

# TRENDS AND DEVELOPMENTS

## California

SPAWNING SALMON AT RECORD LOW IN 1957: The California Department of Fish and Game announced on February 21, 1958, what it had been predicting for the last three months--the second consecutive year of poor king salmon spawning in the Central Valleys.

The figures were even more dismal than the Department had anticipated. Only 120,000 salmon reached spawning gravels or were spawned out at Coleman and Nimbus Hatcheries. This is the lowest spawning stocks have fallen since 1952, when the Department began to make annual surveys in the big valley streams.

The total is well below the 170,000 counted in 1956, the first year the count fell below the 400,000 mark.

Although stocks of 3 out of 4 other major salmon-producing river systems in California where the Department maintains counting stations have increased slightly over the 1956 figures, the fourth, and most important of these, dropped to one-third of its 1956 figure.

The count on the Upper Klamath River turned up only 2,400 spawning king salmon, compared to 6,800 in 1956. The Eel River, Mad River, and Shasta River showed slight increases. However, the peak production on all four river systems combined does not come up to the Central Valleys production in its poorest year.

In announcing the spawning figures for 1957, the Department also updated catch figures released in November 1957 when it announced a second consecutive poor spawning year was impending.

Party Boat Landings: Two additional months of landings brought in less than 400 fish, so the figure of 43,000 salmon landed by party boats in 1957 still stands (1956--114,500 salmon).

Commercial Ocean Landings: Subsequent reports, covering the entire ocean salmon fishing season, upped the estimated landings to about 540,000 fish, from 519,700 reported in November (1956--1,027,200 salmon).

Commercial River: Net fishermen (in their last season on the Sacramento River) took an estimated 16,000 salmon, about the same as reported last November (1956--55,000 salmon).

Combined Landings: Sportsmen and commercial ocean and river fishermen took an estimated combined total of 599,000 salmon during 1957. (1956 total--1,500,000 salmon. Average for 41 years: 800,000 fish.) In November 1957 the Department estimated 579,000 salmon had been taken and predicted the total would barely reach the 600,000 mark.

Catch Per Unit of Effort: Because the salmon were scarcer in 1957 than in the period 1954-56 they were harder to catch. The Department estimates it took three times as much effort in 1957 as in the previous three-year period to catch a king salmon. Total landings and total effort dropped off because of the scarcity of salmon. Many boats did not fish, or fished very little, in 1957.

**Silver Salmon:** Commercial fishermen in the ocean reported 14 percent of their catch (about 75,000 fish) were silver. River netters reported 2 percent of their catch (about 320 fish, all from the Department's experimental plants of 1956 and 1957) were silver. In 1955 as little as 3.5 percent of the weight of the ocean commercial catch were silver.

**1958 Salmon Season:** While figures are not available, early reports from party boat fishermen would indicate the 1958 season catch outlook is not good. Boats averaged less than one fish per man during the first few days of the season despite good weather conditions.

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**THREE TYPES OF SHRIMP FISHING NETS TESTED (M/V Nautilus Cruise 57-N-7):** The Gulf of Mexico shrimp trawl (semi-balloon type), the western box-type otter trawl, and the beam trawl were tested during a November 1-30, 1957, cruise by the California Fish and Game's research vessel Nautilus. The tests were conducted between Point Reyes and Point Delgada off central and northern California to measure the incidental fish catch and to gather additional life-history data on the ocean shrimp (Pandalus jordani).

The Gulf shrimp trawl (semi-balloon design) had a 60-foot head rope, and a mesh of 1½ inches between the knots, stretched measure.

The western box-type otter trawl had a 58-foot head rope, a calculated fishing swath of 12 feet, and a mesh of 1½ inches between the knots, stretched measure.

The beam trawls (one 8 feet wide, one 10 feet wide) had a mesh of 1½ inches between the knots, stretched measure.

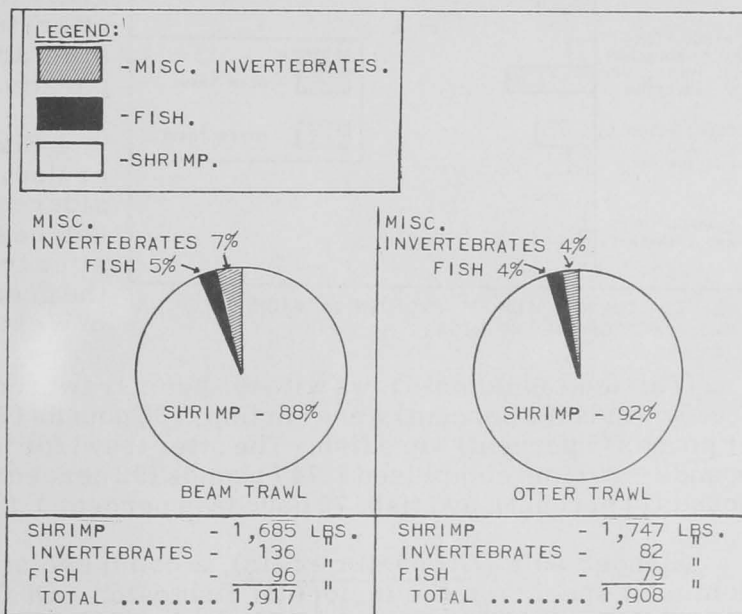


FIG. 1 - CATCH COMPOSITION OF TWO TYPES OF SHRIMP NETS.

The wings of the otter trawl were attached to the otter boards. Mud lines were not used. The lead line was attached 9½ inches above the bottom of each board. The lead line of the 10-foot beam was first attached at the base, just above the shoe, and later at a point 4 inches higher. For comparative gear tows only those data collected with the lead line 4 inches above the beam shoe were used.

The duration of each tow was timed, the distance each net traveled being measured in Loran microseconds.

Three types of tows were made. Gear shake-down and modification tows were called trial tows. Search tows were shrimp-scouting and exploratory tows. Test-gear tows made on the same grounds during the same periods of time, and at the same depths were designated comparison tows. Comparison tows were made in couplet sequence, i. e., beam trawl, then otter trawl, next otter trawl, and then beam.

The catch of each tow was segregated by species. Weights were then taken of three general groups--shrimp, fish, and miscellaneous invertebrates. Surface-

living jelly fish were not included in invertebrate weights. Fish specimens were enumerated and measured. Samples of shrimp were taken for further study.

Inclement weather, rough seas and scarcity of shrimp curtailed gear studies the first half of the cruise. Twenty-one tows were made during this period. None

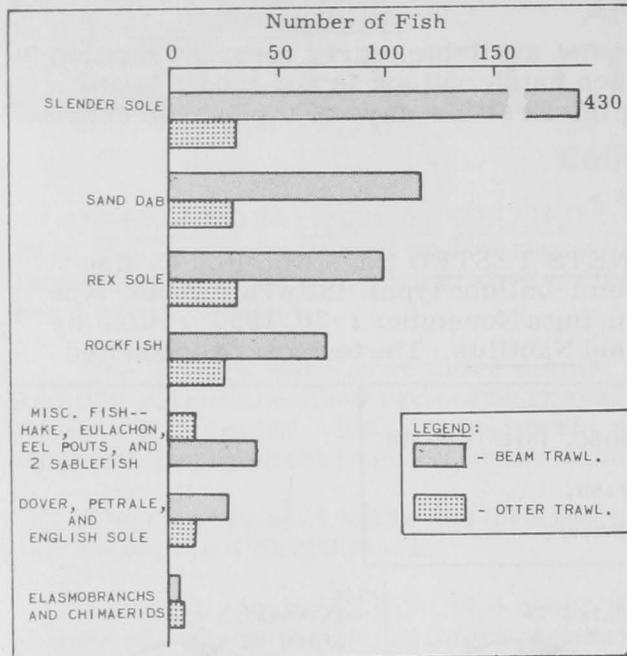


FIG. 2 - COMPOSITION OF INCIDENTAL FISH CATCH OF TWO TYPES OF SHRIMP NETS.

were appropriate for comparative gear studies. Data gathered from two tows made with the Gulf shrimp trawl were inconclusive.

Commercial quantities of shrimp were not found on the grounds (60-64 fathoms, off Usal) that were so productive one month earlier. Better shrimp catches made during this cruise were subsequently taken south of this area and in deeper water (68-76 fathoms). Both types of gear, the 10-foot beam-trawl net and the otter-trawl net, produced remarkably similar catches when fished in a comparative manner.

Sixty-nine tows were made during the cruise. Thirteen couplet trials were considered in comparing the incidental fish catches of the component 10-foot beam and otter trawls. These trials were made on the green mud bank in 68-76 fathoms west of Westport, California., November 21-25.

Thirteen 30-minute tows with the beam trawl resulted in a total take of 1,917 pounds--1,685 pounds (88 percent) were shrimp, 136 pounds (7 percent) were invertebrates, and 96 pounds (5 percent) were fish. The otter trawl for the same number of tows took 1,908 pounds--shrimp comprised 1,747 pounds (92 percent), miscellaneous invertebrates, 82 pounds (4 percent), and fish, 79 pounds (4 percent.) (See Figure 1.)

Slender sole (*Lyopsetta exilis*), a commercially-unimportant species, was the dominant species in the incidental fish catch. Of the 760 individual fish captured in the beam trawl, 430 were slender sole. Twenty-nine of the 166 fish taken by the otter trawl were slender sole. Other fish species taken by each type of gear averaged less than 10 individuals per tow. (See Figure 2.)

On shrimp grounds neither type of gear took excessive amounts of fish. The beam trawl captured more fish than did the otter trawl. The quantity of valuable commercial species of fish captured by either piece of gear was negligible.

Further studies using commercial-size gear during the shrimp season of 1958 are planned.



### Cans--Shipments for Fishery Products, 1957



Total shipments of metal cans during 1957 amounted to 144,560 short tons of steel (based on the amount of steel consumed in the manufacture of cans) as compared with 112,532 tons in 1956. Although the use of steel for the canning of fishery products increased about 1.8 percent in 1957 as compared with the preceding year, the

total pack of all canned fishery products in 1957 was about 4 percent less. Rather sharp declines occurred in the 1957 packs of salmon, shrimp, and California sardines, plus a moderate decline in the pack of Maine sardines. Packs of tuna and Gulf of Mexico oysters in 1957 were about the same as for 1956 and the only pronounced increase occurred in the pack of Pacific mackerel. It seems that the increased shipments of metal cans in 1957 was based more on expectations than actual need.

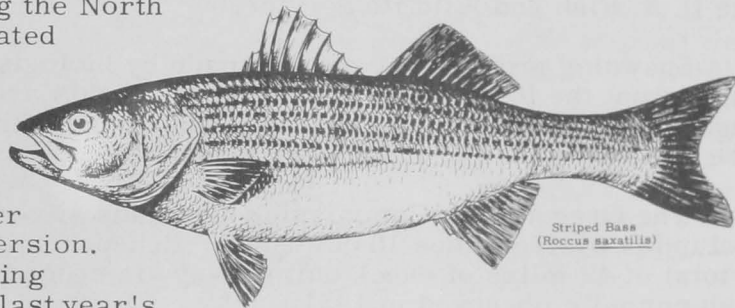
NOTE: STATISTICS COVER ALL COMMERCIAL AND CAPTIVE PLANTS KNOWN TO BE PRODUCING METAL CANS. REPORTED IN BASE BOXES OF STEEL CONSUMED IN THE MANUFACTURE OF CANS, THE DATA FOR FISHERY PRODUCTS ARE CONVERTED TO TONS OF STEEL BY USING THE FACTOR: 23.0 BASE BOXES OF STEEL EQUAL ONE SHORT TON OF STEEL.



### Chesapeake Bay

FEW YOUNG STRIPED BASS MIGRATE OUTSIDE OF CHESAPEAKE BAY: Only four of 1,400 striped bass tagged in the spring of 1957 in the James, York, and Rappahannock Rivers were caught outside Chesapeake Bay. All four of the tagged fish were released in the York River, scientists of the Virginia Fisheries Laboratory at Gloucester Point report.

The biologist in charge of this tagging program reports, "There was much less movement of these fish than we anticipated. Earlier investigation had suggested that most striped bass found along the North and Middle Atlantic coasts originated in Chesapeake Bay. Our results for 1957 do not substantiate this belief." Most of the tagged fish were young and there is reason to believe that young fish do not migrate as freely as adults. Later recoveries may show greater dispersion. The biologist plans to repeat tagging experiments this spring to check last year's figures.



Striped Bass  
(*Morone saxatilis*)

The four tagged striped bass recaptured outside of Chesapeake Bay are as follows:

Location of Capture	Days Free After Tagging	Distance Traveled <sup>1/</sup>
New Jersey . . . . .	73	250
Rhode Island . . . . .	95	450
Maine . . . . .	97	630
Rhode Island . . . . .	221	448

<sup>1/</sup>NAUTICAL MILES.

Maryland scientists tagged striped bass in upper Chesapeake Bay at the same time Virginia biologist tagged in the lower Bay. On comparing figures, it was found that few Maryland fish moved into Virginia waters or vice-versa. Actually, each group of fish tended to remain for the most part in the area of tagging. Very few wandered to other rivers.



## Columbia River

**SILVER SALMON SPAWNING COUNTS HIGHEST SINCE 1951:** Highest spawning escapements of silver salmon, as indicated by spawning ground index counts, into the lower Columbia River tributaries in Oregon since 1951 were observed by staff members of the Oregon Fish Commission this winter (1957/58).

The Commission Director of Research said the increased numbers of silver spawners are, in part, a reflection of more stringent regulations imposed upon commercial fishing in the Columbia River. A ten-day fishing closure on the Columbia River in mid-October was invoked in 1957 with the primary intent of increasing silver salmon spawning escapements. Additionally, commercial fishing was limited to only three days a week during open periods after September 18.



Numerous salmon rehabilitation projects conducted in lower Columbia tributaries by all fish and game agencies concerned under the Columbia River Development Program have been a substantial factor in building up the silver salmon runs. The Columbia River Development Program is financed by funds administered by the U. S. Fish and Wildlife Service.

Spawning ground surveys are made by biologists on selected sections of streams throughout the lower Columbia system. Counts are made of both live and dead fish sighted. These counts are converted to a "fish per mile of stream surveyed" figure that provides a year-to-year index to the condition of the runs.

The Oregon Fish Commission has made silver salmon surveys in the lower Columbia system since 1949. The 25-fish-per-mile figure obtained this winter on a total of 42 miles of check unit surveys is second only to the record count of 29-fish-per-mile observed in 1951.

In view of the encouraging silver salmon escapements that resulted from tighter Columbia River fall season fishing regulations in 1957, the Oregon Fish Commission and the Washington Department of Fisheries have adopted similar regulations for 1958. Additional salmon rehabilitation projects have been planned to further aid silver salmon and other fish production in lower Columbia tributaries.



## Federal Purchases of Fishery Products

**DEPARTMENT OF DEFENSE PURCHASES, JANUARY 1958:** Fresh and Frozen Fishery Products: For the use of the Armed Forces under the Department of Defense, 1.7 million pounds (value \$943,000) of fresh and frozen fishery products

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

QUANTITY			VALUE		
January	Jan.-Dec.	January	January	Jan.-Dec.	January
1958	1957	1957	1958	1957	1957
..... (1,000 Lbs.) .....			..... (\$1,000) .....		
1,692	2,212	23,452	943	1,169	12,080

were purchased in January 1958 by the Military Subsistence Market Centers. This total was lower than the quantity purchased in December 1957 by 3.6

percent and below the amount purchased in the same month a year ago by 23.5 percent. The value of the purchases this January was higher by 4.4 percent as compared with the previous month, but lower by 19.3 percent from January a year ago.

Prices paid for fresh and frozen fishery products by the Department of Defense in January averaged 55.7 cents a pound, about 4.3 cents more than the 51.5 cents paid in December 1957 and 2.9 cents above the 52.8 cents paid during January a year ago.

**Canned Fishery Products:**  
Salmon and tuna were the principal canned fishery products purchased for the use of the Armed Forces during January 1958.

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

Species	QUANTITY			VALUE
	Jan. 1958	Jan. 1957	Jan.-Dec. 1957	Jan. 1958
	... (1,000 Lbs.) ...			\$1,000
Tuna.....	316	-	2,711	164
Salmon.....	695	992	3,111	378
Sardine.....	18	-	215	6

NOTE: SOME LOCAL PURCHASES NOT INCLUDED; ACTUAL TOTAL PURCHASES ARE HIGHER THAN INDICATED BECAUSE IT IS NOT POSSIBLE TO OBTAIN LOCAL PURCHASES.



### Gulf Exploratory Fishery Program

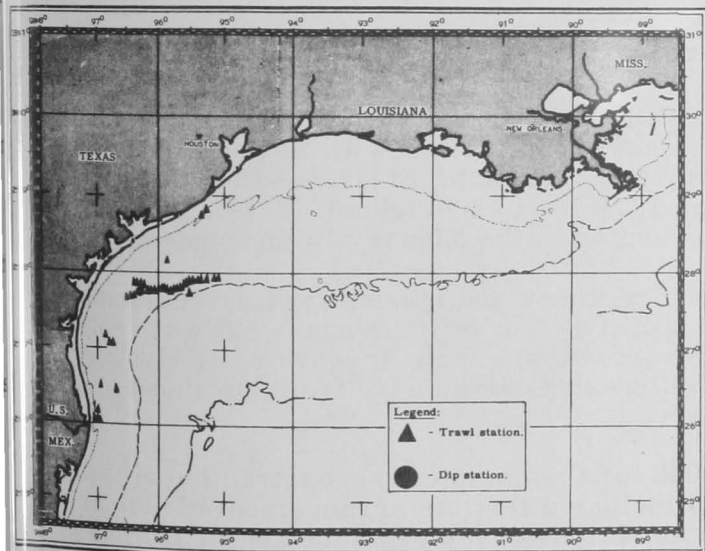
**EXPERIMENTAL RED SNAPPER TRAWLING TRIP OFF TEXAS COMPLETED:**  
(M/V Silver Bay Cruise 6): A total of 1,204 red snapper (weight 1,984 pounds) were caught during a 20-day experimental trawling trip (completed February 20, 1958)

by the U. S. Bureau of Commercial Fisheries chartered exploratory fishing vessel Silver Bay. Incidental but small catches of porgies, vermilion snapper, grouper, and nonutilized or industrial fish were also taken in most drags.

Trawling stations (39) were made on broken and hard bottom in depths of 10 to 100 fathoms with a 52-foot 4½-inch mesh nylon trawl and 76-foot 5-inch mesh manila trawl. Both trawls were rigged in the standard New England style with rollers along the footrope and V-D rig between the net and trawl doors.

Red snapper catches ranged from zero up to 475 pounds per

tow. All catches from less than 40 fathoms (with one exception made at 23 fathoms) yielded less than 100 pounds of red snapper per tow. On February 3 during a short period of calm weather, 4 tows with the nylon trawl in 40-50 fathoms at 27° 43' to 23° 47' north latitude and 95° 37' to 95° 43' west longitude yielded 580 pounds of red snapper. Three tows in this area during February 4-5, in heavy seas, yielded a catch of 540 pounds of red snapper. The red snapper ranged in size from ½ to 25 pounds each and averaged 2 pounds.



M/V SILVER BAY (CRUISE 6 - JAN. 21-FEB. 10, 1958).



## Maine Sardines

INDUSTRY COUNCIL PLANS TO EXPAND INSTITUTIONAL SALES: An extensive program to develop and expand the sales of canned Maine sardines in the institutional market has been initiated by the Maine Sardine Council. Every phase of the volume feeding field from restaurants and hotels to hospitals, schools, and lumber camps would be covered by the project, a February 6 news release from the Council points out.

A New York City consulting firm of institutional specialists has been engaged to work with the Council's Executive Secretary on the required research, marketing, and promotional operations.

Latest data show the institutional market to be of vast proportions with over one-half million outlets which purchase \$6.5 billion worth of food a year and serve meals valued at over \$14 billion.

It was stated in the news release that the industry now enjoys a sizable business in the institutional field and it is the Council's belief that there is a tremendous untapped potential for Maine-packed sardines because of the many attractive features offered by the product.

The Maine sardine industry has been developing a quality-control program, new containers and products, and other items that may be required as the expansion program progresses.



## North Atlantic Fisheries Investigations

CONTRACT FOR NEW FISHERY BIOLOGICAL LABORATORY AT WOODS HOLE AWARDED: A contract for the construction of a new U. S. Bureau of Commercial Fisheries biological laboratory at Woods Hole, Mass., and for the razing of present structures, was awarded for \$371,000 to a Brighton, Mass., firm. A total of 16 firms bid on the project, according to the January 15 announcement.

The new building will be a three-story, brick and masonry, fire-resistant structure, 44 feet by 190 feet, providing 25,000 feet of floor space. It will replace the present laboratory which was constructed more than 70 years ago and which is not only old and obsolete, but has suffered extensive damage from hurricanes in recent years.

Congress has appropriated \$930,000 for the complete reconstruction of the Woods Hole installation. Future plans include a flexible arrangement of plumbing to provide sea water under controlled conditions of temperature and ionization so that natural water conditions in the North Atlantic can be duplicated in the laboratory. Estimates of the cost of the building and complete equipment approximate \$570,000.

Plans for a second unit to be constructed later will include a new aquarium which would be used for public educational and scientific purposes. In addition, provision will be made for the necessary shops, garages, and storage space.

The Woods Hole laboratory is the focal point for the biological study of the commercial fishes of the Northwest Atlantic. The work of this laboratory has assumed increased importance in the implementation of the work of the International Commission for the Northwest Atlantic Fisheries.

The projects over the years have covered a wide range of fishery problems. Among future research projects are studies on the difficulties of survival faced by young fish, chemical and biological aspects of sea water, continuation of net studies, microbiological work, migration and spawning studies, and sundry other projects on the various species of commercially-important fishes in the New England fisheries.

During the period of constructing and equipping the new laboratory the research program is being conducted from temporary quarters near Falmouth, Mass.

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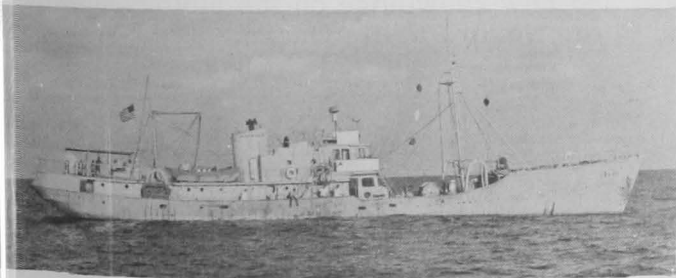
MULTIPLANE KITE OTTER AND HIGH-SPEED PLANKTON SAMPLER TESTED (M/V T-79 Cruise 21): From January 28-31, 1958, the U. S. Bureau of Commercial Fisheries small research vessel T-79 was engaged in the calibration of a multiplane kite otter and a high-speed plankton sampler. The tests were made over a measured mile course buoy area off Provincetown, Mass.

During the cruise, the ship's speed and the opening and closing time of the high speed plankton sampler were calibrated. In addition, a calibration curve for the multiplane kite otter was obtained at a towing speed of five knots.

It was found that the high-speed plankton sampler towed and operated well. The wire vibration which had been troublesome with a  $\frac{1}{2}$ -inch towing warp was reduced considerably with  $\frac{1}{4}$ -inch warp. Tests were not completed due to a breakdown of the auxiliary generator.

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SURVEY OF HERRING SPAWNING AND LARVAL DRIFT INTERRUPTED (M/V Albatross III Cruise 107): The second (February 1958) in a series of three cruises by the Bureau of Commercial Fisheries research vessel Albatross III to survey herring



THE BUREAU OF COMMERCIAL FISHERIES RESEARCH VESSEL  
ALBATROSS III.

spawning and herring larvae drift in the Gulf of Maine and on Georges Bank was cut short by engine trouble. The success of herring spawning and, the subsequent movements of the newly-born larval herring as they reach maturity affects the economy of the coastal areas in Maine which depend on small herring for canning.

Cruise 106 (December 3-20, 1957) and this cruise covered the

entire area of the Gulf of Maine and Georges Bank. Large fine-meshed plankton nets were towed every four hours to collect samples of herring larvae, at two-hour intervals water samples were taken and analyzed for salinity, and hourly bathythermograph lowerings were made to record the water temperature from surface to bottom. In addition, a total of 1,738 drift bottles were released.

Two new instruments, developed by scientists of the Woods Hole Oceanographic Institution, were put into use during the two herring survey cruises. Three stationary thermographs were set out to make a continuous record of the water temperature. Five transponding buoys, which send out a radio signal when triggered from the vessel, were set out to supplement the information about currents collected from drift bottles.



Following repairs to the engine, the Albatross III is expected to be ready for sea again about March 15.



## North Pacific Fisheries Investigations

VESSEL CHARTERED FOR BERING SEA KING CRAB STUDIES: The Seattle halibut vessel Tordenskjold has been chartered by the U. S. Bureau of Commercial Fisheries for the summer of 1958 to undertake studies of the king crab populations of the Bering Sea at the request of the International North Pacific Fisheries Commission. The 67-foot vessel, with a crew of four, will be under charter from April to August 1958.

The king crab studies attempt to determine what conservation measures are required in regard to the Bering Sea crab stocks. The vessel will be trawling at 77 established locations to examine the size and conditions of crabs.

Crabs will be tagged to learn migration patterns. Oceanographic observations will be made to determine how water temperatures and currents affect the abundance and distribution of king crabs. An attempt will be made by otter trawling to estimate the total number of commercial size crabs in the Bering Sea.

During the 1957 season, 15,570 king crabs were tagged in the Bering Sea. Small juvenile crabs--two inches and under--were found and their growth studied for the first time by biologists of the Service's fishery biological laboratory at Seattle. A high population of commercial-size king crabs was observed. (The total 1957 catch taken by United States and Japanese fishing operations was about 1.3 million large crabs.)

The crab research program conducted on a limited scale since 1954 was greatly expanded in 1957. These studies will add new knowledge on the biology and life history of this valuable shellfish found in the North Pacific Ocean.



## Oregon

NEHALEM RIVER SALMON MIGRATION PROJECT COMPLETED: Some 25 miles of stream system of the north fork of Oregon's Nehalem River have been made more accessible for salmon and trout migration by a series of improvement projects conducted by the Oregon Fish Commission over the past nine months.

The latest north fork Nehalem improvement project (a concrete fishway over Waterhouse Falls) was finished by the Commission's engineering division late in January 1958. Although only nine feet in height, the Waterhouse Falls had been a serious barrier to salmon and trout at most water stages, according to the Fish Commission engineering director.

During construction of the Waterhouse Falls fishway, considerable numbers of silver salmon were able to surmount the barrier through temporary fish passage facilities that were installed. It is estimated that 4,000 silvers passed over the falls during November and December 1957.

Another fishway was completed by the Fish Commission at Hamlet Falls, four miles upstream from Waterhouse Falls in September 1957. Earlier in 1957, Fish

Commission equipment was used to remove 11 major log jams and a large quantity of timber debris from Sweet Home Creek, which enters the north fork about three miles above Waterhouse Falls.

The total cost of the three Nehalem River projects was approximately \$43,000.

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LANDINGS OF FISH-ERY PRODUCTS, 1957:

Landings of fish and shellfish in Oregon during 1957 amounted to almost 56.6 million pounds, a decline of about 4.5 percent as compared with the preceding year. In 1957 declines in landings of chinook or king salmon (down 32.3 percent) and tuna (down 31.6 percent) more than offset an increase in the landings of silver salmon (up 5.7 percent) and dungeness crabs (up 31.6 percent).

Oregon Landings of Fish and Shellfish, 1956-57		
Species	1957	1956
	.. (1,000 Lbs.) ..	
<u>Salmon:</u>		
Blueback (sockeye) ..	190	162
Chinook (king) .....	6,784	10,019
Chum .....	155	136
Pink .....	100	-
Silver .....	4,125	3,902
<b>Total salmon .....</b>	<b>11,354</b>	<b>14,219</b>
<u>Other species:</u>		
Shad .....	339	517
Smelt .....	347	778
Steelhead trout .....	539	647
Striped bass .....	13	34
<u>Sturgeon:</u>		
Green .....	70	36
White .. 1/ .....	183	158
Bottomfish <sup>1/</sup> .....	28,074	29,190
Tuna .....	3,277	4,794
<b>Other fish total ..</b>	<b>32,842</b>	<b>36,154</b>
<u>Shellfish:</u>		
Clams <sup>2/</sup> .....	173	213
Crabs, dungeness <sup>3/</sup> ..	11,934	8,671
Shrimp .....	287	-
<b>Total shellfish .....</b>	<b>12,394</b>	<b>8,884</b>
<b>Grand total .....</b>	<b>56,590</b>	<b>59,257</b>

1/INCLUDES FISH-LIVER LANDINGS.  
 2/WEIGHT IN-THE-SHELL.  
 3/WEIGHT BASED ON 25 POUNDS PER DOZEN CRABS.



**Oysters**

RAFT CULTURE OF OYSTERS SHOWS PROMISE: Two studies on the raft culture of oysters made under conditions prevailing in Cape Cod Bay, Mass., by biologists of the U. S. Bureau of Commercial Fisheries, indicate the superiority of this type of culture over the present type of bottom culture. In September 1956, young oysters were suspended on a raft in Oyster River, Chatham, Mass. Monthly measurements on the set, showed that by November 29, 1957, the mean height of these oysters was 49 millimeters (about 2 inches) while those planted on the bottom a short distance from the raft reached the average height of only 35 millimeters (about 1.4 inches). The greatest growth (31 percent of the annual increment) took place in July.

In the summer of 1957 a good oyster set occurred in Taylor Pond, which is a short distance from Oyster River. Between August 12-31 this set was collected and part of it was strung on two additional logs lashed to the existing raft in Oyster River. Other oysters were planted on the bottom of Oyster River near the raft. On November 29, 1957, the mean height of the oysters growing on the raft was 28 millimeters (about 1.1 inches) while those on the bottom averaged only 22 millimeters (about 0.9 inches).

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**PLANS TO AID LONG ISLAND SOUND OYSTER INDUSTRY:** The New York and Connecticut Long Island Sound oyster industry is facing a crisis and in order to develop methods for assisting this industry, a symposium was held in Washington, D. C., on February 6 and 7, 1958. The lack of seed oysters caused by (1) failure of setting since 1945, (2) storms, (3) the ever-present oyster drills, and now (4) a severe invasion of starfish have caused production to drop and, as a result, have forced many companies into bankruptcy.

The scientists participating in the symposium included nine biologists from the U. S. Fish and Wildlife Service's Bureau of Commercial Fisheries, a hydrographer from Yale University, a chemist from Johns Hopkins University, and a biologist from the University of North Carolina. The Director of the Oyster Institute of North America represented the industry.

These scientists recommended short-range projects to give immediate assistance to the industry and long-range projects for rehabilitating the oyster industry of New York and New England. The short-range projects include:

- (1) Transplanting market oysters from the Chesapeake Bay in September, when they are in poor condition, to Long Island waters for fattening, and sale Thanksgiving to April.
- (2) Establishing refuges in the estuaries of Long Island Sound where oysters can be placed during starfish invasions. Starfish and drills cannot tolerate the low salinity that exists in these estuaries. It is hoped that this measure will restock the depleted spawning beds and increase setting oysters in the estuaries. Action by the Connecticut legislature would be required to permit leasing of these grounds which are now open to the public. The Bureau of Commercial Fisheries would serve in an advisory capacity to the state of New York and the oyster industry and would expand the field studies on spawning and setting in these estuaries.

The long-range projects recommended were:

- (1) Continuing and expanding the studies of the physiological requirements and behavior of oyster larvae, diseases and predators to determine the causes of the fluctuations in the intensity of setting. This step would require field studies in several areas and additional laboratory facilities and personnel at Milford, Connecticut.
- (2) Continuing and expanding research on the use of natural salt-water ponds and estuaries in which oysters set consistently as sources of seed for the Long Island Sound industry. Since the oysters now present in ponds on Martha's Vineyard Island and Cape Cod, Mass., estuaries grow slowly after transplanting, they may be replaced with spawners from Long Island Sound.
- (3) Transplanting seed oysters from southern areas, such as seaside Virginia, North Carolina, and South Carolina (when the setting is heavy) to Long Island Sound. The Bureau of Commercial Fisheries would do this at an experimental level before recommending this action to the industry because

preliminary experiments have not been successful.

(4) Continuing and expanding Bureau of Commercial Fisheries research to perfect methods for the artificial propagation of oysters to produce seed in commercial quantities. Basic information is available and success has been demonstrated at Milford, Conn.

(5) Continuing the testing of chemicals to find specific poisons for use in controlling starfish, oyster drills, and other enemies and competitors of oysters.

The symposium held in February 1958 was followed up by meetings with members of the industry to develop cooperative programs. Part of the proposed program will be financed by redirecting present investigations.

A meeting of representative Long Island Sound oystermen, New York and Connecticut conservation agencies, a representative from the Long Island Fishermen's Association, and personnel of the Bureau of Commercial Fisheries was held at Milford, Conn., on March 6, to develop methods for assisting the oyster industry of Long Island Sound.

The following recommendations developed at the Washington meeting were discussed in detail and were approved by representatives of the oyster industry.

1. An experiment to transplant market oysters from Chesapeake Bay in September when they are in poor condition to Long Island Sound for fattening and sale Thanksgiving to April. This experiment will be set up as a cooperative project between interested members of the industry and the Bureau of Commercial Fisheries.
2. The establishment of refuges and estuaries in Long Island Sound where oysters could be placed during starfish invasions since starfish and oysters cannot tolerate these brackish waters. This procedure would also restock depleted spawning beds, and might increase the setting of oysters in the estuaries. This measure was recommended to the Connecticut Shellfish Commission and the industry. The Bureau would serve in an advisory capacity and would expand field studies for spawning and setting in these estuaries.
3. Continue and expand studies of the physiological requirements of and behavior of oyster larvae, their food, diseases, and predators to determine the causes of fluctuations in the intensity and setting.
4. Continue and expand research on the use of natural ponds and estuaries where oysters set consistently and sources of seed for the Long Island Sound industry. Since oysters now present in ponds on Martha's Vineyard Island and Cape Cod estuaries grow slowly after transplanting they may be replaced with spawners from Long Island Sound.
5. Transplant seed oysters from southern areas such as Seaside, Virginia, North Carolina and South Carolina, where setting is heavy, to Long Island Sound. This will be done at an experimental level

by the Bureau before recommending to the industry because preliminary experiments have not been successful.

6. Continue and expand Bureau research to perfect methods for artificial propagation of oysters to produce seed in commercial quantities. Basic information is available and success has been demonstrated at Milford, Conn. Expanded facilities including pilot-scale hatcheries, pools, and ponds will be required to make methods commercially applicable. This project will lead to selective breeding of oysters to develop desirable qualities.

7. Continue testing of chemicals to find specific poisons for starfish, oyster drills, and other enemies and competitors of the oyster, and investigate other methods for control of these predators.

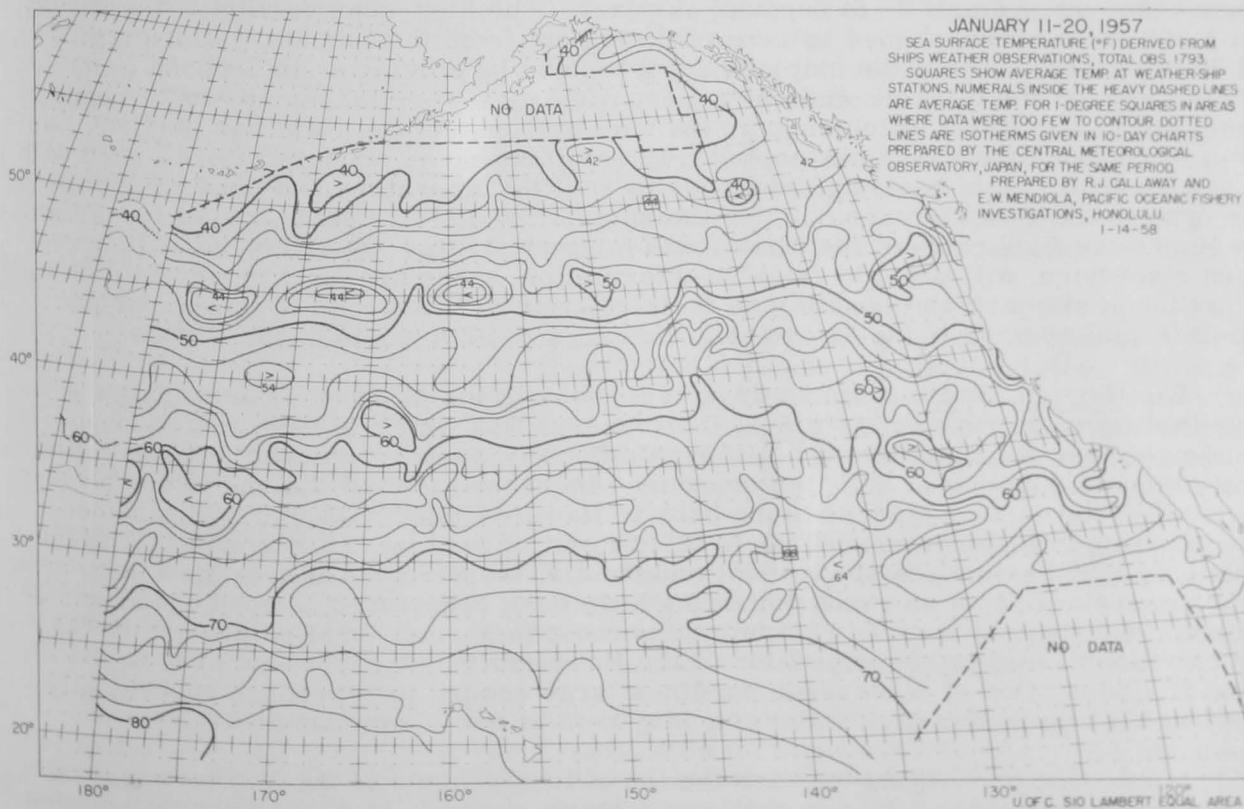
8. Initiate studies to find enemies of starfish and drills which might be used to control the abundance of these oyster predators.

The immediate problem of control of depredations by starfish was discussed at considerable length. It was pointed out that the industry is spending over \$10,000 per week in control measures and that this is about the maximum that can be expected since their financial resources are at the lowest ebb in history from the lack of production over the past five years. The State of New York Marine Division of the Conservation Department has requested an appropriation from their legislature so that they can aid in the control program. The Connecticut Shellfish Commission is trying to develop a similar proposal for their legislature. It is urgent that control measures be taken as soon as possible to keep starfish out of the seed beds. Oyster shells will be spread on these beds within the next three months to obtain a new set of oysters, but these oysters would be destroyed by starfish unless immediate action is taken.



### Pacific Oceanic Fishery Investigations

**EASTERN NORTH PACIFIC SEA-SURFACE TEMPERATURE CHARTS RELEASED:** The first of a series of sea-surface temperature charts covering the eastern side of the North Pacific Ocean was announced by Pacific Oceanic Fishery



Investigations of the U. S. Bureau of Commercial Fisheries in January 1958. The first series of charts cover sea-surface temperatures for January 1958 together with comparisons with the 30-year mean, and a similar chart for January 1957.

Comparisons can be drawn between January 1958, the historical average, and January 1957. It is hoped that sea-surface temperatures will be useful in unraveling the distribution of albacore tuna as sea temperatures are believed to be one of the most important factors governing the movements of this species.

Data for the sea-surface temperature charts were gathered from all available sources, including the U. S. Weather Bureau, the Meteorology Division of the University of Hawaii, POFI research vessels, ocean liners, and Japanese sources.

\* \* \* \* \*

SKIPJACK TUNA AND LIVE-BAIT SARDINES FOUND ABUNDANT IN MARQUESAS (M/V Hugh M. Smith Cruise 42): The abundance of skipjack tuna (aku) found in 19 days of inshore fishing around 10 of the 11 Marquesas Islands and over an extensive area offshore from the islands was the highest since the series of seven cruises was initiated to study the resources of those islands. The Pacific Oceanic Fishery Investigations research vessel Hugh M. Smith returned to Honolulu from the fifth of the seven cruises on February 25, 1958, after spending 53 days at sea fishing for tuna and searching for live-bait supplies. This South Pacific island group, lying southeast of Hawaii, and approximately equal distances from Honolulu and Southern California ports, is surrounded by promising but undeveloped tuna fishing grounds that are of immediate interest to the United States west coast long-range tuna clipper fleet and of potential importance to the Hawaiian tuna-fishing industry.

Fishing close to the islands, the expedition sighted 76 tuna schools, most of them made up of small 3- to 6-pound skipjack. The high-seas portion of the survey, an 1,800-mile cross-shaped pattern radiating out from the islands, yielded a total of 74 sightings, most of the skipjack schools near land being 4- to 6-pound fish, while those on the offshore ends of the scouting runs were larger 16- to 29-pound tuna, similar to those which support the summer peak of the Hawaiian skipjack fishery. Over 300 of the skipjack captured in sampling these schools were marked with a new type of plastic dart tag developed by POFI's laboratory and used with great success in the Hawaiian area during the summer of 1957. Recaptures of these fish by the native fishermen of the Marquesas or, conceivably, by commercial fishermen elsewhere, will provide valuable information on the seasonal movements of the Marquesan skipjack and possibly on their relation to the stocks of this important commercial species being exploited in Hawaii and other parts of the Pacific.

The Hugh M. Smith spent 12 days of its stay in the Marquesas surveying the availability of Marquesan sardines, the live-bait fish which is essential to large-scale commercial tuna fishing. Although difficulty was encountered at first in finding adequate supplies of bait, the abundance increased toward the end of the survey period, enabling the vessel to bring back to Hawaii a load of 10,500 live sardines for planting in local waters. This is the largest of four introductions of this species made by POFI scientists since 1955, and the fish were released near Ewa in an area where sardines from an earlier planting have been recaptured in good condition. A chronic shortage of Hawaiian anchovy, the most important local skipjack bait fish, is one factor limiting the expansion of the Hawaiian tuna fishery, and it is hoped that if a population of Marquesan sardines large enough to reproduce successfully can be built up in Hawaiian waters, it may help to overcome this difficulty.

In addition to studying the distribution of tuna schools in the Marquesan area, the expedition gathered data on the temperature, salinity, and other characteristics of the waters in which the tuna were found, and sampled the abundance of plankton and of tuna eggs and larvae on the fishing grounds. Collections of miscellaneous fishes, using underwater lights, handlines, and various types of nets were also made. Of particular scientific interest were a 6-inch specimen of a rare shark taken in a

fine-meshed plankton net, and a colorful "sea moth," a fish with fins resembling the wings of a butterfly, netted under a light at night.

\* \* \* \* \*

TAGGED ALBACORE TUNA RECOVERED IN WESTERN PACIFIC: Two albacore tuna tagged by biologists of the Pacific Oceanographic Fishery Investigations, U. S. Bureau of Commercial Fisheries, were recovered by Japanese fishermen in the western Pacific during December 1957 and January 1958. Both of the albacore were tagged in mid-Pacific Ocean north of Hawaii. One of the recoveries had been out for two years and the other for one year. The growth, from the time of tagging until the time of recapture, was at the rate of about 10 pounds a year.



### Pacific Salmon Investigations

TWO VESSELS CHARTERED TO STUDY ORIGIN OF MID-OCEAN SALMON: In order to study and determine the origin of North Pacific mid-ocean salmon stocks dividing them into those that spawn in Alaskan waters and those that are of Asian origin, the halibut vessels Pioneer and Attu have been chartered by the Pacific Salmon Investigations of the U. S. Bureau of Commercial Fisheries. The two vessels will leave Seattle, Wash., May 1 and return about September 1, 1958.

The chartered vessels will cover the central North Pacific ocean and much of the Bering Sea from 46° to 58° north latitude and from the West Coast to 172° east longitude. The farthest point is some 75 miles west of Attu Island and some 450 miles east of Russia's Kamchatka Peninsula. Area included in the salmon studies covers some 1,500,000 square miles of the North Pacific Ocean.

"The purpose of the high seas investigations is to study the distribution and abundance of salmon in the high seas, to collect salmon samples for racial identification, and to continue the oceanographic survey of the area," says the chief biologist of the ocean salmon research unit of the Pacific Salmon Investigations Laboratory in Seattle.

"This is the fourth year of our high seas studies of salmon," he stated. "We are pulling together the pattern of distribution and movements of salmon. We are primarily interested in determining what North American stocks enter waters west of the 175° provisional treaty line of the North Pacific Fisheries Convention between Japan, Canada, and the United States, and therefore become available to the Japanese high seas fisheries."

Serving as research agency for the United States Section of the International North Pacific Fisheries Commission, the scientists are trying to determine the "home base" of salmon taken on the high seas. Were these salmon spawned in Alaskan or Asiatic streams? In what areas do they mingle in the high seas? By what characteristics may the Asiatic and American fish be distinguished?

Scientists aboard the vessels hope to take some 8,000 salmon samples for the racial studies. As provided in the Treaty, data on three species of salmon are being collected with greatest emphasis on red salmon (Oncorhynchus nerka), pink salmon (Oncorhynchus gorbuscha), and chum salmon (Oncorhynchus keta). The whole salmon specimens are frozen and placed in individual plastic bags.

Also participating in the high seas studies of salmon will be vessels of the Fisheries Research Board of Canada and the Fisheries Agency of the Japanese Government.

During the 1957 season, United States scientists took 12,004 fish in the high seas of which 3,507 were red salmon, 3,179 were pink, 5,057 chum, 59 were chinook, 202 silver, and 104 steelhead trout.

Back in the Seattle salmon laboratory of the Bureau, biologists are seeking to discover ways of telling an Asiatic salmon from an American salmon. To do this, scientists are studying the salmon's blood, parasites, bone structure, scales, and measurements of seven different physical characteristics. All of the fish are x-rayed to compare skeletal structures. Telltale scales reveal the age of the fish and are clues to the "home stream." Gillrakers (part of the breathing apparatus) are compared in fishes for distinguishing traits.

Preliminary results show samples from the western end of the Pacific ocean, Okhotsk sea, and along the eastern coast of Kamchatka Peninsula formed a group with characteristics somewhat different from those of the North American continent.

Results of the 1958 studies will be presented at the next meeting of the International North Pacific Fisheries Commission to be held in Tokyo, Japan, in November 1958.



### Shrimp

**UNITED STATES SUPPLY AND DISPOSITION OF DOMESTIC AND IMPORTED SHRIMP, 1952-57:** The total United States supply of domestic and imported shrimp available for consumption during the six years 1952-57 varied from a high of 202.0 million pounds heads-off in 1956 to a low of 173.7 million pounds heads off in 1952.

The landings of shrimp by United States vessels varied from a high of 159.7 million pounds heads-off (268.3 million pounds heads-on weight) in 1954 to an estimated low of 130.9 million pounds heads-off (220 million pounds heads-on weight) in 1957.

Imported shrimp has been taking an increasing share of the United States market - from 22.1 percent of the total available supply in 1952 as compared with 33.9 percent in 1957.

There have been certain changes in the disposition of the available supply (domestic landings and imports) of shrimp. The amount utilized frozen has steadily increased from a low of 105.1 million pounds head-off (60.5 percent) in 1952 to 141.3 million pounds heads-off (71.3 percent) in 1957.

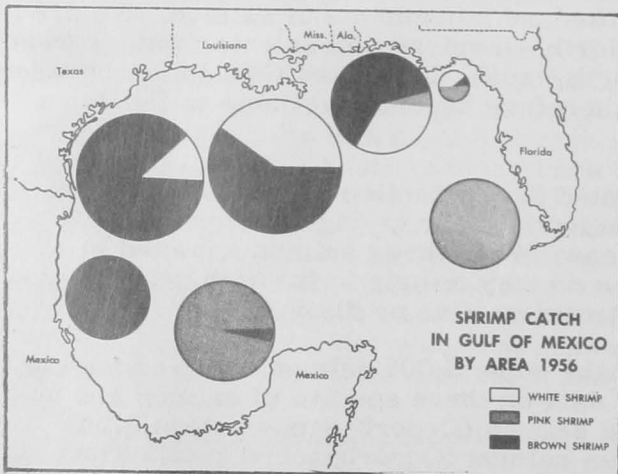


Table 1 - Supply and Disposition of Domestic and Imported Shrimp Heads-Off, 1952-57

Item	1957 <sup>1/</sup>	1956	1955	1954	1953	1952
. . . . (1,000 Lbs., Heads-Off Weight <sup>2/</sup> ) . . . .						
<b>Supply:</b>						
Domestic catch . .	130,900	133,383	145,379	159,659	154,912	135,196
Imports <sup>3/</sup>	67,235	68,590	53,751	41,502	43,083	38,455
<b>Total . .</b>	<b>198,135</b>	<b>201,973</b>	<b>199,130</b>	<b>201,161</b>	<b>197,995</b>	<b>173,651</b>
<b>Disposition:</b>						
Canned . .	17,850	27,855	27,610	28,787	31,136	25,063
Dried . .	893	2,155	2,277	4,506	4,210	5,057
Frozen . .	141,312	134,637	123,961	117,662	112,103	105,095
Fresh . .	38,080	37,326	45,282	50,206	50,546	38,436
<b>Total . .</b>	<b>198,135</b>	<b>201,973</b>	<b>199,130</b>	<b>201,161</b>	<b>197,995</b>	<b>173,651</b>

<sup>1/</sup> PRELIMINARY.  
<sup>2/</sup> TO CONVERT TO HEADS-ON WEIGHT, MULTIPLY BY 1.68.  
<sup>3/</sup> MOSTLY FROZEN HEADLESS, BUT INCLUDES SMALL QUANTITIES OF FROZEN PEEL AND DEVEINED, FRESH, AND DRIED.



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

NOVEMBER 1957: During November 1957, 36 vessels of 5 net tons and over were issued first documents as fishing craft--6 more than in November 1956. The South Atlantic led all other areas with 15 vessels. The Gulf area was in second

Table 1 - U. S. Vessels Issued First Documents as Fishing Craft, by Areas, November 1957

Area	November		Jan.-Nov.		Total
	1957	1956	1957 <sup>1/</sup>	1956 <sup>1/</sup>	
	(Number)				
New England . . . . .	1	-	18	14	15
Middle Atlantic . . .	1	-	22	23	26
Chesapeake . . . . .	6	11	99	120	138
South Atlantic . . . .	15	5	119	111	119
Gulf . . . . .	11	7	143	96	100
Pacific . . . . .	-	3	98	74	76
Great Lakes . . . . .	2	4	7	6	6
Alaska . . . . .	-	-	47	40	40
Hawaii . . . . .	-	-	-	1	1
Puerto Rico . . . . .	-	-	1	-	-
Total . . . . .	36	30	554	485	521

<sup>1/</sup>REVISED.

Table 2 - U. S. Vessels Issued First Documents as Fishing Craft, by Tonnage, Nov. 1957

Net Tons	Number
5 to 9 . . . . .	8
10 to 19 . . . . .	10
20 to 29 . . . . .	6
30 to 39 . . . . .	7
40 to 49 . . . . .	4
50 to 59 . . . . .	1
Total . . . . .	36

place with 11 vessels, followed by the Chesapeake with 6, the Great Lakes 2, and the New England and Middle Atlantic areas with 1 each.

Table 3 - U. S. Vessels Issued First Documents as Fishing Craft, by Areas, December 1956 and 1957 and Annual Totals 1954-57

Area	December		Total			
	1957	1956	1957	1956	1955	1954
	(Number)					
New England . . . . .	1	1	19	15	18	23
Middle Atlantic . . .	1	3	23	26	13	15
Chesapeake . . . . .	5	18	104	138	54	93
South Atlantic . . . .	11	8	130	119	65	119
Gulf . . . . .	23	4	166	100	103	313
Pacific . . . . .	4	2	102	76	117	117
Great Lakes . . . . .	1	-	8	6	9	6
Alaska . . . . .	1	-	48	40	35	27
Hawaii . . . . .	-	-	-	1	3	1
Puerto Rico . . . . .	-	-	1	-	-	2
Virgin Islands . . . .	-	-	-	-	1	-
Unknown . . . . .	-	-	-	-	-	1
Total . . . . .	47	36	601	521	418	717

Table 4 - Vessels Issued First Documents as Fishing Craft, by Tonnage, December 1957

Net Tons	Number
5 to 9 . . . . .	10
10 to 19 . . . . .	10
20 to 29 . . . . .	9
30 to 39 . . . . .	10
40 to 49 . . . . .	5
50 to 59 . . . . .	3
Total . . . . .	47

DECEMBER 1957: A total of 47 vessels of 5 net tons and over were issued first documents as fishing craft during December 1957--11 more than in December of the previous year.

YEAR 1957: A total of 601 vessels of 5 net tons and over were documented for the first time as fishing craft during 1957 as compared with 521 vessels during 1956 and 418 vessels in 1955. All areas reported an increase in 1957 except the

Table 5 - U. S. Vessels Issued First Documents as Fishing Craft, 1938-57

Year	Number	Year	Number	Year	Number	Year	Number	Year	Number
1957	601	1953	729	1949	1,002	1945	741	1941	354
1956	521	1952	675	1948	1,184	1944	635	1940	320
1955	418	1951	780	1947	1,300	1943	358	1939	357
1954	717	1950	812	1946	1,085	1942	358	<sup>1/</sup> 1938	376

<sup>1/</sup>DATA ARE PARTLY ESTIMATED.



Chesapeake and Middle Atlantic areas. The largest increase occurred in the South Atlantic and Gulf areas.

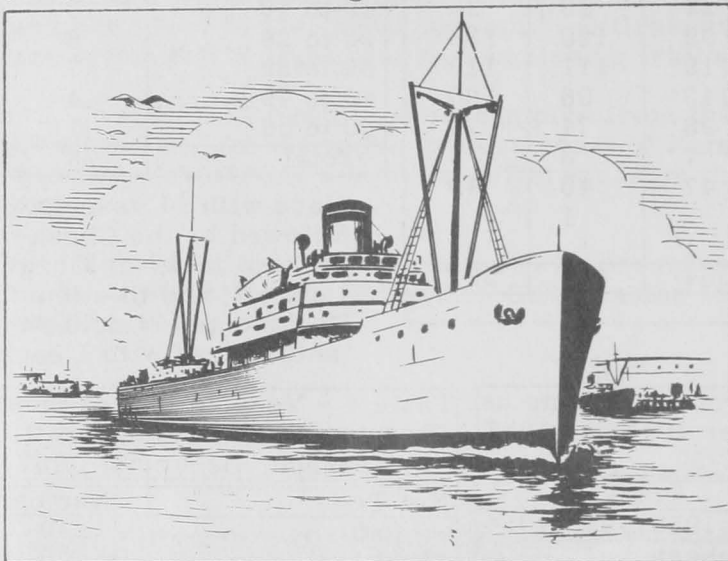
1/INCLUDES BOTH COMMERCIAL AND SPORT FISHING CRAFT.

NOTE: VESSELS ASSIGNED TO THE VARIOUS AREAS ON THE BASIS OF HOME PORT.



## United States and Alaska Fisheries Landings, 1957

LANDINGS FOR LEADING PORTS: Landings of tuna, mackerel, anchovies, and sardines at San Pedro, Calif., during 1957 enabled this port to retain its historic spot as the United States' leading food-fish landing port. Not only were San Pedro landings of



food fish the highest in the Nation, but these landings were considerably greater than the landings of industrial fish at the leading industrial fish ports on the Atlantic coast.

According to the preliminary report issued by the U. S. Bureau of Commercial Fisheries, U. S. food-fish landings at San Pedro totaled 354.4 million pounds with an ex-vessel value of \$25.4 million. Its nearest competitor on poundage landed was Gloucester, Mass., primarily a food-fish port, which recorded the arrival of 251.3 million pounds of ground-fish (mostly ocean perch and whiting) valued at \$7.3 million.

Landings at the tuna port of San Diego, Calif., were 124.2 million pounds with a value of \$15.9 million.

New Bedford, Mass., led the Atlantic Coast States in the value of food-fish landings, with 102.9 million pounds, mostly sea scallop meats and flatfish, worth \$13.3 million at the dockside. Boston landings of haddock, pollock, and cod were 135.4 million pounds, valued at \$11.1 million. Landings at Portland and Rockland, Maine (largely ocean perch and herring), were 59.1 million pounds and 41.9 million pounds valued at \$2.1 million and \$1.4 million respectively.

The two leading industrial fish ports were Lewes, Del., and Reedville, Va. The landings at Lewes were 286.2 million pounds and at Reedville 256.8 million pounds. Receipts at these ports consisted entirely of menhaden.

NOTE: 1. STATISTICS ON UNITED STATES AND ALASKA FISH AND SHELLFISH LANDINGS GIVEN IN ROUND WEIGHT OR WEIGHT AS CAUGHT, EXCEPT FOR MOLLUSKS WHICH ARE GIVEN IN WEIGHTS OF MEAT OR EDIBLE PORTION.  
2. SEE COMMERCIAL FISHERIES REVIEW, MARCH 1958, P. 31, AND MARCH 1957, P. 32



## U. S. Fish Stick Production

1957 PRODUCTION: The United States production of fish sticks in 1957 amounted to 52.4 million pounds, a drop of 128,000 pounds as compared with 1956.

The Atlantic Coast States led all other areas with 43.3 million pounds or 83 percent of the total. The Interior and Gulf States were in second place with nearly

U. S. PRODUCTION OF FISH STICKS, 1955-1957

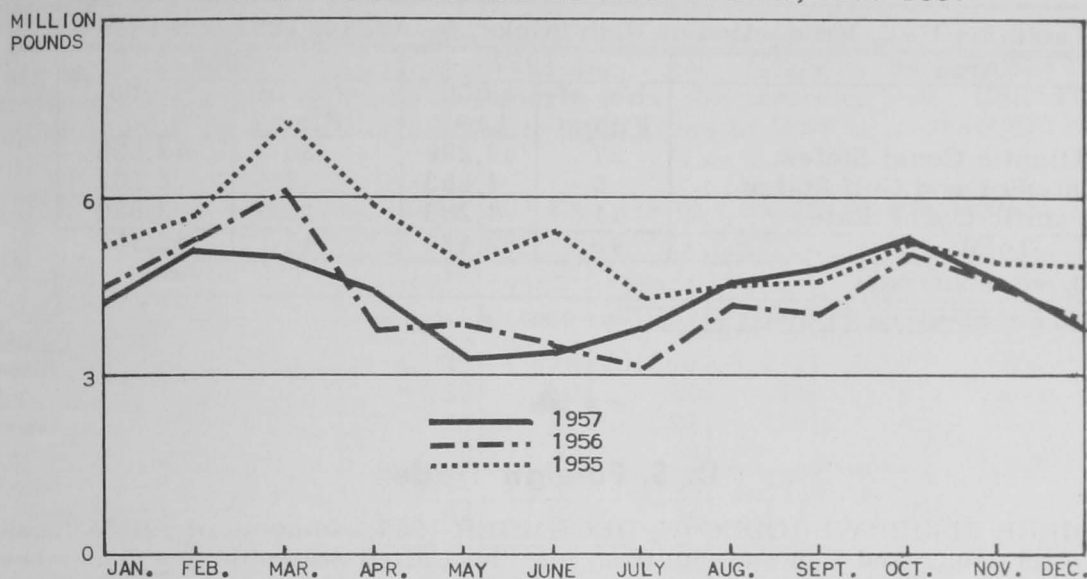


Table 1 - U. S. Production of Fish Sticks, by Months and Type, 1957<sup>1/</sup>

Month	Cooked	Uncooked (1,000 Lbs.)	Total
January . . . . .	3,781	423	4,204
February . . . . .	4,687	502	5,189
March . . . . .	4,703	387	5,090
April . . . . .	4,024	411	4,435
May . . . . .	2,971	351	3,322
June . . . . .	3,118	346	3,464
July . . . . .	3,362	401	3,763
August . . . . .	4,118	467	4,585
September . . . . .	4,272	531	4,803
October . . . . .	4,349	855	5,104
November . . . . .	3,860	660	4,520
December . . . . .	3,456	499	3,955
Total . . . . .	46,601	5,833	52,434

<sup>1/</sup> PRELIMINARY DATA.

4.9 million pounds or 9 percent of the total, followed by the Pacific Coast States with 4.3 million pounds or 8 percent. A total of 43 firms manufactured fish sticks during 1957--five less than in 1956.

Cooked fish sticks (46.6 million pounds) accounted for 89 percent of the 1957 total, while the remaining 5.8 million pounds or 11 percent consisted of uncooked fish sticks.

The 1957 fish stick production reached a peak during February when 5.2 million pounds were manufactured. March and October followed in importance with 5.1 million pounds each.

Table 2 - U. S. Production of Fish Sticks, 1953-1957

Month	1957 <sup>1/</sup>	1956 <sup>1/</sup>	1955	1954	1953
	(1,000 Lbs.)				
January . . . . .	4,204	4,862	5,345	2,771	115
February . . . . .	5,189	5,323	5,794	3,180	133
March . . . . .	5,090	6,082	7,205	4,003	148
April . . . . .	4,435	3,771	5,953	3,841	35
May . . . . .	3,322	3,873	4,879	3,941	22
June . . . . .	3,464	3,580	5,392	4,381	31
July . . . . .	3,763	3,153	4,340	3,810	417
August . . . . .	4,585	4,166	4,520	4,364	454
September . . . . .	4,803	4,085	4,535	4,272	809
October . . . . .	5,104	5,063	5,261	5,637	1,435
November . . . . .	4,520	4,585	4,946	4,803	1,902
December . . . . .	3,955	4,019	4,876	4,959	2,001
Total . . . . .	52,434	52,562	63,046	49,962	7,502

<sup>1/</sup> PRELIMINARY DATA.

Area	1957		1956	
	No. of Firms	1,000 Lbs.	No. of Firms	1,000 Lbs.
Atlantic Coast States . . . . .	27	43,299	30	42,520
Interior and Gulf States . . . . .	5	4,853	7	6,162
Pacific Coast States . . . . .	11	4,282	11	3,880
Total . . . . .	43	52,434	48	52,562

<sup>1/</sup>PRELIMINARY DATA

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, MAY 1957, P. 40.



## U. S. Foreign Trade

EDIBLE FISHERY PRODUCTS, DECEMBER 1957: Imports of edible fresh, frozen, and processed fish and shellfish into the United States during December 1957 were higher by 3.9 percent in quantity and 11.0 percent in value as compared with November 1957. Compared with December 1956, the imports for December 1957 were up 14.7 percent in quantity and 15.4 percent in value. Imports in December 1957 were up rather sharply from the preceding month for lobsters and spiny lobster tails and can-

Table 1 - United States Foreign Trade in Edible Fishery Products, December 1957 with Comparisons

Item	Quantity			Value		
	Dec.	Year	Year	Dec.	Year	Year
	1957	1956	1956	1957	1956	1956
	(Millions of Lbs.)			(Millions of \$)		
<u>Imports:</u>						
Fish & Shellfish:						
Fresh, frozen & processed <sup>1/</sup> . . . . .	64.9	56.6	786.5	20.2	17.5	231.6
<u>Exports:</u>						
Fish and Shellfish:						
Processed only (excluding fresh and frozen) <sup>1/</sup> . . . . .	5.0	7.9	82.8	1.0	1.6	19.2

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

ned tuna in brine. For most of the other major fishery products, imports were close to the November levels. Imports of edible fishery products in December 1957 as compared with December 1956 were higher for shrimp, groundfish and other fillets, and canned tuna in brine.

Imports for December 1957 averaged 31.1 cents a pound as compared with 30.9 cents a pound for the same month of 1958.

United States exports of processed fish and shellfish in December 1957 were higher by 11.9 percent in quantity and unchanged in value as compared with the previous month. Compared with December 1956, the exports for December 1957 were down by 36.7 percent in quantity and 37.5 percent in value. The sharp decrease in both quantity and value in December this year as compared with a year earlier was due primarily to lack of canned California sardines for export.

\* \* \* \* \*

FISH OIL EXPORTS DECLINED IN 1957: United States exports of fish and fish-liver oil in 1957, at 57,470 short tons, were one-fifth below those of the previous year and were the smallest since 1953--probably due mainly to the fact that United States fish-oil production dropped one-fourth from the previous year. United States production (excluding fish-liver oils) was 74,455 tons in 1957 against 99,678 tons in 1956.

U. S. Fish Oil (Including Liver Oil) Exports by Country of Destination, Average 1935-39, Annual 1952-57

Country of Destination	1957 <sup>1/</sup>	1956 <sup>2/</sup>	1955 <sup>2/</sup>	1954	1953	1952	Avg. 1935-39
(Short Tons)							
<b>North America:</b>							
Canada . . . . .	1,223	1,626	11,308	7,511	2,108	488	458
Cuba . . . . .	122	117	83	126	87	100	155
Mexico . . . . .	56	66	96	118	114	122	45
Other . . . . .	9	37	4	-	1	3	71
Total . . . . .	1,410	1,846	11,491	7,755	2,310	713	729
<b>South America</b> . . . . .	42	62	56	148	63	38	96
<b>Europe:</b>							
Belgium-Luxembourg . . . . .	661	759	1,098	-	764	8	8
Denmark . . . . .	-	866	-	-	-	-	-
France . . . . .	5	13	9	-	7	149	19
Germany, West . . . . .	26,296	32,491	10,503	10,481	36,155	6,232	126
Italy . . . . .	178	60	106	85	28	220	15
Netherlands . . . . .	13,907	25,023	39,642	43,692	8,913	11,967	15
Norway . . . . .	5,272	6,251	6,758	1,102	1,606	-	10
Sweden . . . . .	7,716	2,646	-	-	-	-	7
Switzerland . . . . .	794	367	646	5,797	3,115	3,140	15
United Kingdom . . . . .	854	920	881	1,376	299	-	77
Other . . . . .	-	-	23	27	23	43	8
Total . . . . .	55,683	69,396	59,666	62,560	50,910	21,759	300
<b>Asia:</b>							
Philippine Republic . . . . .	7	10	-	233	860	546	66
Other . . . . .	11	5	55	51	37	20	24
Total . . . . .	18	15	55	284	897	566	90
<b>Africa</b>	305	29	68	70	53	3	19
Grand Total . . . . .	<sup>3/</sup> 57,470	71,348	71,336	70,817	54,233	23,079	1,234

<sup>1/</sup> PRELIMINARY. <sup>2/</sup> REVISED. <sup>3/</sup> INCLUDES 12 TONS WITH DESTINATION NOT INDICATED.

Western Europe was again the major market, taking over 95 percent of total shipments. Exports to the Netherlands were down about one-half from 1956, while shipments to West Germany were down about one-fifth. However, reports indicate that most of the fish oil imported by the Netherlands eventually also is re-shipped to West Germany.

In the last 5 years the United States has been the world's leading supplier of fish oil. About one-third of world exports were of United States origin from 1954 through 1956.

Of the 1957 exports, 1,410 tons were shipped to Canada, Cuba, and Mexico (the bulk to Canada), 42 tons to South American countries, 55,683 tons to European countries (West Germany 26,296 tons, Netherlands 13,907 tons, Sweden 7,716 tons, Norway 5,272 tons, and the balance to Belgium-Luxembourg, Italy, Switzerland, and the United Kingdom), 18 tons to Asiatic countries, and 305 tons to African countries.

United States fish-oil (including liver-oils) exports in 1956 totaled 71,348 tons in 1955, 70,817 tons in 1954, 54,233 tons in 1953, 23,079 tons in 1952, and an annual

average of only 1,234 tons for the years 1935-39. (Foreign Crops and Markets, March 3, 1958, of the U. S. Department of Agriculture.)

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, APRIL 1957, P. 29.

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GROUND FISH FILLET IMPORTS, JANUARY 1958: Imports of groundfish (including ocean perch) fillets and blocks during January 1958 amounted to 10.7 million pounds—a drop of 8.3 million pounds (44 percent) as compared with January 1957. Declines in imports from Iceland (down 4.4 million pounds) and Canada (down 3.1 million pounds) were largely responsible for the lower January 1958 imports.

Imports from Canada (9.3 million pounds) accounted for 88 percent of the month's total. Iceland was in second place with 738,000 pounds or 7 percent. The remaining 592,000 pounds or 5 percent, was shipped by Norway, Denmark, and the islands of Miquelon and St. Pierre.

During January 1958 there were no imports from the United Kingdom, the Netherlands, France, and West Germany as compared with a combined total of 352,000 pounds reported for January 1957 from those countries.

NOTE: SEE CHART 7 IN THIS ISSUE.

\* \* \* \* \*

IMPORTS OF CANNED TUNA IN BRINE UNDER QUOTA PROVISIO, JANUARY 1-FEBRUARY 1, 1958: The quantity of tuna canned in brine which may be imported into the United States during the calendar year 1958 at the 12½ percent rate of duty has not been established as yet. Any imports in excess of the established quota will be dutiable at 25 percent ad valorem.

Imports from January 1-February 1, 1958, amounted to 1,305,989 pounds, according to data compiled by the Bureau of Customs.

\* \* \* \* \*

IMPORTS AND EXPORTS OF SELECTED FISHERY PRODUCTS, 1957: Imports of most major fishery products during 1957 were significantly larger than during 1956. The principal imported fishery product by weight was tuna (frozen and canned); other leading products imported were groundfish and ocean perch fillets, shrimp, lobster, and fish meal.

Imports of most of the major items increased in 1957 compared with 1956. Tuna imports, both frozen and canned, increased 16 percent; groundfish fillets and blocks, 4 percent; shrimp, 2 percent; lobster, 6 percent; canned sardines, 28 percent; canned bonito, 14 percent; and canned crab meat, 10 percent. Lower imports were recorded in 1957 for canned salmon, 15 percent less than in 1956; fish meal, 10 percent less; swordfish, 4 percent; and groundfish fillets, 6 percent.

Exports of the principal fishery commodities during 1957 totaled less than in 1956, despite a sevenfold increase in canned mackerel exports and a 28-percent increase in canned salmon. Canned sardines were down 61 percent and inedible fish oil was down 18 percent.

Imports: FROZEN TUNA: During 1957, imports amounted to 139.3 million pounds, 16 percent more than in 1956. Of the total, frozen albacore imports were 65.2 million pounds, a 62-percent increase; tuna other than albacore fell 7 percent to 74.1 million pounds. Japan supplied 67 percent in 1957, compared with 73 percent in 1956; Peru supplied almost all the rest.

CANNED TUNA: In 1957, 44.2 million pounds were imported, 16 percent more than in 1956. According to the data, 29.3 million pounds of tuna other than albacore, can-

Table 1 - Imports and Exports of Selected Fishery Products, 1957 Compared with 1956

Commodity	Quantity 1957	Percentage Increase (+) or Decrease (-) from 1956
		%
<b>Imports:</b>		
Groundfish fillets . . . . .	90,500	- 6
Groundfish blocks . . . . .	50,200	+ 29
Other fish fillets . . . . .	63,300	+ 5
Tuna, frozen . . . . .	139,300	+ 16
Tuna, canned . . . . .	44,200	+ 16
Bonito, canned . . . . .	15,500	+ 14
Salmon, canned . . . . .	24,400	- 15
Sardines, canned . . . . .	24,600	+ 28
Swordfish, fresh or frozen . . . . .	19,000	- 4
Shrimp . . . . .	69,700	+ 2
Lobster & spiny lobster, fresh or frozen . . . . .	50,400	+ 6
Crabmeat, canned . . . . .	6,200	+ 10
Fish meal . . . . .	162,400	- 10
<b>Exports:</b>		
Sardines, canned . . . . .	15,500	- 61
Salmon, canned . . . . .	6,700	+ 28
Mackerel, canned . . . . .	17,000	+618
Fish oil, inedible . . . . .	114,800	- 18

ned in brine, were imported, 30 percent more than in 1956; canned albacore in brine decreased 8 percent. Imports of tuna canned in oil were 1.1 million pounds in 1957, 82 percent more than in 1956. (Although controls by the Japanese restricted the export of canned tuna in oil to the United States, it was shipped to other countries and reshipped to

the United States.) In 1957, 93 percent of all canned tuna imports were from Japan.

**GROUND FISH:** Imports of groundfish and ocean perch fillets and blocks amounted to 140.7 million pounds, 4 percent more than 1956. The increase was largely of frozen blocks; in 1957, block imports were 50.2 million pounds, 29 percent over 1956. Most of the increase in blocks came from Canada and Iceland. Although imports of fillets of cod increased, ocean perch and haddock (including hake, pollock, and cusk) decreased. Canada continued to be the major foreign supplier of fillets and blocks and supplied 75 percent of the imports, an increase over 1956; Iceland was next with 16 percent, a slight decrease from 1956.

**SHRIMP:** Imports reached a new record of 69.7 million pounds in 1957, 2 percent more than 1956. Imports from Mexico totaled 47.9 million pounds--down 11 percent; imports from Panama and Ecuador increased by 43 and 31 percent, respectively.

**CANNED SALMON:** Imports were 24.4 million pounds, 11.5 percent less than the record imports of 1956. Almost all came from Japan. Most of the decrease was in imports from Canada.

**FRESH AND FROZEN LOBSTER:** Imports were 50.4 million pounds in 1957, 6 percent above 1956. The increase was in imports of spiny lobster tails.

**CANNED SARDINES:** Imports totaled 24.6 million pounds, a 28-percent increase over 1956. A large part of the increase was in imports of sardines not in oil from the Union of South Africa. Imports of sardines in oil were 20.0 million pounds, and of sardines not in oil, 4.6 million pounds.

**CANNED BONITO:** Imports were 15.5 million pounds in 1957, 14 percent more than in 1956. Most of the imports came from Peru.

**SWORDFISH:** Imports of fresh and frozen totaled 19.0 million pounds in 1957, 4 percent less than in 1956. There was a slight decrease in the amount imported from Japan, the principal supplier.

**CANNED CRAB MEAT:** In 1957, imports were 6.2 million pounds, an increase of 10 percent over those in 1956. Canned crab meat comes almost entirely from Japan.

**FISH MEAL:** Imports in 1957 totaled 81,199 short tons, 10 percent less than in 1956. Imports from Canada (the principal supplier) and Norway were down, but imports from Peru and Angola increased.

**Exports: CANNED SARDINES:** The 1957 exports were 15.5 million pounds, 61 percent less than in 1956. Exports to the major purchaser, the Philippines, dropped over 20.0 million pounds compared with 1956.

**CANNED MACKEREL:** Exports were 17.0 million pounds in 1957, a sevenfold increase over that in 1956. Almost the entire increase went to the Philippines.

**CANNED SALMON:** Exports were 6.7 million pounds in 1957, 28 percent more than in 1956. Most of the increase went to the United Kingdom, the principal destination.

**FISH OILS:** Exports in 1957 were 114.8 million pounds, 18 percent less than in 1956. Most of the decrease was due to a decline in shipments to the Netherlands and West Germany.

\* \* \* \* \*

**SHRIMP IMPORTS, 1957:** United States shrimp (fresh, frozen, canned and dried) imports from all countries in 1957 amounted to 69.7 million pounds as compared to 68.6 million pounds.

United States Shrimp Imports (Fresh, Frozen, Canned and Dried), 1956-57					
Country of Origin		1957	1956	Country of Origin	
		In 1,000 Lbs.		In 1,000 Lbs.	
<b>Mexico by Customs District:</b>					
Florida	77	10	Surinam	65	37
New Orleans	3,688	3,632	Ecuador	3,869	2,951
Laredo	17,280	14,894	Peru	625	251
El Paso	1	-	Chile	46	84
San Diego	760	989	Argentina	138	23
Arizona	25,792	33,687	Iceland	64	90
Los Angeles	310	488	Sweden	8	1
San Francisco	-	16	Norway	132	166
Oregon	-	25	Denmark	21	80
Hawaii	15	-	United Kingdom	-	3
Puerto Rico	3	12	Netherlands	-	1
<b>Total</b>	<b>47,906</b>	<b>53,693</b>	Western Germany	7	-
Greenland	11	1	Spain	22	4
Canada	243	145	Greece	14	-
El Salvador	65	-	Italy	60	-
Nicaragua	1	-	Turkey	3	6
Costa Rica	228	421	Israel	14	-
Panama	8,378	5,847	India	1,250	1,012
Canal Zone	42	116	Pakistan	471	231
Bahamas	8	-	Philippines	3	-
Cuba	610	222	Korea	58	4
Netherlands (Antilles)	19	6	Hong Kong	1,586	412
Colombia	486	100	Taiwan	2	-
Venezuela	137	-	Japan	2,867	2,587
British Guiana	-	2	Australia	178	169
			New Zealand	1/55	-
			Egypt	40	4
			<b>Grand Total</b>	<b>69,732</b>	<b>68,619</b>

(Continued in Opposite Column)

1/SOME QUESTION AS TO THE ACCURACY OF IMPORTS CREDITED TO NEW ZEALAND.

Most of the imported shrimp is frozen except for some canned shrimp from northern Europe and some dried shrimp from Hong Kong and Japan.

United States shrimp imports from Mexico in 1957 totaled 47.9 million pounds, a decline of about 10.8 percent from the 53.7 million pounds imported in 1956. The increase in imports from countries other than Mexico more than offset the decline in imports from Mexico, Panama, the second most important shipper, increased its imports in 1957 by 43 percent.

In 1957, shipments were reported from 38 foreign sources, an increase of 8 as compared with 1956, and 12 higher than 26 sources reported in 1955.



## United States 1957 Fishery Landings Below 1956

About 4.8 billion pounds of fishery products were taken by United States and Alaskan commercial fishermen in 1957, according to preliminary information assembled by the U. S. Bureau of Commercial Fisheries. This was a decline of 450 million pounds as compared with the record 5.25-billion-pound catch taken in 1956.

United States Catch of Fishery Products, Various Periods, 1957 and 1956 <sup>1/</sup>				
Item	Period	1957	1956	Total 12 Mos. 1956
Maine	11 Mos.	..... (1,000 Lbs.) .....		277,822
Maine		282,052	273,270	
<b>Massachusetts:</b>				
Boston	Year	135,424	147,402	147,402
Gloucester	"	251,274	252,038	252,038
New Bedford	"	102,917	87,965	87,965
Provincetown	11 mos.	24,964	22,460	23,060
Total Mass.		514,579	509,865	510,465
Rhode Island <sup>2/</sup>	11 "	118,542	123,117	129,406
New York <sup>2/</sup>	11 "	36,935	34,577	38,268
New Jersey <sup>2/</sup>	11 "	44,179	45,459	46,097
North Carolina <sup>2/</sup>	11 "	62,872	46,830	49,009
Georgia	11 "	17,667	15,947	16,711
Florida <sup>2/</sup>	11 "	122,609	125,577	142,493
Alabama	11 "	11,028	11,538	12,320
Mississippi <sup>2/</sup>	10 "	17,797	19,414	22,573
Texas <sup>2/</sup>	9 "	55,490	41,334	61,993
Rhode Island, Middle Atlantic, Chesapeake, South Atlantic and Gulf States, menhaden	Year	1,658,123	2,030,000	2,030,000
Louisiana, shrimp (heads-on)	9 mos.	23,373	31,672	50,541
Ohio (Mar.-Dec.)	Year	22,844	24,928	24,928
<b>Washington:</b>				
Halibut <sup>3/</sup>	Year	15,430	16,604	16,604
Otter trawl fishery	11 mos.	39,679	44,965	49,530
Salmon	Year	43,000	28,700	28,700
Oregon	10 mos.	53,277	54,696	59,256
California	Year	627,939	66,497	669,497
<b>Alaska:</b>				
Halibut <sup>3/</sup>	Year	20,733	24,864	24,864
Herring	"	114,664	107,458	107,458
Salmon	"	205,000	269,898	269,898
Total of all above items		4,107,812	4,550,210	4,638,433
Other		<sup>4/</sup>	<sup>4/</sup>	611,567
Grand Total		<sup>4/</sup>	<sup>4/</sup>	5,250,000

<sup>1/</sup>Preliminary.

<sup>2/</sup>Excludes menhaden landings.

<sup>3/</sup>Dressed weight.

<sup>4/</sup>Data not available.

Note: Round or "as caught" weight unless otherwise indicated.

United States Catch of Certain Species, Various Periods, 1957 and 1956 <sup>1/</sup>				
Item	Period	1957	1956	Total 12 Mos. 1956
Anchovies, California		..... (1,000 Lbs.) .....		56,879
Anchovies, California		43,800	56,879	
<b>Cod:</b>				
Maine	Year	1,988	2,746	2,746
Massachusetts	"	23,575	29,127	29,127
Other (Atlantic)	"	7,352	3,252	3,252
Total cod		32,915	35,125	35,125
<b>Haddock:</b>				
Maine	Year	4,190	4,904	4,904
Massachusetts	"	112,832	147,051	147,051
Other	"	16,706	291	291
Total haddock		133,728	152,246	152,246
<b>Halibut <sup>2/</sup>:</b>				
Washington	Year	15,430	16,604	16,604
Alaska	"	20,733	24,864	24,864
Total halibut		36,163	41,468	41,468
<b>Herring:</b>				
Maine	Year	154,000	140,472	140,472
Alaska	"	114,66	107,458	107,458
<b>Industrial fish:</b>				
New England <sup>3/</sup>	Year	259,827	186,032	186,032
<b>Mackerel, California:</b>				
Jack Pacific	Year	86,300	75,762	75,762
Pacific	"	55,200	50,013	50,013
Menhaden	Year	1,679,786	2,097,239	2,097,239
<b>Ocean perch:</b>				
Maine	Year	63,494	64,967	64,967
Massachusetts	"	68,124	86,146	86,146
Total ocean perch		131,618	151,113	151,113
<b>Otter trawl fishery, Washington</b>				
Washington	11 mos.	39,679	44,965	49,530
<b>Salmon:</b>				
Washington	Year	43,000	28,700	28,700
Alaska	"	205,000	269,898	269,898
<b>Sardine, Pacific</b>				
Pacific	Year	40,576	69,554	69,554
<b>Scallops, sea, Massachusetts</b>				
Massachusetts	Year	17,459	15,387	15,387
<b>Shrimp, (heads-on), Gulf States</b>				
Gulf States	9 mos.	124,241	123,053	193,621
<b>Squid, California</b>				
California	Year	19,500	19,484	19,484
<b>Tuna and tunalike, California</b>				
California	Year	292,068	319,243	319,243
<b>Whiting:</b>				
Maine	Year	15,810	14,835	14,835
Massachusetts	"	97,815	72,445	72,445
Other	"	<sup>4/</sup> 4,827	6,643	6,643
Total whiting		118,452	93,923	93,923
Total of all above items		3,627,976	4,078,014	4,153,147
Other (not listed)		479,836	472,196	1,096,853
Grand total		4,107,812	4,550,210	5,250,000

<sup>1/</sup>Preliminary.

<sup>2/</sup>Dressed weight.

<sup>3/</sup>Excludes menhaden.

<sup>4/</sup>Data for eleven months only.

Note: Round or "as caught" weight unless otherwise indicated.

The 1957 menhaden catch of 1.7 billion pounds was 417 million pounds less than in 1956. Other species with large declines were Alaskan salmon (down 65 million pounds), Pacific sardines (down 29 million pounds), and the California catch of tuna and tunalike fishes (down 27 million pounds). Haddock and ocean perch were also down considerably.

Sharp increases occurred in whiting (118 million pounds--about 25 million pounds more than the previous year) and industrial fish (other than menhaden) in New England which totaled 260 million pounds--a gain of over 70 million pounds as compared with the previous year.

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, MARCH 1958, P. 31.



## Virginia

FISHERIES MAY BE AFFECTED BY THIS WINTER'S COLD WEATHER: Virginia's York River registered a water temperature of 30° F. for an hour on February 18, 1958. "This is the lowest temperature recorded since our thermograph was installed in 1952," reports the Director of the Virginia Fisheries Laboratory. This instrument, located at the end of the Laboratory pier, makes a continuous record of water temperatures near the river bottom. "This winter will probably be the coldest experienced by underwater animals in many years," he added. Water temperatures were below 40° F. for 50 days during the winter of 1957/58 (through February 20, 1958); 20 days for 1956/57; 58 days 1955/56; 58 days 1954/55; 37 days 1953/54; and for the winter of 1952/53 there were no days with a water temperature of below 40° F.

Already water temperatures this winter have almost equalled the relatively cold winters of 1954/55 and 1955/56. Undoubtedly many more days will elapse before water temperatures rise above 40° F. Water temperatures by mid-February 1957 were ten degrees higher than they were in mid-February this year.

Low temperatures may affect a number of marine animals, but few finfish remain in Chesapeake Bay to experience winter's chill. Croakers, spot, sea trout, and flounder, as well as most of the other food fishes, migrate to warmer climes in early fall. Except for a few hardy individuals, shad will delay their upriver migrations until water temperatures rise above 40° F. Striped bass, though they remain in the Bay and its rivers all winter, usually avoid extremely cold water found in shallow bays, but those which are slow to leave such areas sometimes are found floating belly up in a numbed condition. Spotted sea trout, which failed to leave Lynnhaven Bay last fall, may be killed, as they were during the cold winter of 1954/55. Perch and catfish are able to withstand severe cold and will probably go unharmed.

It is not certain how extreme cold affects the small croakers born last fall and now spending their first winter in the rivers and the upper Bay. They and young crabs may be killed in long cold spells.

Oysters, when left undisturbed, can withstand freezing temperatures for many days. It is known that most animals living in the region between the tides--oysters, barnacles, mussels, and snails--may freeze and return to active life as temperatures rise. Experiments have been conducted showing that shelled animals frozen to several degrees below 0° F. may return to normal activity upon thawing.

Oyster biologists at the Virginia Fisheries Laboratory are watching the effect of low temperatures on seed oysters imported from South Carolina. It has been found that oysters from that State when introduced into Virginia tend to die off during severe winters more rapidly than native oysters. It is possible, too, that



Dermocystidium, a fungus that kills many oysters in hot weather, will be held in check next summer because of the long cold spell this winter.



## Washington

LANDINGS OF FISHERY PRODUCTS INCREASED IN 1957: Commercial fisheries landings of fish and shellfish in the state of Washington during 1957 amounted to 147.3 million pounds, higher than the 1956 total of 122.5 million pounds. Salmon landings were among the lowest ever recorded in the State in odd, or pink salmon years, the Director of the Washington State Department of Fisheries reports.

The State's landings were increased by above-average landings of shellfish, including 2.3 million pounds produced by the new ocean shrimp fishery (71,327 pounds in 1956). Crab landings were the largest since 1949, or about 2 million pounds more than in 1956.

Bottomfish landings (76.9 million pounds), bolstered by high turbut, scrapfish, or nonfood fish, and mink food demands also served to keep total poundage at a high level. Catches of petrale sole and true cod were greater than in 1956, but halibut landings were down about 1.0 million pounds.

Total landings of salmon were 44.6 million pounds. The chinook (king) catch of 8.3 million pounds was slightly higher than that of 1956 (8.3 million pounds) as was the chum catch of 2.3 million pounds as compared to the 1956 total of 2.1 million pounds. Catches of pink salmon dropped sharply, with a total of 17.5 million pounds landed in 1957 as compared to the previous cycle year 1955 total of 31.7 million pounds. The sockeye or red salmon total catch was up 2.5 million pounds from the 1956 catch of 6.5 million pounds, but the silver catch dropped to 7.6 million pounds in 1957 from 11.7 million pounds in 1956.

Salmon catches were curtailed somewhat by an emergency closure effective September 25, 1958, followed by curtailed seasons in October and November. Spawning escapements to the rivers were thus aided, but the continuing decline in chum salmon escapements for the past three years is disappointing.

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### OYSTER PRODUCTION, 1957:

Production of oyster meats in the State of Washington of about 10.0 million pounds was down about 0.6 million pounds from the 10.6 million pounds produced in 1956, the Washington Department of Fisheries reported on February 14, 1958.

Production of Olympia oyster meats in 1957 of only 16,000 pounds was the lowest ever recorded by the State (see table). At the beginning of the 1957/58 oyster season in November 1957, production of this variety showed some improvement which may forecast a better return in 1958.

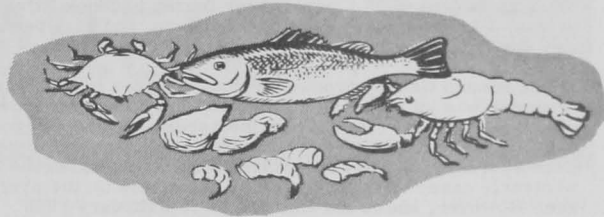
Variety and Area	1957	1956
	1,000 Lbs.	
<u>Pacific Oyster:</u>		
Puget Sound . . . . .	3,349	3,364
Grays Harbor . . . . .	843	1,063
Willapa Harbor . . . . .	5,746	6,151
Total Pacific Oyster . . .	9,938	10,578
<u>Kumamoto Oyster:</u>		
Puget Sound . . . . .	3	1
Grays Harbor . . . . .	3	4
Willapa Harbor . . . . .	1	-
Total Kumamoto oyster . .	7	5
Olympian Native Oyster . .	16	26
Grand Total . . . . .	9,961	10,609

Although there was a large pack of oyster stew in the fall of 1956, this was not the case in 1957.

## Wholesale Prices, February 1958

Much higher prices for fresh drawn haddock and fresh and frozen haddock filets, and higher prices for fresh and frozen shrimp were largely responsible for the increase in the wholesale fishery products index this February as compared with the same month a year ago. In February 1958 the edible fish and shellfish (fresh, frozen, and canned) wholesale price index (124.8 percent of the 1947-49 average) increased 2.2 percent as compared with the preceding month and was 8.2 percent higher than in February 1957.

Wholesale prices for drawn, dressed, and whole finfish from January to February 1958 increased about 3.0 percent, due mainly to slight increases in prices for frozen dressed western salmon and halibut and some sharper increases in fresh-water lake trout and yellow pike (supplies of fresh-water items were very light). Fresh drawn haddock in February this year at Boston declined (1.7 percent) slightly from the high levels of the preceding month. In February 1958 the wholesale price index for this subgroup was 17.8 percent higher than in the same month in 1957, due principally to the high prices for fresh haddock. As a rule groundfish prices at Boston decline sharply as catches begin to increase from the spawning schools of fish, but this February the spawning schools of fish were slow in appearing. All other items in this subgroup were priced lower this February than in the same month a year ago, except yellow pike which was priced higher.



Fresh processed fish and shellfish prices in February this year were fractionally lower (0.5 percent) than in January. A slight increase in small haddock fillet prices and a 6.8 percent (or about 6 cents a pound) increase in fresh shrimp were more than offset by a drop of 8.5 percent in shucked oyster prices at Norfolk. Compared with February 1957, the index for this subgroup this February was higher by 7.9 percent because of an 86.4-percent increase in fresh haddock fillet prices at Boston and a 15.1-percent increase in fresh shrimp prices at New York. Lower shucked oyster prices (down 8.5 percent) failed to offset these increases.

Frozen processed fish and shellfish prices increased 8.2 percent from January to February 1958 and reflected the

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

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices <sup>1/</sup> (\$)		Indexes (1947-49=100)			
			Feb. 1958	Jan. 1957	Feb. 1958	Jan. 1957	Dec. 1957	Feb. 1957
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned) . . . . .					124.8	122.1	126.6	115.3
Fresh & Frozen Fishery Products: . . . . .					141.4	137.4	144.8	124.9
Drawn, Dressed, or Whole Finfish: . . . . .					133.1	129.2	144.2	113.0
Haddock, lge., offshore, drawn, fresh . . . . .	Boston	lb.	.15	.15	149.7	152.3	206.5	60.7
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.32	.31	97.5	96.4	96.9	105.2
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.63	.62	141.0	138.8	136.0	142.7
Whitefish, L. Superior, drawn, fresh . . . . .	Chicago	lb.	.60	.59	148.7	146.3	146.3	171.1
Whitefish, L. Erie pound or gill net, rnd., fresh	New York	lb.	.64	.64	128.4	128.4	128.4	151.7
Lake trout, domestic, No. 1, drawn, fresh . . .	Chicago	lb.	.60	.54	122.9	110.6	131.1	143.4
Yellow pike, L. Michigan & Huron, rnd., fresh .	New York	lb.	.70	.48	164.1	111.4	111.4	152.4
Processed, Fresh (Fish & Shellfish): . . . . .					143.1	143.8	147.8	132.6
Fillets, haddock, sml., skins on, 20-lb. tins . .	Boston	lb.	.49	.48	165.0	163.3	195.7	88.5
Shrimp, lge. (26-30 count), headless, fresh . .	New York	lb.	.95	.89	150.1	140.6	140.6	130.4
Oysters, shucked, standards . . . . .	Norfolk	gal.	5.38	5.88	133.0	145.4	148.5	145.4
Processed, Frozen (Fish & Shellfish): . . . . .					142.0	131.2	129.7	124.4
Fillets; Flounder, skinless, 1-lb. pkg. . . . .	Boston	lb.	.40	.40	103.4	103.4	103.4	103.4
Haddock, sml., skins on, 1-lb. pkg. . . . .	Boston	lb.	.40	.38	125.6	117.7	117.7	97.3
Ocean perch, skins on, 1-lb. pkg. . . . .	Boston	lb.	.30	.29	118.8	114.8	114.8	114.8
Shrimp, lge. (26-30 count), 5-lb. pkg. . . . .	Chicago	lb.	.95	.85	145.8	131.5	128.8	131.2
Canned Fishery Products: . . . . .					101.4	100.5	100.8	101.5
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs. . .	Seattle	cs.	23.00	23.00 <sup>2/</sup>	120.0	120.0	120.0	120.0
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs. . . . .	Los Angeles	cs.	11.35	11.35	81.8	81.8	82.9	80.8
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 48 cans/cs. . . . .	Los Angeles	cs.	9.75	9.75	113.8	113.8	112.0	105.0
Sardines, Maine, keyless oil, No. 1/4 drawn (3-1/4 oz.), 100 cans cs. . . . .	New York	cs.	6.99	6.38	74.3	67.9	67.6	84.6

<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.

<sup>2/</sup> Revised.

firm market for frozen fillets and shrimp (up about 10 cents a pound). From February 1957 to February 1958 the frozen processed subgroup index was up 14.1 percent due to price increases of 29.1 percent for frozen haddock fillet prices, 3.5 percent for ocean perch fillets, and 11.1 percent for frozen shrimp.

The canned fishery products subgroup index in February this year was up slightly (0.9 percent) due to a 9.4-percent rise in wholesale prices for Maine sardines. The other canned fish products prices remained at the January level. This February as compared with February a year ago wholesale canned fish prices remained stable on the average. However, Maine sardine prices in February 1958 were down 12.2 percent from the month in 1957. This decrease was offset by higher prices for California sardines (up 8.4 percent) and canned tuna (up 1.2 percent). The market for canned fish was firm in February this year.

About 4.8 billion pounds of fishery products were taken by United States and Alaskan commercial fishermen in

1957, according to preliminary information assembled by the U. S. Bureau of Commercial Fisheries. This was a decline of 450 million pounds as compared with the record 5.25-billion-pound catch taken in 1956.

The 1957 menhaden catch of 1.7 billion pounds was 417 million pounds less than in 1956. Other species with large declines were Alaskan salmon (down 65 million pounds), Pacific sardines (down 29 million pounds), and the California catch of tuna and tunalike fishes (down 27 million pounds). Haddock and ocean perch were also down considerably.

Sharp increases occurred in whiting (118 million pounds--about 25 million pounds more than the previous year) and industrial fish (other than menhaden) in New England which totaled 260 million pounds--a gain of over 70 million pounds as compared with the previous year.

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, MARCH 1958, P. 31.



#### QUICK-SERVE MEALS FOR THE ARMY

The foods laboratories of the United States Quartermaster Corps are working on the development of more convenient, quickly-prepared, top-quality meals to boost the morale and fighting efficiency of the Armed Forces. These meals are designed to feed soldiers in any one of the four field areas, namely, Base, Reserve, Support, or Contact.

The types of quick meals that are prepared are the uncooked meals, precooked meals, and the ready-to-eat individual rations. The first attempts to produce these quick-serve meals resulted in a reorientation of available dehydrated foods. New freeze-dried and dehydrated foods were developed and are being used in the "new 25-man uncooked meal." At the present time, they have developed suitable recipes for about 10 days menus. Some of the meats used in these meals are freeze-dried and dehydrated fish sticks or squares, steaks, pork chops, and ground beef.



deep-fat fried. The cooked fishery products have an excellent flavor and acceptability.

These new freeze-dried and dehydrated products, raw or precooked, add variety and interest to the soldier's diet. The new rations save space and weight in shipping as well as time and energy in preparation. These foods are packaged entirely in paper and plastic containers of rectangular shape and exhibit excellent logistic and storage qualities.

Daily more progress is being made in providing quick-serve items for the new proposed feeding system for the Army. For further information, write the Director, Food Laboratories, Quartermaster Food and Container Institute for the Armed Forces, 1819 W. Pershing Road, Chicago 9, Ill.