11 mos.	21,054	85,820	86,300
Pacific	11 "	19,364	52,314	55,200
Menhaden	11 "	1,419,747	1,624,795	1,690,128
Ocean perch:				
Maine	11 mos.	67,445	60,915	64,723
Boston	11 "	2,435	3,631	3,819
Gloucester ...	11 "	72,489	62,485	65,389
Total ocean perch		142,369	127,031	133,931
Salmon:				
Wash. ^{4/}	9 mos.	46,276	39,871	43,273
Oregon ^{4/}	10 "	7,905	11,056	11,354
Alaska	Year	248,000	203,437	203,437
Sardines, Pacific	to Dec. 20	202,000	40,910	45,800
Scallops, sea, New Bedford	11 mos.	14,182	15,530	16,461
Shrimp (heads-on):				
South Atlantic and Gulf States ...	8 mos.	106,458	121,448	197,043
Wash.	9 "	6,463	1,392	2,458
Oregon	10 "	1,483	196	403
Squid, Calif. ...	10 "	4,862	10,670	10,758
Tuna, Calif. ...	11 "	293,642	277,560	291,234
Whiting:				
Maine	10 mos.	23,577	15,810	15,810
Boston	11 "	578	988	1,002
Gloucester ...	11 "	49,977	76,431	76,521
Total whiting		74,132	93,229	93,333
Total all above items		3,125,863	3,291,569	3,486,911
Others not listed		620,504	640,457	1,292,089
Grand Total		3,746,367	3,932,026	4,779,000

Table 2 - United States Fishery Landings by States for Periods Indicated, 1958 and 1957 ^{1/}

Area	Period	1958	1957	Total 1957
..... (1,000 Lbs.)				
Maine	10 mos.	286,114	266,030	290,528
Massachusetts:				
Boston	11 mos.	115,557	127,012	135,072
Gloucester ..	11 "	219,510	241,687	248,928
New Bedford .	11 "	105,354	99,951	104,334
Provincetown .	11 "	24,880	25,070	25,109
Total Mass.		465,301	493,720	513,443
Rhode Island ^{2/}	8 mos.	70,405	86,450	121,273
New York ^{2/} . . .	10 "	33,982	34,172	40,223
New Jersey ^{2/} . .	10 "	39,977	44,080	50,541
North Carolina ^{2/}	10 "	49,111	60,185	64,634
South Carolina ^{2/}	11 "	14,922	16,878	17,289
Georgia	10 "	16,813	15,893	18,584
Florida ^{2/}	10 "	118,135	109,671	140,698
Alabama	8 "	6,875	8,436	11,882
Mississippi ^{2/} . .	9 "	11,422	16,689	19,991
Louisiana ^{2/} . . .	8 "	39,266	44,532	63,332
Texas ^{2/}	9 "	46,378	55,473	77,156
Ohio (Mar.-Oct.)	10 "	17,052	24,723	25,818
Oregon ^{3/}	10 "	54,340	53,277	57,694
Washington:				
Salmon ^{3/}	9 mos.	46,276	39,871	43,273
Other	7 "	64,397	61,926	99,478
California:				
Certain species ^{4/}	11 mos.	548,284	505,384	529,391
Other	7 "	52,603	49,044	86,862
Total Calif.		600,887	554,428	616,253
Rhode Island, Middle Atlantic, Chesapeake, South Atlantic, and Gulf States (menhaden only)	11 mos.	1,415,914	1,603,132	1,661,480
Alaska:				
Halibut ^{5/}	Year	19,972	20,733	20,733
Herring	"	80,828	118,290	118,290
Salmon	"	248,000	203,437	203,437
Total all above items		3,746,367	3,932,026	4,276,030
Others not listed		<u>6/</u>	<u>6/</u>	502,970
Grand Total		<u>6/</u>	<u>6/</u>	4,779,000

^{1/}Preliminary.
^{2/}Dressed weight.

^{3/}Excluding menhaden.
^{4/}Landed weight.

^{1/}Preliminary.
^{2/}Excludes menhaden.
^{3/}Landed weight.
^{4/}Includes catch of anchovies, jack and Pacific mackerel, Pacific sardines, squid, and tuna. Data on squid are for a ten-months period and on sardines through December 20.
^{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.



United States Fishing Fleet^{1/} Additions

SEPTEMBER 1958: A total of 65 vessels of 5 net tons and over was issued first documents as fishing craft in September 1958. Compared with the same month of 1957, this was an increase of 17 vessels. The Gulf States continued to lead with 33 vessels, the South Atlantic area was second with 16, and Pacific was third with 7.

Table 1 - U. S. Vessels Issued First Documents as Fishing Craft, by Areas, September 1958 with Comparisons						Table 2 - U. S. Vessels Issued First Documents As Fishing Craft, by Tonnage, September 1958				
Area	September		Jan.-Sept.		Total	Net Tons		Number		
	1958	1957	1958 ^{1/}	1957 ^{1/}		1957	5 to 9		10 to 19	
	(Number)					20 to 29	30 to 39	40 to 49	50 to 59	160 to 169
New England	1	2	11	17	19	17	13	18	11	4
Middle Atlantic	-	2	11	21	23	1	1	1	1	1
Chesapeake	4	15	69	82	104	1	1	1	1	1
South Atlantic	16	7	110	91	130	1	1	1	1	1
Gulf	33	14	231	117	166	1	1	1	1	1
Pacific	7	2	96	89	102	1	1	1	1	1
Great Lakes	1	-	6	5	8	1	1	1	1	1
Alaska	3	6	30	46	48	1	1	1	1	1
Puerto Rico	-	-	-	1	1	1	1	1	1	1
Virgin Islands	-	-	1	-	-	1	1	1	1	1
Total	65	48	565	469	601	Total	65			

^{1/} Revised.

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

increase of 96 vessels as compared with the same period of 1957. Of the vessels documented for fishing, 41 percent were reported from the Gulf States.

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



U. S. Foreign Trade

EDIBLE FISHERY PRODUCTS, SEPTEMBER 1958: Imports of edible fresh, frozen, and processed fish and shellfish into the United States during September 1958 were 1.9 percent in quantity and 1.6 percent in value as compared with August 1958.

Table 1 - U. S. Foreign Trade in Edible Fishery Products, September 1958 with Comparisons						
Item	Quantity			Value		
	September		Year	September		Year
	1958	1957		1958	1957	
Imports:	.. (Millions of Lbs.) (Millions of \$).		
Fish & shellfish:						
Fresh, frozen, & processed ^{1/}	92.7	67.9	837.0	25.6	21.1	248.4
Exports:						
Fish & shellfish:						
Processed only ^{1/} (excluding fresh & frozen)	3.3	5.2	69.7	1.3	2.3	16.8

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

The increase was due mainly to higher imports of frozen tuna other than albacore and frozen salmon, and to a lesser degree, an increase in the imports of shrimp and lobsters. These increases were partly offset by a 6.0-million pound decrease in the imports of frozen albacore tuna.

Compared with September 1957, the imports in September 1958 were up sharply by 36.5 percent in quantity and 21.3 percent in value due to higher imports of ground-

fish fillets, frozen tuna (including albacore and other) and canned tuna in brine. Compensating, in part, for the increases was a drop of about 3.9 million pounds in the imports of frozen albacore tuna.

United States exports of processed fish and shellfish in September 1958 were higher by 32.0 percent in quantity and 44.4 percent in value as compared with August 1958. Compared with the same month in 1957, the exports in September 1958 were down by 36.5 percent in quantity and 43.5 percent in value. The exports this September as compared with the same month in 1957 were lower due to light packs of California mackerel and anchovies, and the lack of export markets for the larger pack of California sardines. The fishing season for California sardines opened on August 1, 1958, and catches through September were many times greater than in the same period in 1957.

* * * * *

GROUND FISH FILLET IMPORTS, NOVEMBER 1958: Imports of cod, haddock, hake, pollock, cusk, and ocean perch fillets (including blocks) into the United States during November 1958 totaled 7.4 million pounds--a decline of 3.5 million pounds (32 percent) compared with the same month of 1957. Although imports from Canada (4.4 million pounds) dropped 44 percent below November 1957, she was still the leading supplier in volume--accounting for 59 percent of the month's total imports.

During the first 11 months of 1958, imports of cod, haddock, hake, pollock, cusk, and ocean perch fillets (including blocks) amounted to 138.3 million pounds. This was a gain of 2 percent as compared with the same period of 1957. Imports from Canada made up 72 percent of the total, followed by Iceland with 13 percent, and Denmark with 7 percent. Imports from nine other countries comprised the remaining 8 percent.

Information furnished by the Bureau of the Census indicates that about 11,945,000 pounds of blocks of bits and pieces of groundfish were imported during the first nine months of 1958, in addition to fillets and fillet blocks.

The quota of groundfish and ocean perch fillets and blocks permitted to enter the United States at $1\frac{7}{8}$ cents a pound in the calendar year 1958 was 35,892,221 pounds, based on a quarterly quota of 8,973,055 pounds. The quota for the calendar year 1957 amounted to 37,375,636 pounds. Imports during individual quarters in excess of the established quarterly quota enter at a duty of $2\frac{1}{2}$ cents a pound.

Note: See Chart 7 in this issue.

* * * * *

IMPORTS OF CANNED TUNA IN BRINE UNDER QUOTA: The quantity of tuna canned in brine which may be imported into the United States during the calendar year 1958 at the $12\frac{1}{2}$ -percent rate of duty has been established as 44,693,874 pounds. Any imports in excess of this established quota will be dutiable at 25 percent ad valorem.

Imports from January 1-December 20, 1958, amounted to 46,163,996 pounds, according to data compiled by the Bureau of Customs. This total exceeds the quota by 1,470,122 pounds. The quota of 44,693,874 was reached on November 20, 1958. Imports above the quota are dutiable at the 25-percent rate of duty. From January 1-December 31, 1957, a total of 42,513,788 pounds had been imported.



Water Resources

NEW NATIONAL MAP SHOWS ARMY, INTERIOR, TVA PROJECTS: Publication of a new water resources map showing the expansion of flood control, irrigation, navigation, and power developments by the Army Corps of Engineers, Department of the Interior Bureau of Reclamation, and the Tennessee Valley Authority over the past five years was announced November 26, 1958.

The new map brings up to date the Federal Government's official water resources map to show the projects completed and new work authorized since the previous map was published in 1953.

Shown also on the map are the 23,000 miles of improved inland waterways and the approximately 500 major harbors developed, operated, and maintained by the Army Engineers. The inland waterways, particularly the Mississippi-Ohio and Gulf Intracoastal system, have become one of the world's most outstanding water-connected, industrial production lines. Traffic on the inland waterways has increased 43 percent within the past decade.

The map, which shows the location and status of major Federal water resources projects, can be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at \$2.25 each. It indicates marked changes both in Corps of Engineers and Bureau of Reclamation developments during the past five years. The map also includes facilities of the Tennessee Authority in the southeastern portion of the United States and other Federal agencies throughout the country.

Included are over 300 new Corps of Engineers and 35 new Bureau of Reclamation projects, embracing multipurpose projects serving water supply, recreation, fish and wildlife, and other needs as well as flood control, irrigation, power, and navigation. These projects, totalling estimated Federal costs of about \$1.7 billion and \$1.2 billion, respectively, have



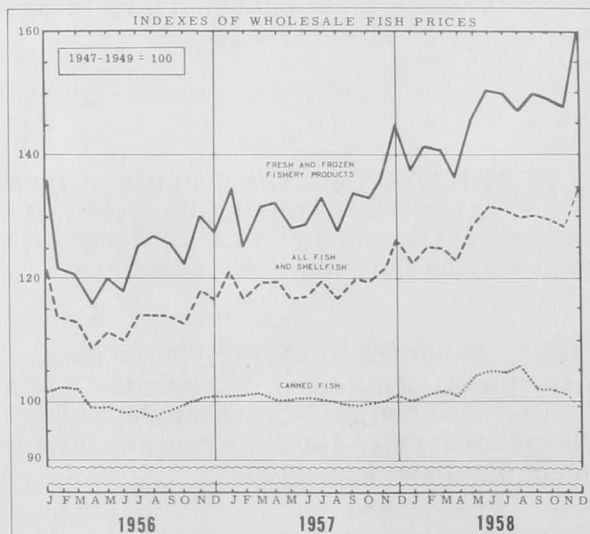
been added to programs authorized by previous congressional actions.

Since 1953, 11 new Bureau of Reclamation storage dams have been completed or brought under construction, and an additional 20 authorized. These structures when completed will provide an additional 34,169,000 acre-feet of storage capacity in the West.



Wholesale Prices, December 1958

During December 1958, mid-month wholesale prices for selected edible fishery products resumed their upward trend after a slight drop in the preceding month. Some sharp increases in fresh fish and more moderate increases in fresh and frozen shrimp prices were largely responsible for the rise. The December 1958 edible fish and shellfish (fresh, frozen, and canned) wholesale price index (134.8 percent of the 1947-49 average) was up 5.1 percent from the preceding month and 6.5 percent above December 1957, when prices were also high.



In December 1958 prices for the drawn, dressed, and whole finfish subgroup items were 14.5 percent higher than in November. From November to December 1958 higher

wholesale prices for fresh large drawn haddock (up 54.3 percent), whitefish (up 20.0 percent), and yellow pike (up 29.9 percent) were primarily responsible for the increase. When compared with December 1957, the subgroup index in December 1958 was 23.1 percent higher due to substantially higher prices for all the six items in the subgroup. All fresh fish items in the index were in light supply this past December and prices for the two frozen items (halibut and salmon) were up due to higher ex-vessel prices this past spring and summer.

The fresh processed fish and shellfish subgroup index for December 1958 was higher by 6.7 percent from November due to a 29.2-percent price increase in fresh haddock fillet prices at Boston and an 8.6-percent increase in fresh shrimp prices at New York City. Shucked oyster prices were unchanged during this period and also from the same month in 1957. The index in December 1958 as compared with the same month in 1957 was about unchanged. An increase of 7.8 percent in haddock fillet prices was about offset by a decrease of 1.1 percent in fresh shrimp prices at New York City from December 1957 to December 1958.

The index for December 1958 for frozen processed fish and shellfish increased by 3.3 percent over the preceding month because of increases of 0.5 to 1.0 cent a pound in frozen haddock and ocean perch fillet prices and a jump of about 5 cents a pound in frozen shrimp prices at Chicago. From December 1957 to December 1958 prices for the subgroup were up 7.9 percent--prices for all the items in the subgroup were higher in December 1958 as compared with December 1957.

Canned fish primary prices in December 1958 were mixed--canned salmon and California sardines were unchanged, but prices were lower by 8.0 percent for canned tuna and higher by 3.0 percent for canned Maine sardines when compared with the preceding month. The net result was a decline of 2.8 percent in the canned fish index from November to December 1958. When compared with December 1957, canned fish prices were lower by 2.5 percent. All the canned fishery products were lower in December 1958 as compared with the same month in 1957 except

for Maine sardines which rose one-third from the low 1957 level. The packing seasons for all canned fish in the index was over by the end of December, except for tuna. The markets continued firm for Maine sardines and salmon, but was weak for California sardines. Demand continued good

for canned tuna, but the record pack of 14.3 million cases (20 percent more than in 1957) was exerting pressure on the canners to lower prices in order to reduce their inventories.

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, December 1958 With Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices ^{1/} (\$)		Indexes (1947-49=100)			
			Dec. 1958	Nov. 1958	Dec. 1958	Nov. 1958	Oct. 1958	Dec. 1957
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					134.8	2/128.3	129.6	126.6
Fresh & Frozen Fishery Products:					160.0	2/147.4	149.2	144.8
Drawn, Dressed, or Whole Finfish:					177.5	2/155.0	160.2	144.2
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.23	.15	235.0	152.3	149.0	206.5
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.34	.34	104.2	105.2	106.2	96.9
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.79	.78	176.9	2/174.1	182.6	136.0
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.75	.73	185.9	179.7	161.1	146.3
Whitefish, L. Erie pound or gill net, rnd., fresh	New York	lb.	.90	.75	182.0	151.7	182.0	128.4
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.65	.50	152.4	117.3	138.4	111.4
Processed, Fresh (Fish & Shellfish):					148.0	138.7	140.8	147.8
Filletts, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.62	.48	211.0	163.3	170.1	195.7
Shrimp, lge. (26-30 count), headless, fresh	New York	lb.	.88	.81	139.0	128.0	131.1	140.6
Oysters, shucked, standards	Norfolk	gal.	6.00	6.00	148.5	148.5	148.5	148.5
Processed, Frozen (Fish & Shellfish):					140.0	135.5	133.1	129.7
Filletts: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.42	.42	108.6	108.6	108.6	103.4
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.41	.41	128.7	127.1	127.1	117.7
Ocean perch, skins on, 1-lb. pkg.	Gloucester	lb.	.31	.30	124.9	120.8	120.8	114.8
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	lb.	.91	.86	139.6	132.7	128.5	128.8
Canned Fishery Products:					98.3	101.1	101.8	100.8
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	21.50	21.50	112.2	112.2	113.5	120.0
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	11.00	11.95	79.3	86.2	86.2	82.9
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 24 cans/cs.	Los Angeles	cs.	4.15	4.15	96.9	96.9	100.4	112.0
Sardines, Maine, keyless oil, No. 1/4 drawn (3-3/4 oz.), 100 cans/cs.	New York	cs.	8.47	8.22	90.1	87.5	87.5	67.6

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

^{2/} Revised.

