

TRENDS AND DEVELOPMENTS

California

SHRIMP INDUSTRY ATTAINS CATCH QUOTAS IN CERTAIN AREAS: For the first time in a single year, California's growing ocean shrimp industry in two areas has reached catch-limit quotas ahead of the scheduled legal closing date.

The California Department of Fish and Game announced that the shrimp fleets operating out of Bodega Bay and Fort Bragg reached their catch limits well ahead of the October 15 closing date. When the season's quotas are reached ahead of time, the Department's Marine Resources Branch explained, the operators are then given two weeks' notice before the shutdown order becomes effective, thus avoiding a sudden curtailment of their business activities.

The State's shrimp industry also operates out of Crescent City, Eureka, and Morro Bay.

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INSHORE AREAS BETWEEN SANTA CRUZ AND SAN DIEGO SURVEYED BY AIRPLANE FOR PELAGIC FISH SCHOOLS (Cessna 1359D Flight 57-5 and Cessna 3632C Flight 57-6): The inshore areas between Santa Cruz in Monterey County and San Diego were surveyed by airplanes of the California Department of Fish and Game

Table 1 - California Airplane Spotting of Fish Schools in Single Area

Time Period	Newport Beach		Laguna Beach	
	Fish Schools Observed	Area	Fish Schools Observed	Area
	No.	Sq. Ft.	No.	Sq. Ft.
12:48 p. m.-1:07	6	10,100	1	400
1:07 -1:20	14	22,500	1	100
1:42 -2:00	12	15,000	8	8,400
2:00 -2:16	13	21,000	6	16,100
2:16 -2:30	10	20,600	6	18,800
2:30 -2:45	10	15,400	5	10,600
2:45 -3:02	7	28,000	6	36,600
3:02 -3:17	8	41,300	4	22,500
4:10 -4:28 p.m.	4	5,100	5	28,700

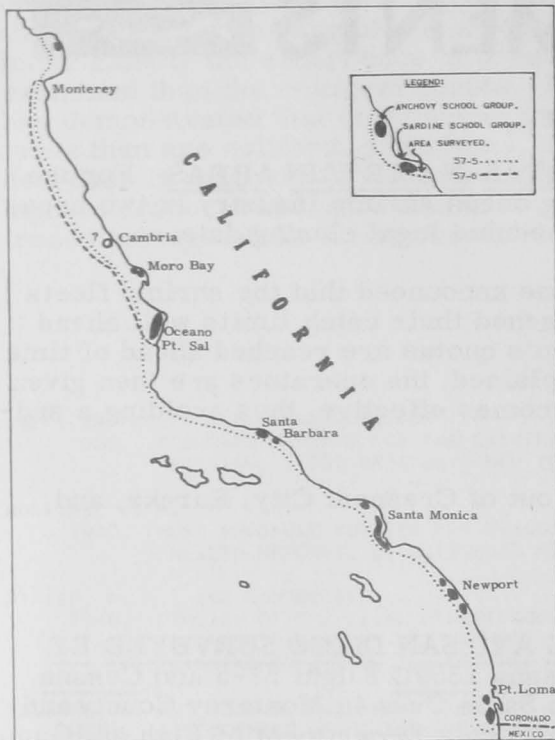
from July 25-28 (flight 57-5) and on August 6 (flight 57-6). The flights were designed to assess the abundance and distribution of schooling pelagic fish and to measure the hourly variation in the abundance of fish in a given area.

Weather conditions were poor in the area between Santa Cruz and Point Sal on the first flight so an additional flight (57-6) was conducted to adequately cover this area.

In general, sardine schools dominated the area between San Pedro and San Diego. Sardine schools were also reported by commercial fishermen to be concen-

trated in the Point Mugu and Santa Rosa-Santa Cruz Islands areas. Reports of sardines near Avila could not be confirmed by the Department's observers.

Compared to 1956 at this time, there were far fewer anchovies and Pacific mackerel. Anchovies were found in the Point Vicente-Santa Monica area, around Santa Barbara and Carpinteria, between Point Sal and Avila, and in Monterey Bay.



AIRPLANE SPOTTING FLIGHTS 57-5 (JULY 25-28) AND 57-6 (AUGUST 6).

Table 2 - Sardine and Anchovy Schools Observed in 10-Mile Sections of Coast off California

Region	Anchovy		Sardine	
	Schools	Area	Schools	Area
	No.	Sq. Ft.	No.	Sq. Ft.
Cayucos	2	36,600	0	
Morro Bay	2	11,900	0	
Avila	197	2,600,000	0	
Oceano	25	330,000	0	
Santa Barbara	31	123,500	0	
Carpinteria	13	33,800	0	
Pt. Pitas	1	200	0	
Malibu	24	104,000	0	
Santa Monica	2	5,200	0	
Redondo	18	96,700	0	
Port. Bend	34	182,700	0	
Hunt. Beach	0		9	20,000
Newport	0		8	41,300
Laguna	0		12	63,800
Pt. Loma	0		2	500
Coronado	0		46	281,500
Totals	349	3,524,600	77	407,100

The first of a proposed series of observations designed to measure hourly variations in abundance of fish in a given area was initiated on this flight. A portion of one day was spent flying over the waters between Huntington Beach and Dana Point. On each of the 15-minute flights made from 12:48 p.m. to 3:05 p.m. and 4:10 p.m. to 4:28 p.m. P.S.T. numbers of fish schools were counted and their visible area measured using an optical instrument.

The observations made on the two isolated sardine school groups found in the area, one off Newport Beach and the other off Laguna Beach, are listed in table 1.

The fish school area, as shown in table 1, is only the first step in the development of a method of estimating the density of observed schools. As yet these figures cannot be converted into a measure of absolute density such as pounds per square foot. The resolution of this problem, however, is in the planning stage.

A tally of sardine and anchovy schools and total area (square feet) of fish in each 10-mile section of the coast in which these species were observed is shown in table 2.



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



Total shipments of metal cans during January-August 1957 amounted to 86,130 short tons of steel (based on the amount of steel consumed in the manufacture of cans) as compared with 77,147 tons in January-August 1956. Although the shipments of cans this year exceed those of last year, the packs of some important fishery products this year through August were below the previous year. The can shipments this year indicate the

plans of canners to pack more fishery products than the previous year, but various conditions in the fisheries have hindered these plans.

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

VIRGINIA-MARYLAND JOINT FISHERY INVESTIGATION: What fishes were in Chesapeake Bay in September? What parts of the Bay were they occupying? These and other questions were answered by scientists from the Virginia and Maryland marine laboratories late in September 1957. The Pathfinder, new Virginia Fisheries Laboratory research vessel, was accompanied by two biologists from Gloucester Point, Va., and two biologists from Solomons, Md., points out an October 1 press release from the Virginia Fisheries Laboratory.

Although Virginia and Maryland scientists have, at times, visited each other's waters to gather information about the fishes of the Bay, this was the first joint investigation. There has always been close cooperation between the biologists of the two states and it is expected that other surveys will be made jointly in the future.

Fishing was done with a trawl net, similar to that used by shrimp fishermen. The net was hauled along the bottom for 15 minutes at seven-mile intervals, from the mouth of the Bay to its northern extremity.

Commenting on the expedition, one biologist said, "Chesapeake Bay must be studied as a whole if we are to understand clearly the movement, growth, and migration of fishes. Fishes are no respecters of boundaries and biologists often find it necessary to follow them through the waters of both states.

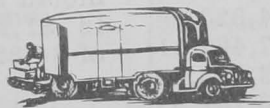
In past years Virginia biologists have made many surveys of the Bay and the major estuaries from the ocean to fresh water. As a result, they know a great deal about the distribution and movements of fishes and other animals. On this latest cruise, they found that the pattern of fish distribution up and down the Bay is different in several respects from the distribution up and down a river like the York.



Containers

GIANT RUBBER TUBE FOR SHIPPING LIQUIDS DEVELOPED: The development of a giant rubber-fabric container which has the appearance of a huge toothpaste tube was announced by the President of a large rubber manufacturing firm during the dedication of its new research center at Wayne, N. J. This container, known as a "Sealdtank," was sponsored by another corporation for the transportation primarily of liquid products. Such a container might be of great value in the transportation of condensed fish solubles, fish

oil, and even fish scrap with substantial savings in transportation costs. The giant tube may be carried on almost any kind of truck body, railroad car, or barge. It is thus possible to carry a dry cargo in one direction and a liquid cargo on the return trip. It is reported to be a simple matter to pump material into the "Sealdtank" and it may be as readily deflated. It can then be rolled up and stored out of the way. It is looked upon as one of the most significant advances in liquid transportation of the last 50 years.



Federal Aid Funds Apportioned to States

Apportionments of Federal Aid Funds to States for Sport Fishing and Wildlife, Fiscal Year 1958

State	Sport Fishing	Wildlife
	\$	\$
Alabama	123,648.97	338,131.27
Arizona	109,045.10	422,718.40
Arkansas . . .	114,738.36	321,757.44
California . . .	300,000.00	912,818.70
Colorado . . .	137,547.15	513,589.28
Connecticut . .	60,000.00	95,650.00
Delaware . . .	60,000.00	95,650.00
Florida	131,631.72	267,460.37
Georgia	107,590.53	304,236.30
Idaho	94,303.37	354,522.51
Illinois	180,867.40	525,586.81
Indiana	186,015.97	563,080.87
Iowa	111,357.08	422,784.93
Kansas	99,135.79	383,446.48
Kentucky . . .	106,559.32	303,470.70
Louisiana . . .	77,517.70	314,413.73
Maine	62,587.21	217,902.77
Maryland . . .	60,000.00	130,729.21
Massachusetts	60,000.00	103,715.35
Michigan . . .	285,922.62	956,500.00
Minnesota . .	300,000.00	609,305.85
Mississippi . .	64,757.59	268,380.56
Missouri . . .	155,653.35	456,387.94
Montana	146,137.56	591,508.71
Nebraska . . .	94,253.30	351,497.32
Nevada	85,938.36	370,028.11
New Hampshire	60,000.00	95,650.00
New Jersey . .	60,000.00	135,501.28
New Mexico . .	102,307.48	433,718.36
New York . . .	174,771.47	799,621.99
North Carolina	107,991.38	393,276.05
North Dakota .	62,804.32	291,221.70
Ohio	198,486.13	581,041.84
Oklahoma . . .	131,365.44	339,833.12
Oregon	130,363.30	484,815.28
Pennsylvania .	168,878.31	757,852.86
Rhode Island .	60,000.00	95,650.00
South Carolina	73,427.81	198,308.96
South Dakota .	79,828.14	351,689.96
Tennessee . . .	167,908.80	436,920.95
Texas	277,255.11	956,500.00
Utah	82,437.93	361,063.89
Vermont	60,000.00	95,650.00
Virginia	100,266.39	379,537.01
Washington . .	127,096.13	414,828.79
West Virginia .	60,000.00	257,468.11
Wisconsin . . .	238,420.88	582,663.59
Wyoming . . .	101,182.53	396,262.65
Hawaii	60,000.00	95,650.00

State programs for the restoration and development of sport fishing and wildlife in the 48 States will have their biggest year in fiscal year 1958 with the apportionment of \$25,130,000 in Federal aid funds, Assistant Secretary of the Interior Ross Leffler announced October 13, 1957. This represents an increase of \$4,068,000 over the previous high apportionment of \$21,062,000 in 1957.

On the basis of one dollar from the state for every three of Federal funds, \$32.5 million will be available to state conservation departments for their fish and game programs in fiscal year 1958.

The combined Federal Aid in Fish and Wildlife Restoration program is administered by the Bureau of Sport Fisheries and Wildlife of the United States Fish and Wildlife Service. The Federal Aid in Wildlife Restoration Act, approved September 2, 1937, popularly known as the Pittman-Robertson Act, was designed to help check the depletion of the Nation's wildlife and stimulate its restoration. The Federal Aid in Fish Restoration Act, or Dingell-Johnson Act, approved August 9, 1950, was enacted to help the States solve their sport-fishery problems.

Sport fishing programs will receive \$6 million in 1958. Wildlife restoration projects will have \$19,130,000 which includes the third 20 percent--\$2,693,494--of the accumulated backlog of Federal aid funds. In 1955 the Congress authorized the appropriation, over a five-year period, of the reserve of \$13,467,468 which had accumulated from 1939 to 1946 when Congress did not appropriate total receipts annually from the excise tax on sporting arms and ammunition.

The wildlife total in 1958 is an increase of \$2,894,000 over last year's apportionment of \$16,236,000. The amount available for sport fishery projects is \$1,174,000 greater than the 1957 total of \$4,826,000.

The revenue for the Federal share of the sport fish restoration program

comes from the 10-percent excise tax on fishing rods, creels, reels, artificial lures, baits, and flies as paid by the manufacturers of these products. Collections from this source during the year ended June 30, 1957, amounted to \$6,404,564. From this total is taken the annual apportionments of \$75,000 to Alaska, \$10,000 each to Guam, Puerto Rico, and the Virgin Islands, and \$299,564 to cover the administration of the Act.



To obtain the benefits of the Federal grants, the States submit project proposals to the United States Fish and Wildlife Service. Such proposals may consist of surveys, investigations, land acquisitions, land and water development, management of restoration areas, and maintenance of the completed projects. Acting for the Secretary of the Interior, the Service reviews these proposals to determine whether they are substantial in character and design, within the meaning of the Acts.

When Federal Aid projects are approved by the Service, the state fish and game departments proceed to carry out the plans, spending their own funds. The States then submit reimbursement claims for 75 percent of the costs of the project, either periodically or at the completion of the work. The remaining 25 percent of project expenditure is financed out of regular state funds. All equipment, lands, and structures become the property of the states. All project workers are hired by the states and are state employees.

NOTE: SEE COMMERCIAL FISHERIES REVIEW, NOVEMBER 1957, P. 30.



Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES, JANUARY-SEPTEMBER 1957:

Fresh and Frozen Fishery Products: For the use of the Armed Forces under the Department of Defense, 1.6 million pounds (value \$48,000) of fresh and frozen fishery products were purchased in September by the Military Subsistence Market Centers. This was lower than the quantity purchased in August by 23.9 percent and 17.8 percent

less than the amount purchased in the same month a year earlier. The value of the purchases this September was lower by 29.2 percent as compared with the previous month and down 14.9 percent from September a year earlier.

For the first nine months of 1957 purchases totaled 18.7 million pounds, valued at \$9.7 million--a decrease of 7.5 percent in quantity and 4.2 percent in value as compared with the same period of 1956.

Prices paid for fresh and frozen fishery products by the Department of Defense in September averaged 52.7 cents a pound, about 3.9 cents less than

QUANTITY				VALUE			
September		Jan.-Sept.		September		Jan.-Sept.	
1957	1956	1957	1956	1957	1956	1957	1956
..... (1,000 Lbs.) (\$1,000)			
1,610	1,958	18,715	20,232	848	997	9,682	10,105

Species	QUANTITY		
	Sept.	Jan.-Sept.	
	1957	1957	1956
	... (1,000 Lbs.) ...		
Tuna	-	1,476	2,227
Salmon	211	1,220	601
Sardine	18	126	231

the 56.6 cents paid in August, but 1.8 cents above the 50.9 cents paid during September a year earlier.

Canned Fishery Products: Salmon and sardines were the principal canned fishery products purchased for the use of the Armed Forces during September as compared with the same period in 1956, purchases for the first nine months of 1957 of canned tuna were down 33.7 percent, of canned salmon were up 10.3 percent, and of canned sardines down 45.5 percent. Total purchases of these three canned fish items January-September 1957 were down by 7.3 percent from the like period of 1956.

NOTE: THE ARMED FORCES INSTALLATIONS GENERALLY MAKE SOME LOCAL PURCHASES NOT INCLUDED IN THE DATA GIVEN. ACTUAL TOTAL PURCHASES ARE HIGHER THAN INDICATED, BUT IT IS NOT POSSIBLE TO OBTAIN LOCAL PURCHASES.

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OVERTIME INSPECTION BARRED ON CANNED FOODS PROCUREMENTS: Overtime for inspection of canned foods procured by the Military Subsistence Supply Agency will no longer be permitted. Canned food purchases will be inspected only five days a week, Monday through Friday, in any 8-hour cycle from 6 a.m. to 6 p.m.

The action is aimed at a reduction in Federal spending. It stems from a policy directive by the Secretary of Defense which constitutes a general prohibition on overtime in defense contracting. The policy is being implemented now by the various Defense Department buying agencies.

The Military Subsistence Supply Agency in Chicago has been instructed by the Defense Department that inspection of canned foods is to be performed without payment of overtime, and this information has been given to the canning industry by the various Market Centers, with October 10 as the effective date of this new policy. It is understood that the only exception so far allowed with respect to canned food procurement is in contracts wherein the overtime inspection will not exceed 2 percent of the labor hours of the contract and will result in a cost advantage to the government.

Purchasing officials are well aware of the difficulties created by the new policy with respect to contracts which involve inspection of "in-process" production. They suggest, however, that the new policy will have no effect on procurement of warehouse stocks because they usually are inspected on regular time. The policy is not to be construed as diminishing the requirements for Government inspection.



Films



BROILED DEVILED SARDINES.

NEW FILM ON USE AND PREPARATION OF MAINE SARDINES: The many ways in which sardines can be used and prepared by the housewife to make tasty meals, sandwiches, and snacks for the whole family are featured in the newest film "Sardines from Maine, Down-East Style." The film was previewed in Bangor, Maine, at a meeting of Maine sardine canners, the Maine Sardine Council announced on October 10.

The film, scheduled for national distribution about October 15, 1957, is in 16 mm., with full color and sound and runs for 13 minutes. It was made for the Council by a New York City firm with the technical cooperation of the United States Fish and Wildlife Service. Distribution will be handled through the film libraries of the U. S. Department of the Interior and the Maine Sardine Council.

Most of the footage was shot in Maine around the theme that sardines are good food whether eaten in the summer, fall, winter, or spring. Other scenes were made in various parts of the country.

The film opens with a brief showing of the fish harvesting and canning operations and then concentrates on the uses and preparation of Maine sardines under many conditions as well as the various types of pack, oils, and sauces.

Sail boats, stately sardine carriers, the rocky coast, autumn foliage, winter scenes, the coming of spring, the glory of summer, and a host of Down-East men, women, and children in the role of actors and actresses makes the film entertaining as well as informative.

School lunches, outdoor picnics, party snacks, hearty sandwiches, and tasty main dish meals for the family dinner are all depicted in colorful scenes.

Approximately 75 prints are being made for initial distribution and others will be added to the supply from time to time. "They will supplement our many other promotional and advertising activities," the Council Chairman pointed out.

The film will be available at no cost for showings by schools, clubs, fraternal and civic organizations, and other groups and may be obtained, on a loan basis, from the United States Fish and Wildlife Service, Washington 25, D. C., or the Maine Sardine Council, 15 Grove Street, Augusta, Maine.

The Council's award-winning film, "It's the Maine Sardine," made several years ago, is still much in demand and is a very popular fisheries film distributed by the Interior Department.



Fur-Seal Skins

PRICES DECLINE AT FALL AUCTION: A substantial drop in prices of United States fur-seal skins characterized the semiannual auction of Government-owned furs held at St. Louis on October 18, 1957. A total of 28,782 skins, products of the sealing industry administered by the U. S. Department of the Interior's Bureau of Commercial Fisheries on the Pribilof Islands, brought \$1,983,208. This compares with 27,819 skins sold for \$2,547,182 at the April 1957 sale. The average for all skins sold for the account of the United States Government was \$68.90; at the April 1957 sale it was \$91.56; at the October 1956 sale it was \$100.96.

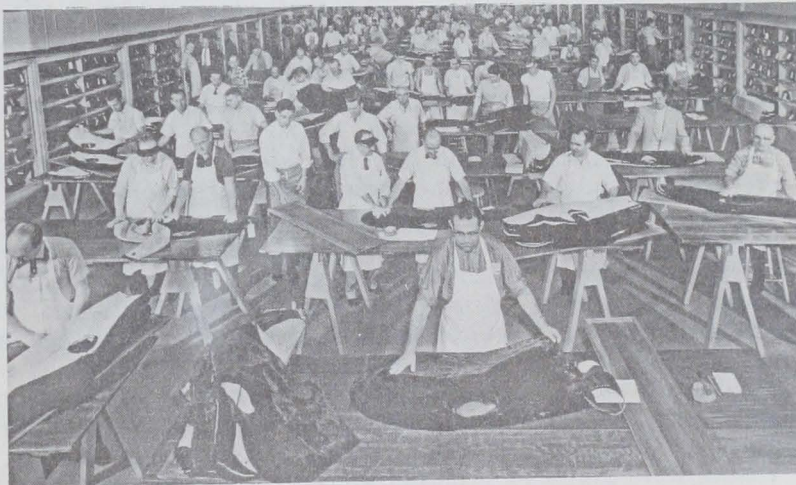
The sale was well attended by United States, Canadian, and European buyers.

The Alaska skins included 9,843 black, 12,204 dyed "matara" (brown), and 6,735 of the recently-introduced new shade called "kitovi."

The kitovi skins brought an average of \$73.04, a decline of 29.3 percent from the April average of \$119.39. Matara skins sold for an average of \$67.85, a decrease of 13.4 percent under the April average of \$81.91. Black skins averaged \$67.39, a decline of 16.5 percent from the April average of \$88.32. Percentage changes in price are calculated on the basis of grade and shade of color.

In addition to the United States skins, 13,068 South Africa fur-seal skins were sold for private shippers and the account of the Government of the Union of South Africa at an average of \$26.91, a decrease of 23 percent from the April 1957 sale. A total of 487 Uruguay fur-seal skins were sold for the Government of Uruguay at an average of \$20.32; the April 1957 average was \$31.04.

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, MAY 1957, P. 24.



FUR BUYERS EXAMINING FUR-SEAL PELTS.



Great Lakes Fishery Investigations

OTTER-TRAWLING AND GILL-NETTING SURVEY OF EASTERN LAKE ERIE (M/V Cisco Cruise 8): The survey of fishery resources in the eastern end of Lake Erie by otter trawling and gill-netting was continued from September 24-October 8, 1957, by the Service's research vessel Cisco. The area under study was the same as that surveyed during cruise 6 (August 12-26) and the catches were about the same.

Smelt continued to dominate all catches taken from beneath the thermocline. In shallower waters bordering thermally-stratified areas (12-14 fathoms and less), there were practically no smelt except for fry. Catches of all species in the shallow areas were generally light.

Trawling operations were carried out in 9 areas of eastern and in 2 areas of central Lake Erie. Except for smelt (up to 2,600 fry, 4,000 yearlings, and 250 adults in single 15-minute tows) and trout-perch, there were few large trawl catches of any species in the eastern area. On occasion, however, fairly large numbers of spot-tail shiners and small alewives were taken. Other species caught in the eastern basin include white bass, black crappie, small-mouth bass, burbot, whitefish, stone-cat, sheepshead, sculpin (Cottus sp.), log-perch, sand darter, johnny darter, walleye, blue pike, and yellow perch. Smelt, mostly yearlings, made up almost the entire catches of several midwater tows made at night off Long Point.

Trawl catches in the central basin, off Ashtabula and Erie, varied from those in the east end mainly in that they contained more perch and especially sheepshead.

Experimental nylon gill nets were set in 3 areas off Erie, N. Y., and in 2 areas off Long Point, Ontario. A bottom net (several mesh sizes) in 34 fathoms off Long Point took 75 smelt and 8 coregonids. The latter were tentatively identified as lake herring, but some of them resemble Leucichthys alpenae of Lakes Michigan and Huron. Another bottom net consisting of 1,200 feet of 3½-inch mesh was set in 16 fathoms off Erie. This net contained 6 whitefish, 8 burbot, one lake herring, and 750 smelt. A net (several mesh sizes) suspended 4 fathoms below the surface over a 9-fathom bottom off Erie caught only one perch, 2 walleyes, 2 blue pike, and 2 gizzard shad. In an oblique net set in 26 fathoms off Long Point smelt were taken at all depths. They were most abundant near the middle of the net, which was in the thermocline. Other fish in the net, all in the top half, were 1 walleye, 4 yellow perch, 1 lake herring, and 2 small alewives. An oblique net in 13 fathoms off Erie had nothing in its top 20 feet, but contained a sizable catch of smelt and large yellow perch in the bottom 60 feet.

The epilimnion in eastern Lake Erie had become thicker since cruise 6, but the thermocline was still sharp. Surface water had cooled 5°-10° C. (9°-18° F.), and ranged mostly between 17° and 18.5° C., with extremes of 15.9° C. (60.6° F.) and 19.1° C. (66.4° F.).

NOTE: SEE COMMERCIAL FISHERIES REVIEW, NOVEMBER 1957, PP. 17-20, FOR SCIENTIFIC NAMES OF SPECIES MENTIONED.



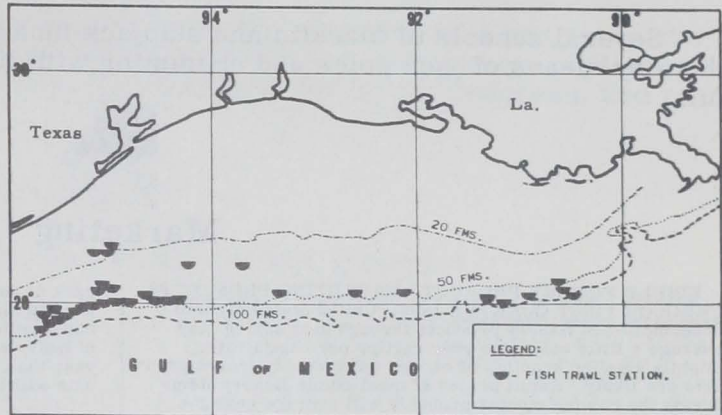
Gulf Exploratory Fishery Program

EXPERIMENTAL FISHING FOR RED SNAPPER IN GULF OF MEXICO (M/V Silver Bay Cruise 4): In an exploratory otter-trawl fishing cruise for red snapper by the Bureau of Commercial Fisheries chartered fishing vessel Silver Bay, the best results were obtained off Freeport, Texas, in an area known as "Little Campeche Bank." The cruise was made between September 19 and October 4, 1957, and includes 36 fishing stations made in 15-100 fathoms in the Gulf of Mexico off the

coasts of Louisiana and Texas. The fishing gear consisted of 5-inch mesh 60-foot and 76-foot New England-type otter trawls.

The largest single catch of 300 pounds of red snapper was made in 41-45 fathoms with the 76-foot trawl, or approximately 187 pounds per hour tow. The red snappers caught in this tow ranged from $\frac{3}{4}$ to 15 pounds, and averaged $1\frac{1}{3}$ pounds. Other catches in this area varied from 2 to 225 pounds, or about 1-113 pounds per hour tow. The highest rate of catch with the 60-foot trawl was about 120 pounds per hour tow. The 16 tows made in the area off Freeport in 41-50 fathoms yielded a total of 682 red snapper (1,058 pounds).

Nine tows were made off the Louisiana coast in 40-100 fathoms. No red snapper were caught in depths over 75 fathoms and the catches were very light in all depths. The best tow was made in 43 fathoms where a catch of 43 pounds was made in a tow of $1\frac{1}{2}$ hours.



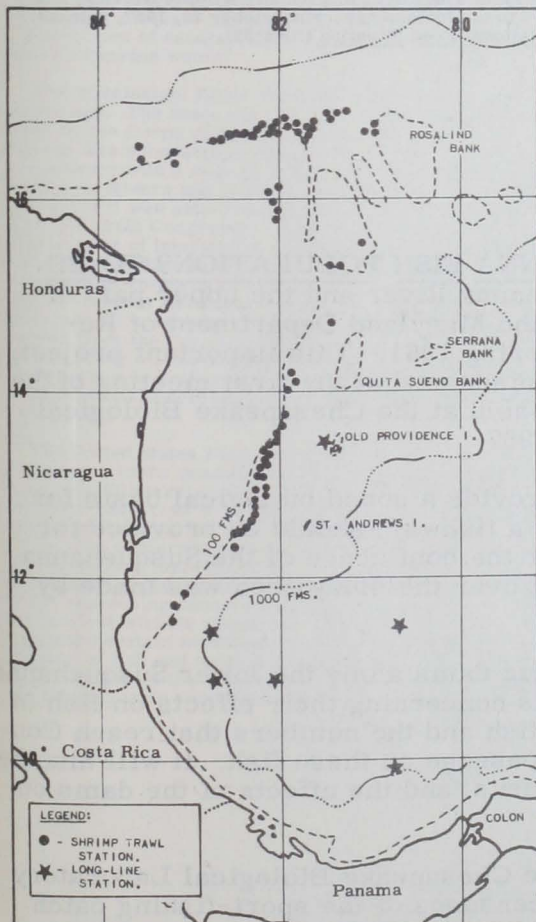
M/V SILVER BAY CRUISE 4 (SEPTEMBER 19-OCTOBER 4, 1957).

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SHRIMP, TUNA, AND LIVE-BAIT EXPLORATIONS OFF CENTRAL AMERICA (M/V Oregon Cruise 46): Exploratory shrimp trawling, tuna fishing, and the determination of live-bait availability along the east coast of Central America occupied the M/V Oregon during cruise 46 (August 12-September 26.)

Six long-line sets were made south of Cabo Gracias A Dios. Two 49-basket sets made west and south of Old Providence Island yielded no tuna. Four sets off Panama and Costa Rica caught a total of 81 yellowfin tuna at rates of 2.0 to 6.9 per 100 hooks, with an average weight per fish of 110 pounds.

A total of 72 exploratory shrimp-trawling stations were made on the outer edges of the broad shelf off Honduras and Nicaragua in depths of 100 to 550 fathoms. Royal-red shrimp (*Hymenopenaeus robustus*) were caught in small numbers over wide areas in depths of 250 to 400 fathoms. At no time did catches exceed 15 pounds an hour. Bottom-temperature transects showed a very marked temperature decrease (58.3° to 47.5° F.), in the 200- to 300-fathom range. Catches from beyond 400 fathoms contained small numbers of very large (4-10 count heads-on) scarlet-red shrimp, *Plesiopenaeus edwardsianus*.



M/V OREGON CRUISE 46 (AUGUST 12-SEPTEMBER 26, 1957).

Fifteen shrimp-trawl drags were made in depths of 10 to 100 fathoms on the outer edges

of the shelf. In general, very poor trawling bottom was encountered and no species of commercial interest were caught.

Live bait for pole-and-line tuna fishing was caught with a trap-lift net at Old Providence Island, Cristobal Harbor, and Swan Island.

Several schools of blackfin and skipjack tuna were observed, but efforts to catch them by means of jack poles and chumming with live bait were uniformly unsuccessful.



Marketing

EDIBLE FISHERY PRODUCTS MARKETING PROSPECTS, THROUGH FIRST QUARTER 1958: United States civilian consumption of fishery products through next spring may average a little below the year earlier per capita rate. Slightly smaller supplies of canned and possibly frozen products are likely. Retail prices of most edible fishery items during the coming months probably will average near the high levels of a year earlier.

Commercial landings of edible fishery products are declining seasonally but will be about as large as last fall and winter. Stocks of frozen items were moderately larger this October 1 than last, but may decline below the year-earlier level as the season progresses unless imports are larger than currently anticipated. Stocks, which include imports, are the major source for frozen fishery products marketed during the winter months.

Canned fishery products may be in a little smaller supply during the next 5 or 6 months than a year earlier. The 1957

pack of canned salmon was noticeably less than last year's. Canned tuna production will likely be smaller than in 1956, but supplies in the months ahead will continue large because of heavy stocks. The pack of Maine sardines is larger this year than last. Domestic production of canned fishery products will be supplemented to some extent by imports.

Imports of fishery products during the next several months may be no higher than a year earlier. Among the frozen commodities, the import volume will depend as usual mainly on receipts from Canada. Exports of canned fish probably will be smaller than last fall and winter, depending on the pack of California sardines (pilchards) this fall.

This analysis appeared in a report prepared by the Agricultural Marketing Service, U. S. Department of Agriculture, in cooperation with the U. S. Fish and Wildlife Service, and published in the former agency's October 29, 1957, release of The National Food Situation (NFS-82).



Maryland

EFFECT OF DAMS ON LOWER SUSQUEHANNA FISH POPULATIONS TO BE STUDIED: Fish populations in the lower Susquehanna River and the upper part of Chesapeake Bay will be studied by biologists of the Maryland Department of Research and Education from the fall 1957 to the spring 1961. This important project, known as the "Susquehanna Fishery Study," was discussed at the first meeting of the Susquehanna Fishery Study Advisory Committee held at the Chesapeake Biological Laboratory, Solomons, Md., on October 14-16, 1957.

The primary objective of the project is to provide a sound biological basis for decision as to whether or not a passage, such as a fishway, should be provided for fish at Conowingo Dam. The dam is located near the confluence of the Susquehanna River and Chesapeake Bay in Maryland. A flight over the study area was made by the Advisory Committee on October 15.

The construction of a series of hydro-electric dams along the lower Susquehanna River has raised some very interesting questions concerning their effects on fish in the river. The study will deal with the kinds of fish and the numbers that reach Conowingo Dam and the estimation of the effects of passage on these fish. It will also be concerned with biological studies, population census, and the effects of the dams on young and adult fish.

Considerable data is already available at the Chesapeake Biological Laboratory about the fishery problems of this area. Creel censuses of the sport-fishing catch in 1955 and 1957, from the Maryland-Pennsylvania line to Port Deposit, have been

carried out by the Maryland Department of Research and Education in close cooperation with the Maryland Game and Inland Fish Commission. The historical aspects of migratory fish runs, especially of shad, have been documented in detail by the Department. Much data is also found in its files about the physiography of the area as well as other recorded information.

The Susquehanna River Project will be under the direction of a project leader in fishery biology. Although it will be administered by the Department of Research and Education, the Advisory Committee must approve the plans, progress, and reports of the project leader.



Mississippi River-Gulf Outlet Project

EFFECT ON FISH AND WILDLIFE CAUSES CONCERN: Concern over the effect of the Mississippi River-Gulf Outlet engineering project on the area's fish and wildlife resources has been expressed by the fishing industry, The Wildlife Management Institute, the Louisiana Wild Life and Fisheries Commission, the Gulf States Marine Fisheries Commission, and the United States Fish and Wildlife Service. As a result, a seminar was held and a four-day aerial and water reconnaissance was made of the inside waters and marsh areas of Louisiana which would be affected by this project and numerous other proposed projects. The National Fisheries Institute, the U. S. Fish and Wildlife Service, and the Louisiana Wild Life and Fisheries Commission were represented. This study, which covered almost the entire Louisiana waterfront, clearly indicated the irrevocable damage which may very well result unless immediate steps are taken to require adequate biological investigations in advance of construction of canals, dams, or other man-made devices in these estuarine waters.

The Mississippi River-Gulf Outlet was suggested many years ago. The basic plan for the project was prepared in 1946 by the Corps of Engineers. A report of the preliminary survey was submitted in 1951 by the Corps of Engineers in accordance with a request adopted in May 1943 by the Committee on Rivers and Harbors of the House of Representatives. The project was authorized finally in March 1956 by Public Law 455 (84th Congress), which was never referred to the Department of Interior for "comments and possible suggestions of amendments to provide for the conservation of fish and wildlife resources in connection with the projects." During the current fiscal year, however, the Fish and Wildlife Service will undertake investigations with funds to be transferred from the Corps of Engineers. It is hoped that a report of this study will be completed by January 1958 on an interim basis, and it is anticipated that such report will recommend modifications specifically in the interests of fish and wildlife resources.

The United States Fish and Wildlife Service has indicated concern as to the possible adverse effects of dredging and spoil deposition related to this project on shrimp and other shellfish resources in this inland sea area and on nursery values of the area for various species of finfishes. The Service is also concerned with the effects of the project on valuable waterfowl marshes. The Fish and Wild Life Commission of Louisiana adopted, at its meeting on May 28, 1957, a resolution expressing concern over the effects of the project on the fish and wildlife resources. The Commission has also suggested certain modifications in the project plans in the interest of fish and wildlife conservation. The investigations and proposals of the Fish and Wildlife Service on this project are being closely coordinated with the Louisiana Commission.

The resolution of the Louisiana Commission states in part: "In view of the progress that has been made in the planning of the New Orleans to the Gulf Tidewater Channel and in view of the fact that this agency has not been requested to official comment on this proposed project, it is felt that the Wild Life and Fisheries Commission must make some comments and recommendations since this channel will have a pronounced effect on the fish and wildlife resources within a considerable area . . . this Commission is charged by law with the responsibility of preservation, protection, and propagation of the fish and wildlife resources of Louisiana. Therefore, pertinent factors associated with this project, as presently planned, must be pointed out . . . that portion of the proposed canal from Paris Road to Chandeleur Island will cause irreplaceable losses to fish and wildlife resources. Thus, this Commission urges strong consideration of realignment of the channel since the proposed alignment is the worst possible one for fish and wildlife resources."

The Commission sets an annual value on oysters and shrimp at \$24 million ex-vessel alone and states that the value of finfishes, both commercial and sports, and waterfowl cannot be estimated.

The United States Fish and Wildlife Service stresses the importance of the brackish margin of our coast which determines the very existence of many of our most valuable fishery resources. A large project which severely modified the drainage, or which changed such properties of the water as temperature and salinity, or such features as depth, or the direction and rate of flow of currents, could have serious effect on the productivity of the area. A single small project might have only slight effect; an accumulation of several could be very damaging indeed. The Service suggests in the interest of the conservation of our food and recreational resources that every major project involving the inshore environment should be preceded and accompanied by adequate biological studies designed to determine how the project could be modified to preserve or improve the productivity of the area affected.

The proposed plan of the Division Engineer for the Mississippi River-Gulf Outlet contemplates a canal some 76 miles in length, 36 feet deep, and 500 feet wide at the bottom in a southeasterly direction from a point just east of the City of New Orleans across approximately 40 miles of marshland and thence transecting Chandeleur Sound and extending to the 38-foot level in the Gulf of Mexico, with protective jetties and a permanent retention dike across open water. The presently estimated federal cost is \$92 million. Congress has just approved \$375,000 for planning only and \$625,000 for construction in the present fiscal year. This construction will be limited to improvements in the Intracoastal Waterway which are essential to the total project. No additional funds can be requested for construction until such time as plans for the entire project are completed.



National Fish Week



ROSS L. LEFFLER, ASSISTANT SECRETARY OF THE INTERIOR FOR FISH AND WILDLIFE BEING INTERVIEWED BY DAVE GARROWAY ON HIS "TODAY" SHOW.

TELEVISION SHOW FOCUSES ATTENTION ON 1957 FISH PARADE: In order to focus attention on the fishing industry's 1957 Fish Parade, Ross L. Leffler, Assistant Secretary of the Interior for Fish and Wildlife, appeared on Dave Garroway's "Today" Show on September 27. Leffler told the 6.5 million viewers of "Today" how the fishing industry is helping American housewives enjoy the abundance and variety of fishery products--by conservation measures, setting quality standards, and disseminating information about the nutritional and health-giving qualities of fishery products. He said also that the fishing industry is supplying ways to make fish cookery easy and delicious.

This year's National Fish Week (September 18-28) was the third such national promotion which featured advertisements in grocery, hotel, restaurant magazines, publicity in newspapers, magazines, and over radio and television. Task forces in large cities carried out local programs, with advertising and publicity in the daily newspapers and over local radio and television stations. The Fisheries Council of Canada held their Fish Parade at the same time that the United States fishing industry promoted its products.



National Tuna Week

INTERIOR DEPARTMENT SUPPORTS CANNED TUNA SALES CAMPAIGN: Another joint annual industry-Government sales promotion program designed to move the plentiful supplies of domestically-produced canned tuna into normal trade channels again had the full support of the Bureau of Commercial Fisheries, Assistant Secretary of the Interior Ross Leffler announced.



This nationwide program, publicized as "National Canned Tuna Week," was aimed at both institutional and home-consumer markets and climaxed during the 10-day period of October 31-November 9, 1957.

The Bureau of Commercial Fisheries aided the industry's promotional efforts through special work with schools, institutions, and food trade groups. Informational and educational activities were increased in order to attract greater consumer response.

Industry leaders were confident that housewives would respond to this merchandizing activity since canned tuna fits into fall menus so well and is one of the few protein foods which is now lower in price than last year at this time. National advertising by the tuna industry was expected to add tremendously to the sales effort by pinpointing special values of interest to homemakers.

The Department of Agriculture also participated in the joint campaign by lending the facilities of the Federal Extension Service and the Food Distribution and Information Divisions of the Agricultural Marketing Service. Canned tuna was included on the list of plentiful foods during October.



Nets

CARE IN CHOOSING TWINE: Has there been too much haste and too little thought in substituting new for traditional materials used in the manufacture of commercial fishing gear? This question is raised by the Technological Station of the Fisheries Research Board of Canada at Vancouver in a paper to the First International Fishing Gear Congress. This meeting was organized by the Food and Agricultural Organization (FAO) and is being held in Hamburg Germany, October 7-12, 1957.

The author of the paper, reporting on tests of cotton, linen, ramie, hemp, manryo, nylon, and terylene, points out that both new and old materials have in some instances been rejected because of inadequate tests and improper use of the twines. Illustrating this point, he cites the selection of twine sizes for salmon gill nets.

"Because fish must be caught from water, wet strength is more important than dry strength even though, for conven-

ience, many people only measure the dry strength. At one time all gill nets used to catch salmon on the British Columbia coast were made of premium-grade linen, which is about 50 percent stronger when wet than when dry. In contrast to linen, nylon decreases about 15 percent in strength when wetted; therefore, if the size of twine for a nylon gill net is chosen to give the same dry strength as has the linen gill net which it is to replace, then the nylon gill net will be little more than half as strong as the linen net when both nets are in the water."

While manufacturers of nylon gill nets are aware of this and have selected twine sizes of sufficient wet strength to carry normal fishing loads, some net men and fishermen still select nylon gill nets on the basis of hand tests applied to dry netting. The nets so chosen are too light for the loads they must carry, and are easily torn.

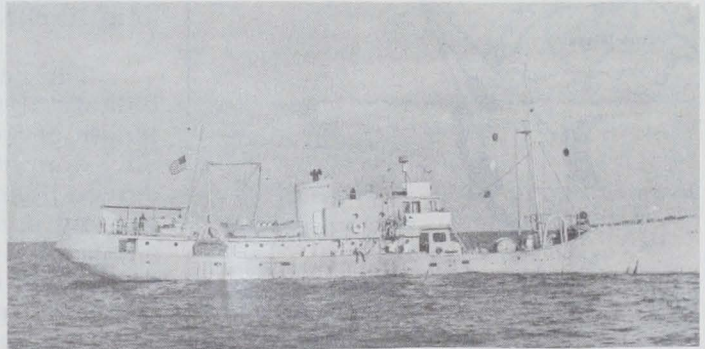
Another example of multifilament nylon gill nets is quoted in the paper. The knot strength is more important in fishing gear than the strength of the straight twine. Soon after nylon 66 multifilament gill nets were introduced into the British Columbia salmon fishery, nylon 6 multifilament gill nets began to appear although, when tested, it was found that nylon 6 twine was about 40 percent weaker than nylon 66 twine of the same weight. Nylon 6 was rejected as being unsatisfactory for gill nets. However, because these two nylons react differently to knotting, the mesh of a nylon 6 net is only about 20 percent weaker than the mesh of a nylon 66 net of the same weight, states the author.

The paper stresses that where materials, either new or conventional, are to be used in new applications, their physical properties should be described in an absolute manner. (Trade News of August 1957, Canadian Department of Fisheries.)



North Atlantic Fisheries Investigations

SEA SCALLOP TAGGING AND SPAWNING OBSERVATIONS (M/V Albatross III Cruise 103): In continuation of the U. S. Bureau of Commercial Fisheries studies on the Georges Bank scallop, the research vessel Albatross III made 55 drags with a scallop dredge on the eastern part of the Bank. About 12,000 scallops were examined for spawning condition and 5,500 scallops were tagged and released. In addition 300 underwater photographs were made, hydrographic data collected, and a transponding buoy tracked for six days. The vessel sailed on September 18 and returned September 26, 1957.



SERVICE'S RESEARCH VESSEL ALBATROSS III.

* * * * *

HADDOCK TAGGING AND COLLECTING CRUISE COMPLETED (Albatross III Cruise 104): A total of 1,803 haddock, 515 cod, 69 halibut, and 50 dogfish were tagged by the U. S. Bureau of Commercial Fisheries research vessel Albatross III during an October 9-20, 1957, cruise. In addition, 434 haddock less than one-year old were collected and 631 cod were examined for the presence of the copepod parasite Lernaeocera branchialis, found on the gills of cod and other species.

The area covered by the cruise included Great South Channel, a few miles east of Highland Light, Georges Bank, and Browns Bank. Fishing was conducted in 25-60 fathoms and 110 30-minute tows were made in 25-60 fathoms with a standard No. 41 otter trawl. The cod ends were lined with a $\frac{3}{4}$ -inch mesh reliner to retain the catch of small fish.

The haddock were tagged with "spaghetti type" tags through the back or dorsal area, with Petersen disc tags through the operculum, and Lea internal anchor tags. Cod were tagged alternately with Petersen disc tags through the back and with Lea internal anchor tags.



North Atlantic Herring Research

DRIVING HERRING SCHOOLS WITH COMPRESSED-AIR CURTAIN: Field experiments on the driving of herring schools were conducted by Boothbay Harbor, Me., staff of the Bureau of Commercial Fisheries during the last week in August and the first nine days of September 1957. A "wall" of compressed air discharged on the sea bottom was tried in these experiments as a means of influencing the movements of herring schools.

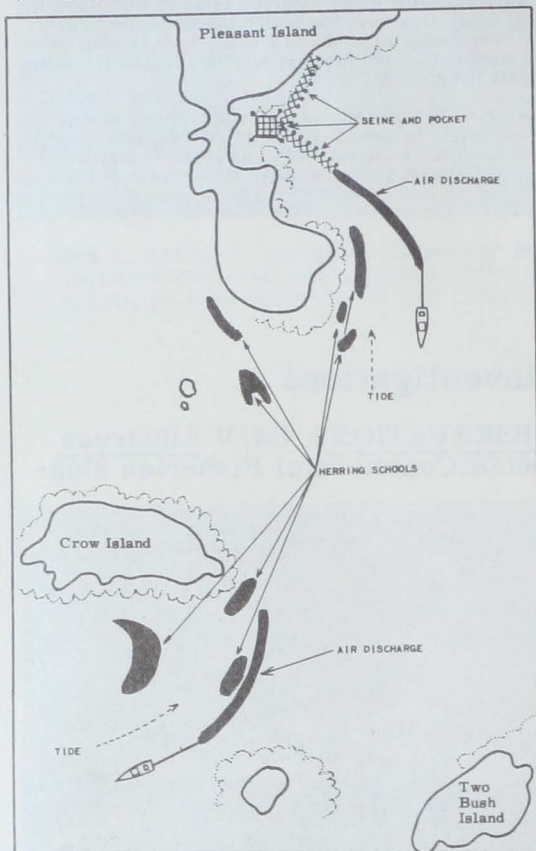


FIG. 1 - SETS MADE TO TEST EFFECTIVENESS OF COMPRESSED-AIR CURTAIN IN DRIVING HERRING SCHOOLS.

wrapping of lead wire to make it sink. An additional 200 feet of the pipe, undrilled and unweighted, was connected between the drilled piece and the hose-reel outlet.

The gear thus assembled was capable of discharging air bubbles along the 500-foot length of drilled pipe at depths of up to 100 feet. When in operation, from the pipe lying beneath the water a continuous 500-foot-long "curtain" of small air bubbles would rise to the surface.

Fish were located in suitable position for trials of the equipment during periods of favorable weather on August 31, September 1, September 8, and September 9. Sets made on these dates are shown diagrammatically in figures 1 and 2. The pattern of movement of herring schools observed in this area was an approach from the south (bottom of diagram) and movement in a northerly direction toward Pleasant Island, usually going around the west side of the island.

On August 31 and September 1, part of a lead in a seine was removed from a set of commercial gear and the air-discharge pipe substituted for it as diagrammed at the top of figure 1. On August 31, the fish moved in close inshore without approaching close enough to the air discharge to give a good indication of their reaction to it. Since the fish moved along the island closer to shore than was their usual pattern, it appeared possible that the air discharge and noise of the compressor might have af-

After several weeks of building and testing this gear at the Boothbay Harbor Research Station, it was taken aboard the 35-foot motorboat *Clupea* to Tenants Harbor for the field trials. In this area, working in cooperation with a sardine fisherman from St. George, Me., tests of the gear were made on actual schools of herring. The fisherman performed the essential task of spotting the schools from the air in his piper cub airplane and of directing the setting of the gear. All observations of the effects of the air discharge were also made by airplane. The trials were made at Pleasant Island near Tenants Harbor.

The gear used consists principally of an industrial-type air compressor, a 700-foot length of flexible polyethylene pipe with an inside diameter of 1.050 inches, and a power-driven hose reel with air fittings to allow setting out and hauling in the plastic pipe while pumping air. The compressor was capable of delivering 60 cubic feet of air a minute at a maximum pressure of 75 pounds a square inch. This compressor was connected through the hose reel to the plastic pipe--500 feet of the pipe was drilled at one-foot intervals with a $\frac{1}{32}$ -inch diameter drill and weighted with a

affected their movements somewhat. On the night of September 1, the gear was put into operation as the herring schools approached, but the schools altered their usual course and swam around to the western side of the island.

On September 8, the air-discharge pipe was laid between Crow Island and Two Bush Island. On this night most of the fish veered off toward Crow Island and passed between the end of the air discharge and the island. One school, however, moved up to the air discharge and stopped there. The school remained in this position as long as sufficient light remained to allow observation.

In order to obtain a definite test, the channel between Crow Island and the unnamed island to the west of Two Bush Island was almost completely "blocked off" with the air discharge, as shown in figure 2, during the evening of September 9. On this night several large schools started through the channel as usual. These schools did not cross through the air discharge but stopped a short distance from it, flattened out against it, and moved along it just as they do along a length of seine. Some fish moved around each end of the air curtain but a large proportion of the school remained flattened against it for approximately the 45 minutes during which they could be observed before darkness.

In addition to these trials on "wild fish," the air curtain was tried out on herring already captured. An attempt was made to drive the fish from one pocket into another. This was not successful. The enclosed fish avoided the air until they became concentrated in approximately one half the pocket, but as they were crowded closer they began to run through it.

These experiments showed herring to definitely avoid the air curtain and resist strongly passing through it. The movements of the "wild fish" particularly were altered by the air discharge. These tests were made with the gear set in a fixed position. Additional work is in progress presently to improve the gear by making it effective over a longer length and to make it more portable. A particular problem if herring are to be driven is that of towing the plastic pipe over rough bottom. Provision has been made for adding irritant chemicals to the discharged air to make the fish avoid it, however, this has not proved necessary to date.

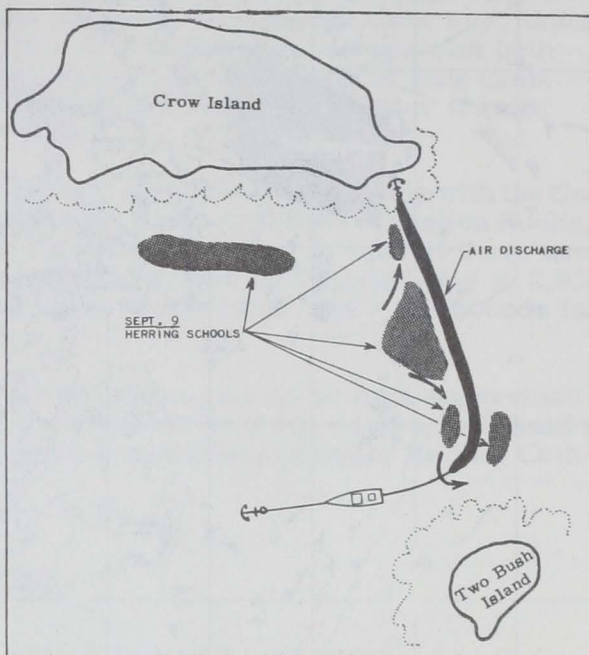


FIG. 2 - COMPRESSED-AIR CURTAIN BLOCKS OFF HERRING SCHOOLS.

North Pacific Exploratory Fishery Program

EXPLORATORY FISHING CRUISE TO ALASKAN WATERS COMPLETED (M/V Tordenskjold Cruise 32): Important concentrations of Pacific ocean perch, black rockfish, shrimp, and fair quantities of king crab were found by the Bureau of Commercial Fisheries chartered schooner-trawler Tordenskjold during a five-months trip which ended October 16, 1957. The trip was planned to investigate the distribution of king crab, bottom fish, and shrimp for possible extension of known fishing grounds and their availability to commercial types of fishing gear.



FIG. 1 - M/V TORDENSKJOLD CRUISE 32 (MAY 16-OCTOBER 16, 1957). OPERATIONS IN SOUTHEASTERN ALASKA.

fathom gully off Timbered islet, along the 100-fathom edge offshore from Wolf Rock to Forrester Island, and on the 125-fathom bank south of Forrester Island. Average catches of 1,100 pounds of black rockfish per hour were made near the 100-fathom edge off Noyes Island. Off Cape Bartolome several half-hour drags with the Gulf shrimp trawl at depths of 82-93 fathoms caught from 130-340 pounds of small pink shrimp.

Seventy percent of the drags attempted on the Southeastern grounds came through clear. Although the other 30 percent "hung up," very little gear damage resulted. Weather conditions were generally good in sharp contrast to those experienced during the fall of 1956.

The primary objective of the exploration in Southwestern Alaska

Exploration in the offshore waters of Southeastern Alaska between Dixon Entrance and Hazy Islands was carried out from May 23-June 30 using standard 400-mesh Atlantic otter trawls and a 40-foot Gulf of Mexico flat shrimp trawl. Fishing efforts in this area revealed a considerable amount of clear trawling bottom and significant concentrations of Pacific ocean perch (*Sebastes alutus*) and black rockfish (*Sebastes melanops*). Exploration in both inshore and offshore waters of Southwestern Alaska from the Shumagin Islands to Unalaska Island was conducted from July 18-October 1. Standard king crab pots and 400-mesh Pacific otter trawls were used in this area in addition to the gear used in Southeastern Alaska. King crab were taken in fair amounts in some places, and excellent catches of shrimp were made consistently in several localities.

The exploration off Southeastern Alaska was a continuation of work initiated by the Service's exploratory fishing vessel John N. Cobb in the fall of 1956. Pacific ocean perch were caught by the Tordenskjold at depths of 87-140 fathoms at average rates of 1,000-3,150 pounds per hour in each of the following areas: in the 125-

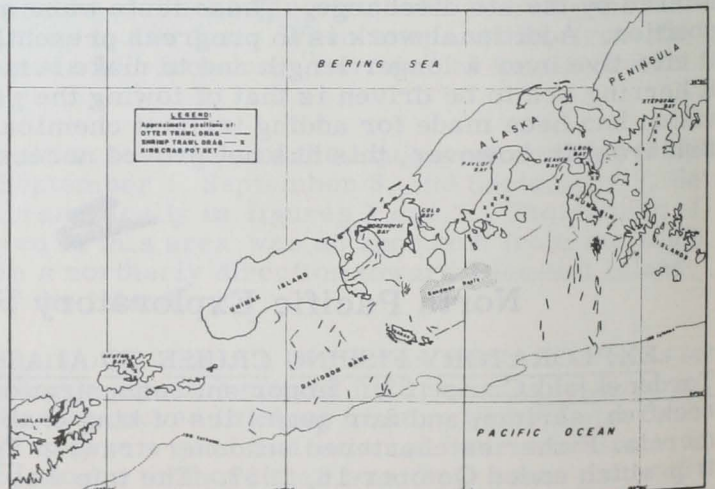


FIG. 2 - M/V TORDENSKJOLD CRUISE 32 (MAY 16-OCTOBER 16, 1957). OPERATIONS IN SOUTHWESTERN ALASKA.

was to determine the distribution of king crab outside of the known commercial fishery. Because of the large amount of area to be covered in a limited time, crab pots were normally set $\frac{1}{2}$ -mile apart. Individual pots caught 15-22 crabs each on grounds south of Umga Island, north of Sanak Islands, Stepovak Bay, and in Cold Bay, Akutan Bay, and Unalaska Bay at depths ranging from 36-102 fathoms. Drags with both Eastern and Western otter trawls caught relatively small numbers of king crab. True cod was the most frequent species of bottom fish taken in the otter trawls, with 5,000 pounds caught in one 60-minute drag.

Excellent catches of shrimp (mostly "cocktail" size pinks) were made with the Gulf shrimp trawl at depths ranging from 44 to 85 fathoms in the vicinities of Sealion Rocks, Stepovak Bay, Balboa Bay, Beaver Bay, and Pavlof Bay. Drags in each of these areas produced catches averaging from 550 pounds per half hour in Stepovak Bay to 2,950 pounds per half hour at Beaver Bay. The largest single catch was 3,800 pounds taken in a half-hour drag in Beaver Bay.

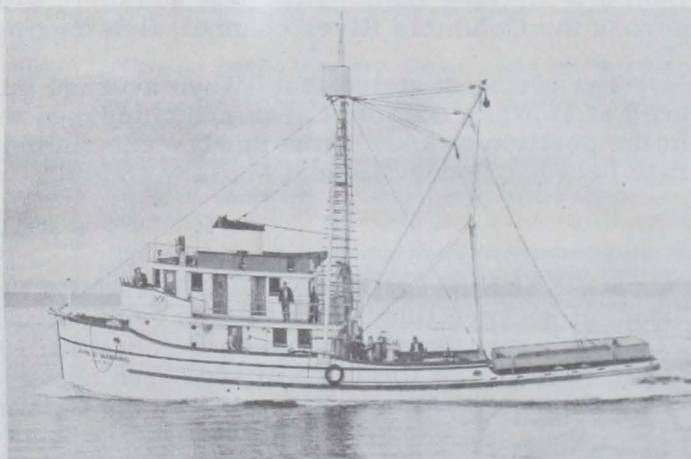
A representative of the Bureau's King Crab Investigations project supervised the tagging of male king crab aboard the vessel in Southwestern Alaska. All halibut caught during the cruise were measured for the International Pacific Halibut Commission.

NOTE: SEE COMMERCIAL FISHERIES REVIEW, JUNE 1957, PP. 30-31.



Pacific Oceanic Fishery Investigations

SKIPJACK TUNA CONCOURSE AREAS SURVEY COMPLETED (John R. Manning Cruise 37): A month-long study of the distribution of skipjack tuna (aku) in Hawaiian waters was successfully completed by the Bureau's Pacific Oceanic Fishery Investigations research vessel John R. Manning on October 18, 1957. The primary objective of the cruise was to continue studies initiated last summer on a skipjack concourse near Cape Kaea, Lanai. This concourse is a small area in which, for reasons as yet unknown, the ordinarily highly mobile skipjack tuna schools appear to linger for considerable periods of time. The fishery scientists and oceanographers believe that if their study of the food and behavior of the fish and the water temperature and other environmental factors can provide them with an explanation of the almost constant presence of skipjack tuna in this one spot, they may well be able to apply this knowledge to the broader task of explaining the seasonal movements of this valuable fishery resource in and out of the Hawaiian area as a whole.



THE PACIFIC OCEANIC FISHERY INVESTIGATIONS RESEARCH VESSEL JOHN R. MANNING.

Observations made during the cruise showed that skipjack and little tuna (kawakawa) were still present in the concourse. There appeared, however, to have been some changes in the population, for a school of 11- to 17-pound skipjack was fished about 500 yards off Cape Kaea in an area where the fish have previously been predominantly about 5 pounds. Tagging of skipjack with a plastic dart tag was carried out, as on the earlier cruises, and 129 fish were successfully marked and released.

In an attempt to locate other skipjack concourses the John R. Manning surveyed areas off Halawa, Molokai; Kaena Pt., Lanai; Barking Sands, Kauai; Lehua Rock, and a shallow bank off Niihau, but no skipjack were found. At the bank east of the southern tip of Niihau, however, little tuna schools were attracted to the vessel on 3 out of 4 chumming attempts.

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, NOVEMBER 1957, PP. 26 AND 27.



Oregon

SALMON TAGGING PROGRAM AT BONNEVILLE DAM COMPLETED: A total of 8,350 adult salmon were tagged at Bonneville Dam by the Oregon Fish Commission during the summer and fall of 1957 in the final phase of a 2-year study to determine what influence The Dalles Dam has had on salmon migration in the Columbia River.

A Commission biologist, directing the migration study, said the tagging phase of the investigation was completed late in September, but final results will not be known for several months. The study is being made under a U. S. Army Corps of Engineers fisheries engineering research program dealing with fisheries problems related to dam construction in the Columbia basin.

The study was designed to compare salmon migration rates before and after completion of The Dalles Dam. Migration rates of king and sockeye (blueback) salmon were obtained in 1956, before The Dalles Dam was completed, by putting numbered discs on fish at Bonneville Dam.

A portion of the tagged fish were recaptured at McNary Dam to establish the average number of days it took the fish to swim the 145 miles between Bonneville Dam and McNary Dam. This past summer, with The Dalles Dam extending entirely across the Columbia River channel, fish tagging at Bonneville Dam was repeated.

The biologist stated that "When average migration rates for tagged fish recovered at McNary Dam this year are compared with last year's figures, we should be in the position to know if the newly-constructed dam has influenced the migration rate between Bonneville and McNary Dams."

* * * * *

SOCKEYE SALMON ENTER WILLAMETTE RIVER FOR FIRST TIME: The first "run" of sockeye (blueback) salmon ever recorded in the Willamette River system was reported on October 18, 1957, by the Oregon Fish Commission. A total of 115 adult fish appeared at Dexter Dam on the middle Willamette River where the Commission collects spawning salmon blocked from their native spawning grounds above Lookout Point Dam. The superintendent of the Commission's Oakridge Hatchery said 100,000 eggs had been collected from the returning sockeye.



The adult fish are the product of 52,000 fingerlings released in the adult salmon holding pools at Dexter Dam in 1955. The fingerlings were hatched at the Oakridge Hatchery from eggs imported from a United States Fish and Wildlife Service hatchery at Leavenworth, Wash.

The returning sockeye are the second new run of fish that has come into the middle Willamette River this year. Last spring 260 mature steelhead salmon trout, also the result of fingerling plants from the Oakridge Hatchery, appeared at the Dexter holding ponds.

The acting Oregon State Fisheries Director said sockeye plantings in the middle Willamette River originally were not made with the idea of establishing a permanent run. The fish had been obtained for release in Lookout Point Reservoir to test the efficiency of an experimental fingerling attracting and trapping device. Due to a delay in the attraction experiment, the sockeye fingerlings were released below Dexter Dam, giving the fish free access to the ocean.

Adult returns from another plant of 44,000 sockeye fingerlings in the middle Willamette two years ago will be due back to Dexter Dam next summer. The survival of this group of fish will have a bearing on whether or not the Commission will attempt to establish a permanent sockeye salmon run in the stream.



Oysters

SET IN LONG ISLAND SOUND A FAILURE, SUMMER 1957: Observations on setting of oysters were discontinued at the end of September 1957. These observations, as well as information received from oystermen and other sources, show that setting of oysters during the summer of 1957 was a complete failure. For example, in Milford Bay where three collecting stations were located at depths of 10, 20, and 30 feet, respectively, only a single spat was found during the entire summer, reports Bulletin 4 dated October 4, 1957, from the U. S. Bureau of Commercial Fisheries Marine Biological Laboratory in Milford, Conn.

Examination of numerous plankton samples, collected by pumping 250 gallons of water in each case, showed in most instances almost a complete absence of oyster larvae. Thus, larvae were very scarce even though the oysters of Long Island Sound had developed normal quantities of spawn.

In comparing the intensity of setting in 1957 with that of previous years, it is clear that this year has been the poorest since the beginning of systematic studies on setting over 20 years ago. Even the set of 1938, which was previously considered the poorest, was much superior to that of 1957. Obviously, since only one spat was found on the collectors this summer, no indication of the beginning or end of the setting season, or the time of the maxima of the two waves of setting which are commonly observed in Long Island Sound, can be made.

No explanation as to why the oysters failed to set this year can be offered. A study of such environmental factors as changes in temperature, salinity, amount of precipitation, solar radiation, direction and velocity of the winds, etc., does not indicate anything that sharply distinguished this summer from certain previous ones when good sets of oysters were obtained. However, judging by the scarcity of oyster larvae in the plankton samples, it is possible that their mortality and therefore, the lack of set, was caused by a lack of food or by epidemic diseases. As has already been pointed out in many publications originating from the Laboratory, oyster larvae are extremely selective in their foods, being unable to utilize most of the microscopic forms which not so long ago were considered to be larval food organisms. Mortality of larvae due to diseases has also been observed at the laboratory on numerous occasions.

Two other possibilities are mentioned in connection with mortality of larvae; first, that the larvae were eaten by their enemies, which would also consist principally of planktonic forms. However, examination of plankton samples showed that such forms were not abundant enough to exterminate the majority of the larvae. The second possibility is that "unhealthy" conditions of the sea water, which are still not well understood, caused the larvae to die. Service biologists have found, as have their colleagues in England and in Japan, that

some dissolved substances can profoundly affect the development of eggs of marine animals and the survival of larvae. The Milford Laboratory hopes to gain a better understanding of these "water factors" by using chemical approaches and methods of bioassay.

In connection with the failure of setting this year it was pointed out to the oystermen that good oyster sets in open waters along the Connecticut shore are quite uncommon. The records of the state shellfish authorities, several leading oyster companies of the state, which have been operating since the turn of the century, and Service observations fully support this contention. These records show that between 1904 and 1925, a period of 21 years, not a single general heavy set occurred in the Sound. Since 1925 good sets have occurred on only five occasions, i.e., 1930, 1939, 1940, 1944, and 1945. Thus, during the last 57 years only 6 or 7 good general sets have occurred. The remaining years have been comparative failures; years during which a general but light set occurred in the Sound, or years when good sets occurred in some sections, but in other areas setting was a failure. For example, in 1953 only the Bridgeport area had a good set, while the Milford and New Haven sections suffered near-failures.

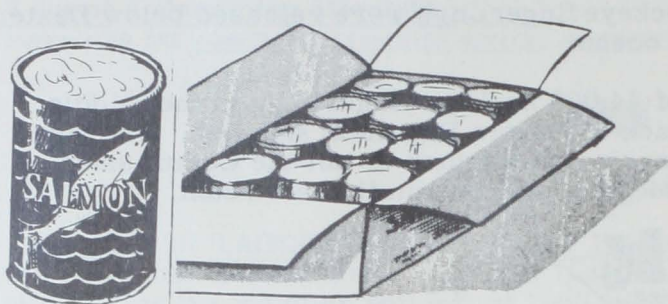
Previous reports from the Laboratory have indicated that the open Long Island Sound is not only unreliable for obtaining a regular set, but also that control of enemies of spat and young oysters there will always remain difficult and expensive. Finally, during the last decade the oyster beds of the open Sound have suffered greatly from severe storms and hurricanes. These factors should, obviously, be considered in connection with the cultivation of oysters in deep or open waters.

Because of the above considerations, Service biologists have suggested that the Connecticut oyster growers consider the possibility of transferring part of their seed-oyster production operations from the open Sound to more shallow, better protected waters, where oysters set more regularly and where control of enemies is more feasible. This could be achieved if the natural oyster growers and oyster planters of Connecticut would combine their efforts to utilize efficiently the numerous bays, harbors, and mouths of rivers where, in the past, extensive natural oyster beds existed but which, at present, are barren and unproductive because of overfishing and a lack of cultivation. If oyster-producing areas are re-established in such inshore waters, the industry may be assured of getting commercially important sets more often than in open waters. Furthermore, under these conditions control of the chief oyster enemies, drills and starfish, would probably not be needed at all because these pests, which require water of comparatively high salinity, are not able to exist in inshore areas where the salinity is often temporarily reduced after heavy rains.



Salmon

ALASKA'S 1957 PACK OF CANNED SALMON: Preliminary figures indicate a pack of 2.4 million cases (48 1-lb. cans) for all of Alaska, a decline of 18 percent or over 500,000 cases from 1956, and only 2.7 percent higher than the 1955 pack. The 1955 pack was the lowest in over 50 years.



The pack of pink salmon in Southeastern and Central Alaska was below expectations with the pack of this species 36.2 percent below the 1956 pack of 1.2 million cases and 40.5 percent under the 1955-cycle year pack of 1.2

million cases. The pack of reds was normal, although 24.8 percent below the 1956 pack (1956 was a cycle year). The only encouraging feature of this year's Alaska salmon pack was the substantial pack of chum salmon which exceeded the 1956 pack by 137,000 cases and was 13.2 percent or 96,000 cases above the 1954 cycle year pack.

Table 1 - Alaska's Canned Salmon Pack by Species and Area, 1954-57

Species	1957 ^{1/}				1956				1955	1954
	South-eastern	Central	Western	Total	South-eastern	Central	Western	Total	Total	Total
 (Standard Cases of 48 1-Lb. Cans)									
King . . .	1,358	15,722	29,150	46,230	1,272	21,212	23,767	46,251	47,818	51,373
Red . . .	82,512	179,986	484,498	746,996	72,851	341,030	579,761	993,642	621,644	1,006,951
Pink . . .	404,221	331,873	2	736,096	634,272	516,140	3,918	1,154,330	1,237,465	1,136,792
Chum . .	364,756	432,797	31,142	828,695	294,282	365,091	32,197	691,570	363,634	732,338
Silver or coho . .	57,547	28,282	5,078	90,907	46,497	49,015	4,388	99,900	114,584	167,299
Total.	910,394	988,660	549,870	2,448,924	1,049,174	1,292,488	644,031	2,985,693	2,385,145	3,094,753

^{1/}PRELIMINARY DATA.

NOTE: SEE COMMERCIAL FISHERIES REVIEW, DECEMBER 1956, P. 49.



School Lunch Fish-Cookery Demonstrations

Home economists assisted by the fishery marketing specialists of the U. S. Bureau of Commercial Fisheries will present 92 fish-cookery demonstrations in 11 states and the District of Columbia this winter and spring.



A U. S. BUREAU OF COMMERCIAL FISHERIES HOME ECONOMIST CONDUCTING A FISH-COOKERY DEMONSTRATION BEFORE SCHOOL-LUNCH SUPERVISORY PERSONNEL.

Demonstrations will be given mainly for school-lunch and Extension Service personnel. The home economists will present the proper preparation of appetizing, economical, nutritious, and easy-to-prepare fish and shellfish dishes. The recipes to be used in these demonstrations were developed in the Bureau's test kitchens at College Park, Md., and Seattle, Wash.

Special attention is given when developing the school-lunch recipes to provide 2 ounces of cooked protein per serving to meet the Type A school-lunch requirements. The fish used in these recipes are plentiful and inexpensive. They are frozen fillets and portion fish such as cod, haddock, and ocean perch; canned fish such as mackerel and tuna; and precooked fish such as frozen fish sticks.

The demonstrations for the Extension Service are usually given to group leaders who, in turn, give similar demonstrations to their local groups. The recipes used in these demonstrations are taken from the Test Kitchen Series. The home economists usually present six recipes featuring the varieties of fish and shellfish available in local markets.

To date, the Bureau has scheduled demonstrations in the following states: New York 37, Idaho 11, Colorado 8, Iowa 8, Rhode Island 8, Oregon 5, Nevada 4, Maryland 3, Ohio 3, Utah 3, West Virginia 1, and District of Columbia 1.



South Carolina

FISHERIES BIOLOGICAL RESEARCH PROGRESS, JULY-SEPTEMBER 1957: Oyster Research: An experimental shipment of commercial seed oysters has been made from South Carolina to northern waters. Late reports from the Chesapeake Bay area indicates that these oysters are growing and thriving. Apparently they suffered little mortality in being transplanted. Success of this shipment augurs well for this new seed oyster industry, points out Progress Report No. 33 (July-September 1957) of the Bears Bluff Laboratories.

In connection with the expansion of the seed oyster industry, studies have been continued on a substitute shell which can be used as cultch. This possible substitute is found in old dead oyster shells thrown up on banks of many creeks and rivers by wave action and stormy seas. Test planting of this shell in different years and at different times of the year show that washed shell is not particularly valuable as cultch when planted on oyster beds, but is suited for seed oyster production in suspended trays, bags, and baskets.

The amount of washed shell available in South Carolina is unmeasured, but in one stretch of the North Edisto River alone there is an estimated half-million bushels of shell. This is a "renewable resource" in that every period of bad weather washes new shells up on the banks.

With funds provided by a recent grant from the Charleston Scientific and Cultural Educational Foundation, a one-acre experimental pond at Bears Bluff has been partially cleaned of accumulated silt, and a part of its floor has been shelled and hardened for experimental planting. A portion of this oyster pond has been planted with seed oysters.

The necessary engineering work for the control of salinity is well under way with the purchase and

installation of pipe lines for the transfer of fresh water. The mechanical work on one pump was completed, and a gasoline motor to be used in pumping was completely overhauled.

Just as ten years ago when similar experiments were started, the depredation of young seed oysters by crabs is great. However, unlike the situation of ten years ago, the facilities and measures for controlling these crabs are now at hand. It is hoped that control measures can be actively undertaken in the next quarter.

Shrimp Research: Sampling and analysis of the shrimp catch at the regular established stations by experimental trawl hauls was continued. In all, 88 experimental tows were made and analyzed.

A concerted effort has been made this season to arrive at some practical means by which the future commercial catch of shrimp could be predicted on the availability of young shrimp in the marshes. To date the studies look promising but are not sufficient to draw conclusions.

Pond Cultivation of Shrimp: Experimental studies on the cultivation of shrimp in ponds has been continued. Up to now, all information on pond cultivation of shrimp has been obtained from the one-acre ponds which could be flooded or drained by tidal action. Since so many requests for information come from areas where tidal magnitude is slight, two new ponds have been constructed on high land above the influence of tide. These ponds are filled by irrigation pumps. Cost analyses on operation, stocking and management, production figures, feeding experiments, growth rates, and mortality of shrimp in these ponds is being studied. A small amount of seed oysters have been planted in one of the ponds.

Task Force to Study Handling of Frozen Foods

A 15-man task force to explore improved handling of frozen foods from packer to consumer has been named by the National Association of Frozen Food Packers in Washington, D. C.

The Association President and Chairman of the Task Force said that acceptance of appointments was 100 percent, indicating that "everyone who has a stake in frozen foods is aware that mishandling does exist, that it is having a detrimental effect on industry expansion, and that it can be eliminated."

The force's objectives are: "to impress upon all handlers of frozen foods the downgrading effects which exposure to

temperatures above zero have upon the products" and "inform and educate, by every means available, on proper handling methods."

The program was begun after a release by the U. S. Department of Agriculture's Western Utilization Branch on the effects of poor handling on color, flavor, texture, and nutritional value of frozen foods.

All phases of frozen food processing, distribution, and marketing are represented on the task force. The fishing industry is represented by the President of the National Fisheries Institute. (Food Field Reporter, September 16, 1957.)



United States Fishing Fleet^{1/} Additions

JULY 1957: First documents as fishing craft were issued to 76 vessels of 5 net tons and over during July 1957. Compared with the same month in 1956, this

Table 1 - U. S. Vessels Issued First Documents As Fishing Craft by Areas, July 1957 with Comparisons

Area	July		Jan.-July		Total
	1957	1956	1957	1956	
(Number).....				
New England	2	1	14	10	15
Middle Atlantic	5	4	20	19	26
Chesapeake	9	23	60	66	138
South Atlantic	16	12	71	61	119
Gulf	20	10	85	65	100
Pacific	14	14	79	62	76
Great Lakes	-	-	4	2	6
Alaska	9	4	36	31	40
Hawaii	-	-	-	1	1
Puerto Rico	1	-	1	-	-
Total	76	68	370	317	521

NOTE: VESSELS HAVE BEEN ASSIGNED TO THE VARIOUS SECTIONS ON THE BASIS OF THEIR HOME PORTS.

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

Net Tons	Number
5 to 9	38
10 to 19	13
20 to 29	6
30 to 39	13
40 to 49	1
50 to 59	1
60 to 69	1
130 to 139	1
180 to 189	1
380 to 389	1
Total	76

was an increase of 8 vessels. The Gulf area led with 20 vessels, followed by the South Atlantic area with 16, the Pacific 14, and the Chesapeake and Alaska with 9 each. The remaining 8 vessels were credited to the Middle Atlantic and New England areas and Puerto Rico.

^{1/}INCLUDES BOTH COMMERCIAL AND SPORT FISHING CRAFT.



United States Fishery Landings in 1957 Still Below 1956

The United States and Alaska catch of fish and shellfish for the first eight months of 1957 was running considerably below that reported for the same period of the previous year. Fisheries which this year yielded approximately 2.7 billion pounds, last year yielded nearly 3.1 billion pounds.

The greatest decline occurred in the menhaden catch which during the first eight months of 1957 totaled 1.2 billion pounds--nearly 403 million pounds less than in the same period of 1956. On the Pacific Coast, catches of tuna and tunalike fishes declined nearly 33 million pounds and Alaska salmon landings dropped 47 million pounds below 1956. Landings of ocean perch on the Atlantic Coast declined nearly 21 million pounds.

Compared with the same period in 1956, the landings of only three species increased during the first 8 months of 1957--the herring catch in Maine was up almost 29 million pounds, the herring catch in Alaska increased nearly 11 million pounds, and landings of whiting in New England increased nearly 32 million pounds.

It is evident from the information reported to date that the 1957 catch will be considerably lower than the record 5.2 billion pounds landed by United States and Alaska fishermen in 1956.

United States Catch of Fishery Products, Various Periods, 1957 and 1956 ^{1/}				
Item	Period	1957	1956	Total 12 Mos. 1956
Maine	7 mos.	165,203	140,415	277,822
..... (1,000 Lbs.)				
Massachusetts:				
Boston	8 mos.	97,458	103,811	147,402
Gloucester	8 "	177,550	187,505	252,038
New Bedford	8 "	66,312	60,089	87,965
Provincetown	8 "	16,279	13,754	21,151
Total		357,599	365,159	508,556
Rhode Island ^{2/}	7 mos.	73,254	73,556	129,406
New York ^{2/}	7 "	26,532	22,714	38,268
New Jersey ^{2/}	7 "	30,999	29,920	46,097
North Carolina ^{2/}	8 "	39,867	36,518	49,009
Georgia	7 "	8,432	7,402	16,711
Florida ^{2/}	7 "	73,294	75,273	142,493
Alabama	7 "	6,505	6,341	12,320
Mississippi ^{2/}	6 "	9,914	9,491	22,573
Texas ^{2/}	8 "	44,453	33,406	61,993
Ohio (Mar.-Aug.)	8 "	18,773	18,038	24,928
Oregon	6 "	26,359	25,766	59,256
California:				
Certain species ^{3/}	7 mos.	261,704	295,312	604,218
Other	5 "	45,189	37,823	156,116
Total California		306,893	333,135	760,334
Rhode Island, Middle Atlantic, Chesapeake, South Atlantic, and Gulf States (menhaden only)	7 mos.	1,131,848	1,489,724	2,010,393
Louisiana, shrimp (heads-on)	6 mos.	13,833	17,741	50,541
Washington (halibut only ^{4/})	8 mos.	13,887	11,921	16,604
Alaska:				
Halibut ^{4/}	8 "	19,672	21,592	33,076
Herring (season)	8 "	114,664	103,759	103,759
Salmon	8 "	204,000	251,000	263,896
Total of all above items		2,685,981	3,072,871	4,628,035
Other (not included)		^{5/}	^{5/}	571,965
Grand Total		2,685,981	3,072,871	5,200,000

^{1/} Preliminary.
^{2/} Excluding menhaden.
^{3/} Includes catch of: anchovies, jack and Pacific mackerel, tuna and bonito, and squid.
^{4/} Dressed weight.
^{5/} Not included.
 Note: Round or "as caught" weight unless otherwise indicated.

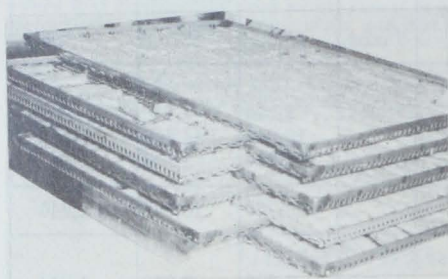
United States Catch of Certain Species, Various Periods, 1957 and 1956 ^{1/}				
Item	Period	1957	1956	Total 12 Mos. 1956
..... (1,000 Lbs.)				
Anchovies, California	7 mos.	39,628	36,108	54,282
Cod:				
Maine	7 mos.	1,514	1,810	2,361
Boston	8 "	13,942	14,104	17,518
Gloucester	8 "	1,264	1,034	1,361
Total cod		16,720	16,948	21,240
Haddock:				
Maine	7 mos.	2,626	2,813	4,340
Boston	8 "	70,015	76,132	106,662
Gloucester	8 "	5,709	6,648	8,774
Total haddock		78,350	85,593	119,776
Halibut ^{2/}:				
Washington	8 mos.	13,887	11,921	16,604
Alaska	8 "	19,672	21,592	33,076
Total halibut		33,559	33,513	49,680
Herring:				
Maine	7 mos.	88,678	60,113	140,472
Alaska (season)	8 "	114,664	103,759	103,759
Mackerel, California:				
Jack	7 mos.	36,722	36,706	76,784
Pacific	7 "	9,702	14,486	47,766
Menhaden	8 mos.	1,150,403	1,553,228	2,076,588
Ocean perch:				
Maine	7 mos.	35,831	40,857	64,967
Boston	8 "	2,629	1,905	2,839
Gloucester	8 "	44,750	61,198	83,303
Total ocean perch		83,210	103,960	151,109
Salmon, Alaska	8 mos.	204,000	251,000	263,896
Scallops, sea, New Bedford	8 "	11,097	9,756	14,243
Shrimp (heads-on)	6 "	62,209	63,945	183,862
Squid, California	7 "	9,842	9,588	15,790
Tuna and bonito, California	7 "	165,810	198,424	409,596
Whiting:				
Maine	7 mos.	14,014	11,326	14,835
Boston	8 "	887	150	413
Gloucester	8 "	62,051	33,914	46,432
Total whiting		76,952	45,390	61,680
Total of all above items		2,181,546	2,622,517	3,790,523
Other ^{3/} (not included)		504,435	450,354	1,409,477
Grand Total		2,685,981	3,072,871	5,200,000

^{1/} Preliminary.
^{2/} Dressed weight.
^{3/} Partial data.
 Note: Round or "as caught" weight unless otherwise indicated.



U. S. Fish Stick Production

JULY-SEPTEMBER 1957: Production of fish sticks in the United States during the third quarter of 1957 totaled 13.3 million pounds. This was 17 percent greater than for the third quarter of 1956. Over 2 million pounds more cooked fish sticks were produced in this period than in the same period in 1956, while raw fish sticks declined around 150,000 pounds.



TRAYS OF COOKED FISH STICKS IN GLOUCESTER, MASS., PLANT READY FOR THE PACKING TABLE.

Month	Cooked	Raw	Total
	... (1,000 Lbs.) ...		
July	3,372	400	3,772
August	4,119	504	4,623
September	4,317	582	4,899
Total 3rd quarter 1957 . .	11,808	1,486	13,294
Total 3rd quarter 1956 . .	9,759	1,645	11,404
Total first 9 months 1957	35,101	4,294	39,395
Total first 9 months 1956	34,098	4,797	38,895

Production in the Atlantic Coast States accounted for 83 percent of the total while the Interior and Gulf States and the Pacific Coast States accounted for the remaining 17 percent.

Area	July-September			
	1957		1956	
	No. of Firms	1,000 Lbs.	No. of Firms	1,000 Lbs.
Atlantic	23	11,001	23	9,454
Interior & Gulf States . .	4	1,217	5	1,250
Pacific Coast States . . .	11	1,076	10	836
Total	38	13,294	38	11,540

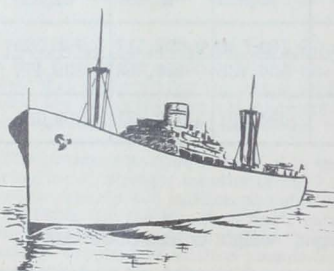
During the first 9 months of 1957, a total of 39.4 million pounds of fish sticks was produced as compared with 38.9 million pounds for the like period in 1956. The peak production month in 1957 was February when 5.3 million pounds were reported. March, April, and May production was down, but since June production has shown an upward trend.

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, SEPTEMBER 1957, P. 48.



U. S. Foreign Trade

GROUND FISH FILLET IMPORTS, SEPTEMBER 1957: During September 1957, imports of groundfish (including ocean perch) fillets and blocks amounted to 8.8 million pounds. Compared with the same month of last year, this was a decrease of 295,000 pounds (3 percent). The principal cause for this drop was a 1.1 million-pound decrease in imports from Iceland.



Canada led all other countries exporting groundfish fillets to the United States in September 1957 with 7.0 million pounds (a gain of 913,000 pounds). As compared with September 1956, imports in September 1957 from the Netherlands and Miquelon and St. Pierre showed a net increase of 70,000 pounds; Norway, Denmark, and West Germany shipped 187,000 pounds less.

Imports of groundfish fillets and blocks into the United States during the first nine months of 1957 totaled 106.4 million pounds--an increase of 3.4 million pounds (3 percent) as compared with the corresponding period of 1956. Canada shipped 75 percent of the total imports during the 1957 period, followed by Iceland with 17 percent, while Norway and Denmark together supplied 6 percent. The remaining 2 percent was supplied by the Netherlands, France, West Germany, Greenland, and Miquelon and St. Pierre.

NOTE: SEE CHART 7 IN THIS ISSUE.

* * * * *

EDIBLE FISHERY PRODUCTS, AUGUST 1957: United States imports of edible fresh, frozen, and processed fish and shellfish in August 1957 were lower by 1.6 percent in quantity and 7.4 percent in value as compared with the previous month. Compared with August 1956, the imports for this August were up 16.9 percent in quantity and 6.3 percent in value. Imports in August this year were higher than in July for canned salmon and raw tuna, but these gains failed to offset lower imports of fillets and blocks, canned sardines, and spiny lobster tails. Compared with the same month in 1956, imports this August were substantially greater for fillets and blocks, canned salmon, and raw tuna. These increases more than offset declines in the imports of shrimp (about 1 million pounds) and slightly lower imports of a few other items.

Imports for August 1957 averaged 27.2 cents a pound as compared with 29.9 cents a pound for the same month of 1956.

Exports of processed fish and shellfish in August 1957 rose 46.3 percent above the previous month and were up 19.6 percent above the same month in 1956. The August 1957 value

of these exports was up 110 percent over the previous month and 90.9 percent higher than in the same month in 1956.

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

Item	Quantity			Value		
	August	Year	Year	August	Year	Year
	1957	1956	1956	1957	1956	1956
	. (Millions of Lbs.)			. (Millions of \$)		
Imports:						
Fish & shellfish:						
Fresh, frozen & processed 1/. .	87.5	74.8	786.6	23.8	22.4	231.6
Exports:						
Fish & shellfish:						
Processed 1/ only (excluding fresh and frozen) . .	5.7	4.8	82.8	2.1	1.1	19.2

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

* * * * *

IMPORTS OF CANNED TUNA IN BRINE UNDER QUOTA PROVISIO: The quantity of tuna canned in brine which may be imported into the United States during the calendar year 1957 at the 12½-percent rate of duty is limited to 44,528,533 pounds. Any imports in excess of that quantity will be dutiable at 25 percent ad valorem.

Imports under the quota from January 1-September 28, 1957, amounted to 30,034,996 pounds, according to data compiled by the Bureau of the Customs. This leaves a balance of 14,493,537 pounds of the quota which may be imported during the balance of 1957 at the 12½-percent rate of duty.



Use of Term "Brevis Red Tide" for "Red Tide"

The association of *Gymnodinium brevis* with the sporadic mass mortality of fish and other marine animals occurring in the Gulf of Mexico since 1947 is fairly well established. Further, investigation in the laboratory has demonstrated that this dinoflagellate in pure culture is toxic to fish. On the basis of this evidence, it has been proposed that the name "brevis red tide" be used for such mortalities instead of the nonspecific term "red tide," which is used commonly in popular and scientific writing. (The Progressive Fish-Culturist, October 1957.)



Utilization of Fish Waste in Northern Oregon for Mink Feed

A challenging problem often met in the fishing industry is how best to utilize fish waste. One solution to this problem has been to convert the waste into feed for fur animals, such as mink.



FIG. 1 - PLANTS PRODUCING MINK FEED ARE LARGE IN ORDER TO PROVIDE AMPLE FROZEN-STORAGE FACILITIES. THIS IS A TYPICAL ONE.

During the last decade, this use has become particularly important in Washington, Oregon, and Northern California, where a substantial fur-farming industry has developed as a result of the availability of fish waste in those areas. In fact, not only the waste

but also certain of the noncommercial species of whole fish are being used where state laws permit, as in Oregon (table 1).

Year	Fillet Scrap	Whole Fish	Total
..... (Millions of Pounds)			
1956	7.2	14.1	21.3
1955	6.3	10.9	17.2
1954	7.2	6.2	13.4
1953	6.2	5.0	11.2
1952	12.8	2.0	14.8
1951	13.2	2.0	15.2
1950	12.1	2.0	14.1
1949	9.6	4.5	14.1
1948	12.1	3.3	15.4
1947	8.5	2.8	11.3
1946	15.3	Unknown	Unknown
1945	15.6	Unknown	Unknown

^{1/}DATA COMPILED BY DR. GEORGE Y. HARRY, JR. AND WALTER G. JONES, AND MADE AVAILABLE THROUGH THE COURTESY OF ALFRED R. MORGAN, AQUATIC BIOLOGIST, FISH COMMISSION OF OREGON.



FIG. 2 - DOCK FOR UNLOADING WHOLE FISH.

Not all fish waste can be used for feeding mink. The waste must be strictly fresh, just as with fish used for human food. It must be relatively free of thiaminase, as otherwise the mink may get Chastex paralysis. And it must not be too oily, since a high content of oil is said to cause yellow-fat disease, especially if the oil is highly unsaturated.



The manufacture of waste into mink feed varies somewhat from one locality to another. In the cities of Astoria and Newport, Ore., the process is essentially one of grinding the waste, placing it in paper bags, freezing the bags with the waste, and holding them in frozen storage until needed. If whole fish are used, the process is the same except that the fish are washed thoroughly before they are ground. The photographs show the various steps in the process.

FIG. 3 - UNLOADING FISH FROM DRAGGER. ON THIS PARTICULAR TRIP, ONLY 20,000 POUNDS OF FISH WERE CAUGHT, OWING TO ROUGH WEATHER. THIS VESSEL HAS A 17-FOOT BEAM AND A LENGTH OF 58-FEET. BEING A COMBINATION BOAT, IT CAN BE USED FOR DRAGGING, TROLLING (FOR BOTH SALMON AND TUNA), AND FOR HALIBUT FISHING. NOTE THE DECK HOSE USED FOR CLEANING THE PEN BOARDS. ABSOLUTE CLEANLINESS IS ESSENTIAL TO THE DELIVERY OF QUALITY FISH.

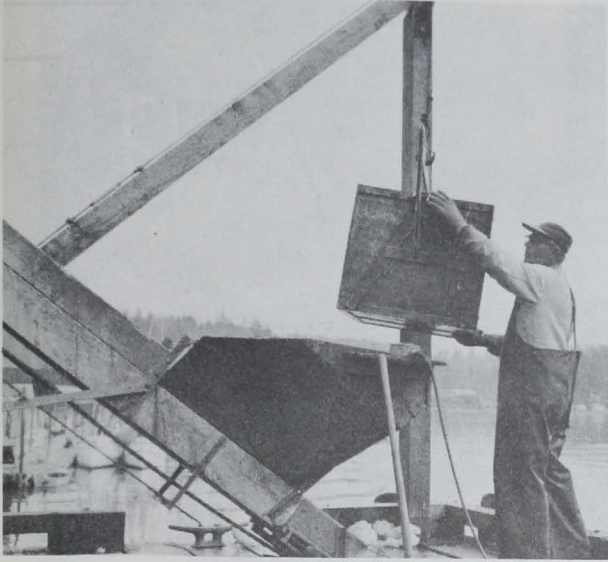


FIG. 4 - PUTTING FISH IN THE HOPPER FOR A CONVEYOR SYSTEM.

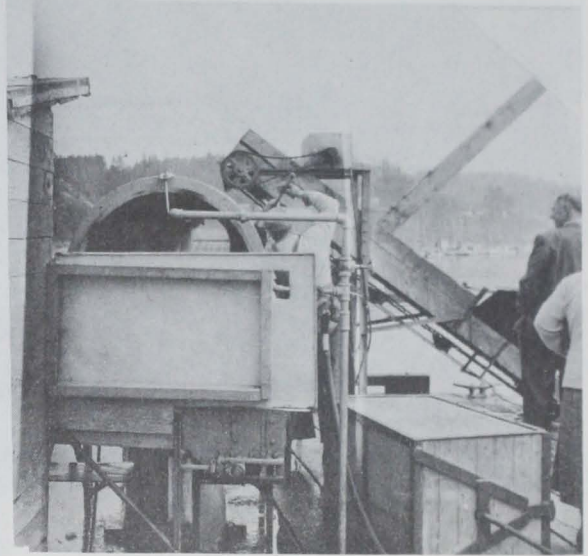


FIG. 5 - WASHING FISH.

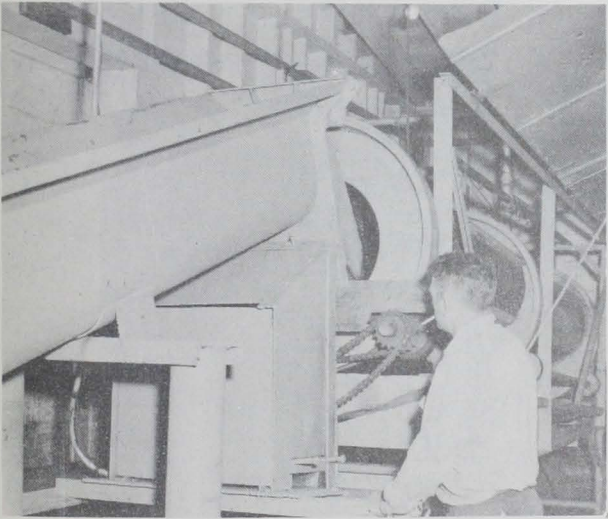


FIG. 6 - FISH WASHER.

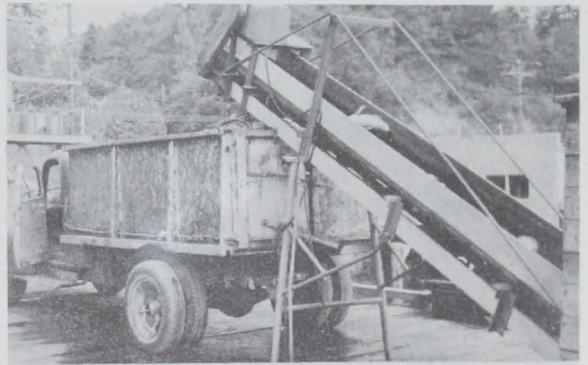


FIG. 7 - LOADING FISH INTO TRUCK.

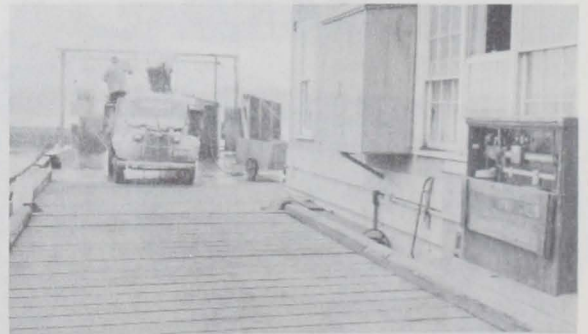


FIG. 9 - SCALE (40,000-POUND CAPACITY) FOR WEIGHING FISH.

FIG. 8 - WASHING EQUIPMENT. METICULOUS CARE MUST BE TAKEN TO ENSURE THE CLEANLINESS OF THE EQUIPMENT.



FIG. 10 - UNLOADING TRUCK.

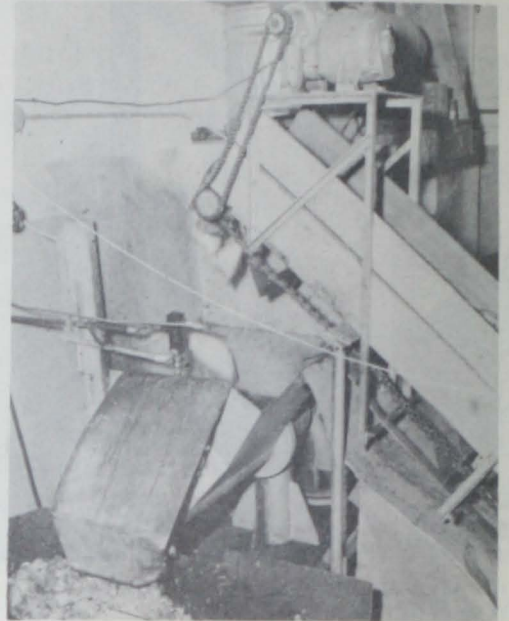


FIG. 11 - GRINDER (REQUIRES 15-HORSEPOWER MOTOR).

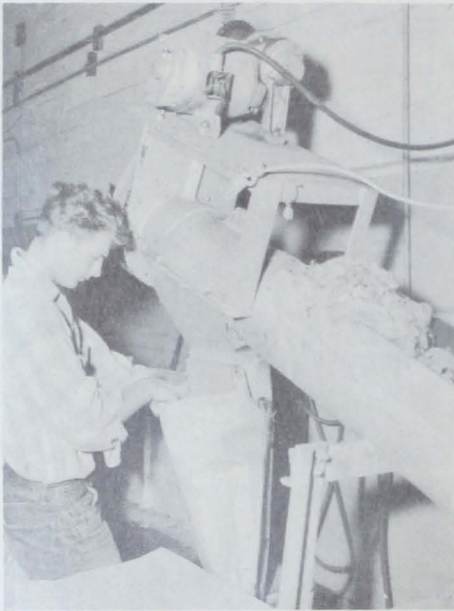


FIG. 12 - FILLING BAG WITH FISH THAT HAS BEEN GROUND UP. THESE ARE THREE-PLY BAGS WITH POLY-ETHYLENE LINERS. EACH BAG HOLDS 55 POUNDS OF GROUND FISH.

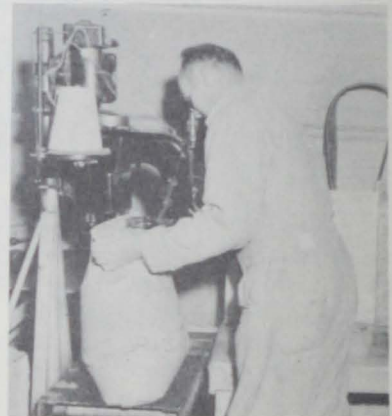


FIG. 13 - BAG-SEWING MACHINE. THIS MACHINE WILL SEW SEVEN BAGS PER MINUTE.



FIG. 14 - THIS BAGGING AND SEWING OPERATION WILL HANDLE 500 POUNDS OF GROUND FISH PER MINUTE.

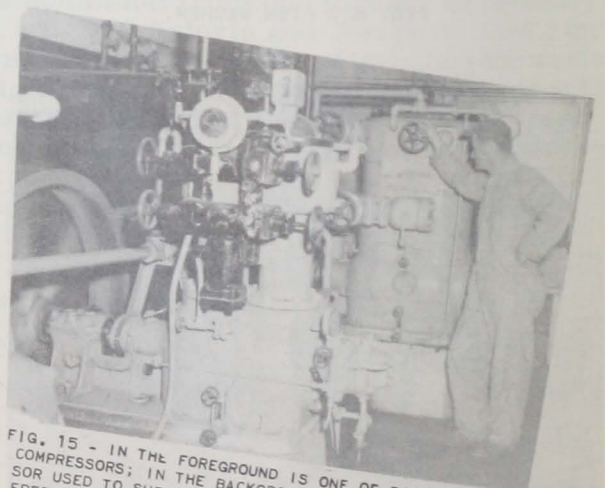


FIG. 15 - IN THE FOREGROUND IS ONE OF FOUR AMMONIA COMPRESSORS; IN THE BACKGROUND IS A BOOSTER COMPRESSOR USED TO SUPPLY THE REFRIGERATION FOR THE SHARP FREEZER.

FIG. 16 - AMMONIA REFRIGERATION EQUIPMENT USED TO MAINTAIN THREE SHARP-FREEZING ROOMS AT -40° TO -50° F. AND THREE STORAGE ROOMS AT -10° F. THE THREE SHARP-FREEZING ROOMS HAVE A FREEZING CAPACITY OF 70,000 TO 80,000 POUNDS OF FISH A DAY. THE SYSTEM EMPLOYS AUTOMATIC CONTROLS; HENCE, A NIGHT ENGINEER IS NOT REQUIRED.

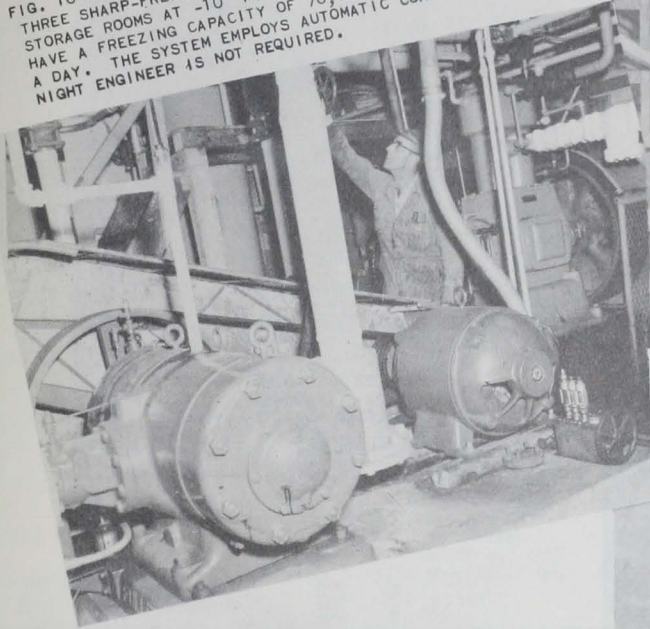


FIG. 17 - TRUCKING BAGS INTO SHARP FREEZER.

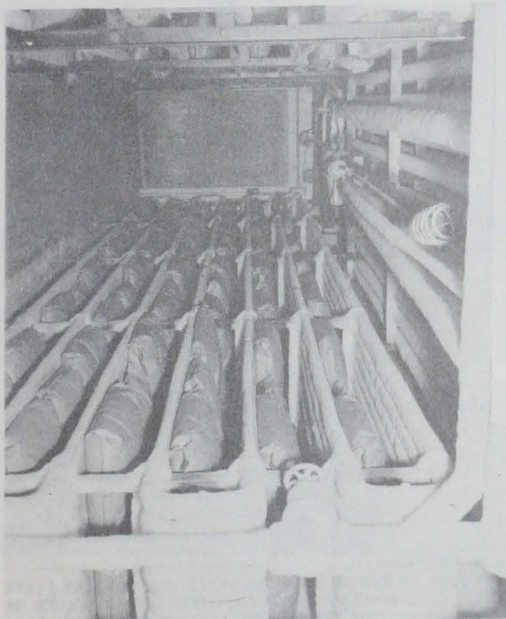


FIG. 18 - SHARP FREEZER WITH A CAPACITY OF 15 TONS. THE BAGS OF GROUND FISH ARE COMPLETELY FROZEN IN 20 HOURS.



FIG. 19 - BAGS OF GROUND FISH IN FROZEN STORAGE. THIS ROOM WILL HOLD 450 TONS OF BAGGED FISH.

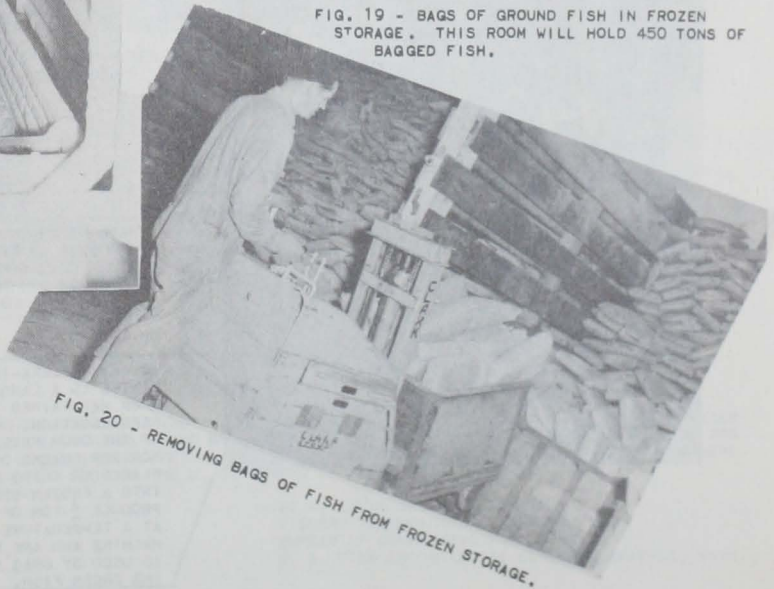


FIG. 20 - REMOVING BAGS OF FISH FROM FROZEN STORAGE.



FIG. 21 - COMING OUT OF VESTIBULE OF FROZEN-STORAGE ROOM WITH BAGS OF GROUND FISH THAT HAVE BEEN IN FROZEN STORAGE.



FIG. 22 - LOADING BAGS ONTO CONVEYOR, LABOR-SAVING DEVICES ARE EMPLOYED WHEREVER POSSIBLE.



FIG. 23 - LOADING BAGS FROM CONVEYOR INTO TRUCK OF FUR FARMER.

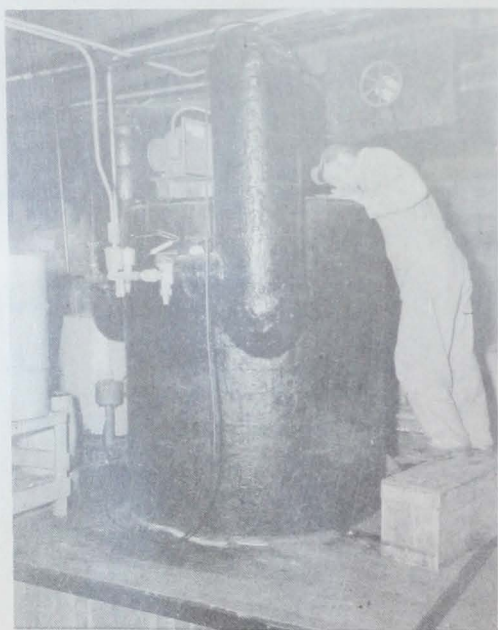


FIG. 24 - FLAKE-ICE MACHINE. ESSENTIALLY, THIS DEVICE IS A LARGE, HOLLOW, VERTICALLY-MOUNTED DRUM MAINTAINED AT A LOW TEMPERATURE BY MEANS OF REFRIGERATION. WATER SPRAYED ONTO THE INNER WALL OF THE DRUM FREEZES IN A THIN LAYER. A ROTATING SCRAPER CRACKS OFF THE ICE, AND THE RESULTING FLAKES OR CHIPS FALL THROUGH THE BOTTOM OF THE DRUM INTO A FROZEN-STORAGE ROOM BELOW. THIS MACHINE WILL PRODUCE $\frac{3}{4}$ -TON OF FLAKE ICE AN HOUR. THE FLAKES ARE AT A TEMPERATURE OF 5° F. WHEN THEY COME FROM THE MACHINE AND ARE HELD AT 0° F. UNTIL NEEDED. THE ICE IS USED BY DRAG BOATS AND BY FUR FARMERS WHEN HAULING FRESH FISH.

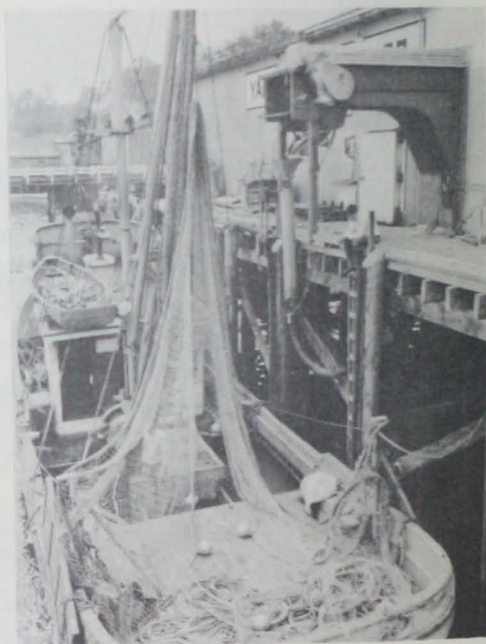


FIG. 25 - FACILITIES FOR LOADING FLAKE ICE INTO FISHING VESSEL. THE ICE IS LOADED BY MEANS OF THE FUNNEL-HOSE DEVICE LYING AGAINST THE SIDE OF THE DOCK.



FIG. 26 - FROZEN STORAGE FACILITIES OF FUR FARMER AT BAY CITY, ORE. FISH PRODUCTS ARE OBTAINED FROM ASTORIA, NEWPORT, AND NEARBY GARIBALDI. THE PRODUCTS, IF NOT BAGGED, ARE FROZEN AND THEN ICE GLAZED TO PREVENT DESICCATION AND OXIDATION.

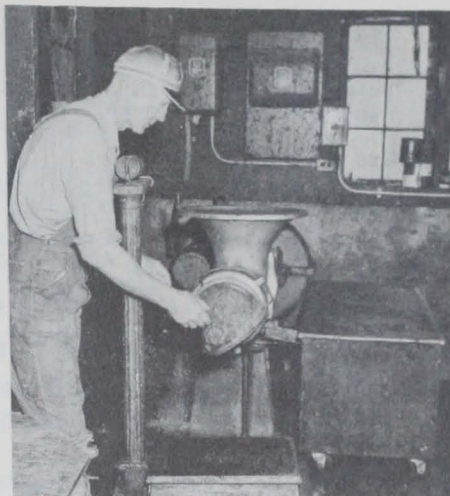


FIG. 27 - PREPARING TO GRIND FISH IN A FUR FARM. PLATES HAVE $\frac{1}{8}$ - OR $\frac{1}{2}$ - INCH HOLES. THE DEVICE IS RUN BY A 25-HORSEPOWER, 3-PHASE MOTOR AND WILL GRIND ABOUT 2.5 TONS OF FISH AN HOUR.



FIG. 28 - LOADING GROUND-UP FISH MIXTURE INTO CART. THE MIXER BEHIND THE WORKMAN IS RUN BY A 5-HORSEPOWER, 3-PHASE MOTOR.



FIG. 29 - TRANSFERRING FISH MIXTURE TO PAIL.



FIG. 30 - FEEDING GROUND FISH MIXTURE TO MINK KITS. THIS FARM AND TWO ASSOCIATED ONES PROVIDE A YEAR-AROUND LIVELIHOOD FOR FOUR MEN AND THEIR FAMILIES. DURING THE PELTING SEASON, TWO ADDITIONAL PERSONS ARE EMPLOYED.

NOTE: ACKNOWLEDGMENT: THE AUTHOR GRATEFULLY ACKNOWLEDGES THE KIND AID OF CHARLES SMITH, PRESIDENT; MARVIN HILLE, MANAGER (ASTORIA); FRANK SCHAUB, FOREMAN; ORVAL HART, CHIEF ENGINEER; AND NORMAN GREEN, MANAGER (NEWPORT) OF THE OREGON FUR PRODUCERS ASSOCIATION; CAPTAIN GORDON WHITE, OF THE DESTINY; ROBERT H. WATT, AND BOB WATT, AND GEORGE IMHOFF, MINK FARMERS AT BAY CITY, ORE.; AND FRED C. CLEAVER AND MARTIN HEERDT OF THE U. S. BUREAU OF COMMERCIAL FISHERIES.

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West Coast Albacore Fishermen Adapt Unique Method for Relaying Information by Ship's Radio

Albacore tuna fishermen on the Pacific Coast during the last several years have adapted a rather unique method for relaying information by radio. At present ship-to-ship radio conversations are conducted on two Federal Communications Commission authorized frequencies, 2638 kilocycles and 2738 kilocycles. Due to the large amount of traffic on the air it is almost impossible for a vessel to transmit any distance unless he has a powerful set. The larger sets are able to drown out the smaller ones, but even the large powerful sets have trouble putting out over 100 miles. Much confusion with interrupted conversations take place so that practically every call takes much longer to complete, and most distant messages are so garbled that they make sense to no one.

Larger sets do not solve the problem because the same confusion will be continued only on a louder and noisier basis. Probably the classic remark that this observer heard on the air relative to this problem was: "Things are really getting out of balance. I have a 60-watt set on a 1,000-foot boat, and this other fellow over-riding me has a 1,000-watt set on a 60-foot boat, so I don't know exactly what I am going to have to buy in order to transmit."

As albacore range over a wide area from Guadalupe Island, off Lower California, up the coast of California and Oregon, and off Grays Harbor, Wash., fishermen are constantly seeking information from other areas. Being a rapidly swimming fish, it is not uncommon for albacore to disappear in one area and show up 100 miles away several days later. Fishermen in an area where the fish have disappeared immediately all get on the air trying to find out where the fish have gone. This creates confusion and the fishermen have difficulty in getting proper information for their next move.

Recognizing the problem, a few of the vessel owners got together in an effort to arrive at some solution. It was decided that they would seek the cooperation of all of the other groups using the same frequency; such as, other fishing vessels, yachtsmen, sports-fishing operators, tugboat men, etc. They felt that if they could have the air to themselves for one hour a day they could get all the information they desired on the air in that time, and if the other operators were willing to voluntarily stay off the air for that period, a great deal of "hash" or confusion would be eliminated. There are approximately 15,000 vessels with transmitters registered on the Pacific Coast, and when one considers that there are over 1,500 albacore vessels on the West Coast, it is easy to understand how eliminating most of their transmissions would help the picture greatly. The other operators agreed to cooperate, and it was decided that each day during the albacore season all vessels would stay off the air between 12 noon and 1 p.m. This was cut down to 12 noon to 12:30 p.m. when it was found that all of the information could be collected or relayed in half an hour. Each day a vessel is appointed by the previous day's chairman to serve as chairman for that day. Promptly at 12 noon all vessels go off the air, and the chair-

man transmits his position, fishing conditions, weather, and any other pertinent data. Step by step he works his way up the coast calling other vessels in each fishing area. Each in turn gives the desired information all the way from Guadalupe Island to Grays Harbor. If transmission happens to be poor on any given day, the messages are relayed by vessels in between.

Surprisingly enough this "Silent Hour" has received practically 100-percent cooperation from all other vessels. The information given has undoubtedly saved lives as a few vessels have gone on the air during the "Silent Hour" and put out distress messages which probably could not have been heard otherwise. It has saved fishermen time and money in prospecting for fish, and has greatly assisted others to get special messages in times of emergency at home.

Most cannery operators listen to the reports along with the fishermen, and are able to keep abreast of what takes place on the fishing grounds daily, thereby, becoming more efficient in their operations.

With the large number of vessels of all types coming into the small boat field yearly, the traffic on the air in most regions is getting so heavy that it is practically impossible to get messages through. With someone to take the lead, a program of this type can be worked out and part of the traffic practically eliminated.

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Wholesale Prices, October 1957

Changes in the over-all edible fish and shellfish (fresh, frozen, and canned) wholesale price index (119.3 of the 1947-49 average) from September to October 1957 were slight. Prices were quite stable on the average, with increases and decreases just about balancing each other out. Compared with the same month a year ago, prices this October rose 6.0 percent.

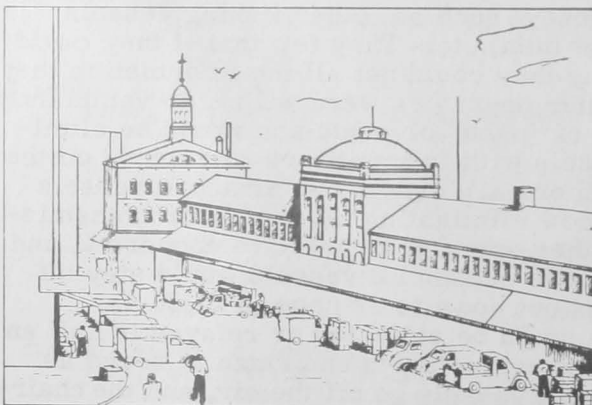
From September to October this year prices declined (4.4 percent) for all the items in the drawn, dressed, or whole finfish subgroup, except for large haddock prices at Boston which increased about 20.5 percent. Declines in the prices for Pacific Coast halibut (down 19.5 percent) and king salmon (down 3.3 percent) were due to the changeover in October from fresh to frozen prices. Lower prices for the fresh-water fish items were normal following the strong September holiday market. The market this October continued to be firm for haddock at Boston due to seasonally-low catches, low inventories, and a good demand. This October's index

for this subgroup was 9.6 percent above the same month in 1956 due to higher prices for all items except halibut (down 17.1 percent) and lake trout (down 14.6 percent). The most pronounced increase this October was in the large haddock price which was 75.1 percent higher than in October 1956.

Fresh processed fish and shellfish prices in October this year were up 2.0 percent from September, due primarily to firm fresh shrimp prices following the rather sharp decline that occurred in September. Higher prices this October for small haddock were reflected in an increase of 14.7 percent in fresh haddock fillet prices at Boston as compared with the previous month. As compared with October 1956, the index for the subgroup this October increased 6.7 percent due to higher haddock fillet and shrimp prices. Oyster prices remained unchanged from a month ago and a year ago this October.

Frozen processed fish and shellfish prices increased 2.0 percent from September to October due to the stronger market for frozen shrimp prices (up 5.1 percent) at Chicago. Frozen fillet prices remained firm except that frozen haddock fillet prices at Boston were down about one cent a pound. As compared with October 1956, the subgroup index this October was higher by 12.2 percent, due principally to higher shrimp prices (up 21.2 percent) and frozen haddock fillet prices (up 3.7 percent). This October's flounder fillet prices were slightly lower and ocean perch fillet prices were unchanged from the same month in 1956.

Although the subgroup index for canned fishery products in October this year remained almost at the same level as the previous month, there were some significant price changes among the individual items included in this subgroup. From September to October canned light meat chunk-style tuna prices rose 2.2 percent and were 5.6 percent higher than in the same period in 1956. Offsetting this increase, canned California sardine prices dropped 5.5 percent and Maine sardine prices dropped 2.0 percent from September to October. The drop in California sardine prices reflect the current price for the 1957 pack. But since the pack to the end of October was substantially less than the previous year, fu-



ture prices will depend on the outcome of the fishery during the last two months of the year. Compared with October 1956, canned prices this October for California sardines were up 9.7 percent, but for canned Maine sardines they were down

16.1 percent. There is very little technical reason for any changes in the canned salmon market because light stocks are counterbalanced by some resistance to any further price increases.

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, October 1957 With Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices ^{1/} (\$)		Indexes (1947-49=100)			
			Oct. 1957	Sept. 1957	Oct. 1957	Sept. 1957	Aug. 1957	Oct. 1956
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					119.3	120.0	116.0	112.5
Fresh & Frozen Fishery Products:					133.1	134.3	127.0	122.0
Drawn, Dressed, or Whole Finfish:					134.3	140.5	112.9	122.5
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.12	.10	118.0	97.9	80.6	67.4
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.35	.44	109.6	136.1	99.0	133.5
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.73	.75	162.9	168.5	133.7	150.6
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.64	.73	158.7	179.7	151.2	135.9
Whitefish, L. Erie pound or gill net, rnd., fresh	New York	lb.	.98	.97	197.2	195.1	161.8	161.8
Lake trout, domestic, No. 1, drawn, fresh	Chicago	lb.	.64	.67	131.1	137.3	125.0	153.6
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.51	.63	119.6	146.6	152.4	83.3
Processed, Fresh (Fish & Shellfish):					133.8	131.6	134.0	125.4
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.39	.34	132.7	115.7	103.8	91.9
Shrimp, lge. (26-30 count), headless, fresh	New York	lb.	.78	.77	122.5	120.9	133.5	112.2
Oysters, shucked, standards	Norfolk	gal.	6.00	6.00	148.5	148.5	142.3	148.5
Processed, Frozen (Fish & Shellfish):					119.2	116.9	131.3	106.2
Fillets; Flounder, skinless, 1-lb. pkg.	Boston	lb.	.39	.39	100.8	100.8	102.1	102.1
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.29	.30	89.5	92.6	91.0	86.3
Ocean perch, skins on, 1-lb. pkg.	Boston	lb.	.27	.27	108.8	108.8	108.8	108.8
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	lb.	.83	.79	128.1	121.9	148.9	105.7
Canned Fishery Products:					99.7	99.6	100.3	99.0
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	22.65	22.65	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.	11.45	11.20	82.6	80.8	80.8	78.2
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 48 cans/cs.	Los Angeles	cs.	8.50	9.00	99.2	105.0	105.0	90.4
Sardines, Maine, keyless oil, No. 1/4 drawn (3-1/4 oz.), 100 cans/cs.	New York	cs.	6.46	6.59	68.7	70.1	75.9	81.9

^{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.



Fishery Market News Service Observes Twentieth Birthday

The Fishery Market News Service, which serves as the eyes and ears of the fishing industry by collecting and disseminating commercial fishery information, will celebrate its twentieth anniversary on November 30, the Department of the Interior announced.

The Fishery Market News Service, which was organized in 1937, issues daily market news reports covering all aspects of the fishing industry for the use of the fishermen, buyers, and distributors. Today, it operates in Boston, Chicago, New Orleans, New York, San Pedro, Seattle, and Hampton, Va., as an activity of the U. S. Bureau of Commercial Fisheries.

Since timeliness is important in the market news program, the Bureau of Commercial Fisheries has an average of 40 reporters and agents in principal landing ports and market areas, gathering and transmitting information on landings, receipts, stocks, canned packs, market trends and conditions, prices, and developments in the fishery and allied industries.



The seven offices of the Fishery Markets News Service relay pertinent data to each other, and each office in turn releases information to interested persons in its area. In this way, a fisherman landing halibut in the Seattle area knows the wholesale price that species is bringing that day in New York and Chicago. In the same way, the distributors in New York and Chicago and elsewhere know how much fish is being landed on the West Coast on that day and the prices paid to the boats.

The shrimp fishermen in the Gulf and South Atlantic ports know the prices of shrimp in New York, Chicago, and Los Angeles, and the Boston fishermen and dealers know the price of frozen fillets in Chicago and New York. With all this complete and current information, business transactions relating to fish or fishery products can be conducted with each interested party having all the authentic data necessary for intelligent bargaining and making sound business decisions.

The market information is made available to the public through daily mimeographed releases called Fishery Products Reports, by telephone, personal contact, collect telegrams, and in some instances through radio and newspapers. Each office issues its own daily report, which is designed to meet the needs of the fishery industries in its area.

There are about 9,000 subscribers to the daily mimeographed reports. Most of these are persons interested in the daily market transactions. The reports are sometimes used as the basis for "open-end" contracts in which the seller and buyer

agree that the price of a shipment will be the highest paid for that product at a designated market on the day of delivery as reported in the daily report issued by a specific office.

The mailing lists include not only fisheries people but lawyers, research analysts, investment analysts, marine accountants, transportation companies, chemical companies, gear manufacturers, banks, and many others.

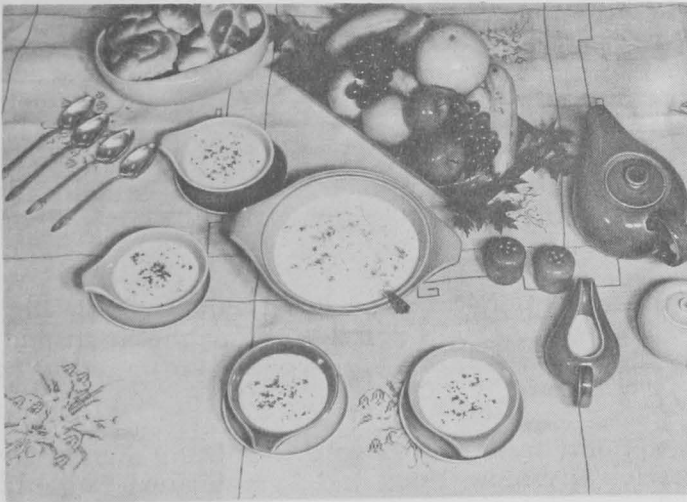


CORRECTION

Article "New Fishery For Small Shrimp" on p. 42 of the November 1957 issue of Commercial Fisheries Review, first sentence should read: "The catch of small pink shrimp landed at Westport, Wash., exceeded one million pounds for the year ending June 30, 1957."

HOT TUNA CHOWDER

Wintry breezes mean good appetites. One of the most satisfying meals, which can be quickly prepared, is composed of a steaming bowl of tuna chowder, accompanied by crisp crackers, a tossed salad, and apple pie.



Canned tuna is a "natural" as the basic ingredient for a steaming chowder since it is a familiar item in almost every American home. It is also economical, excellent nutritionally, easy-to-prepare, and tasty.

The home economists of the U. S. Bureau of Commercial Fisheries suggest that you take advantage of the abundance of tuna on the market and serve a "Tuna Chowder" after the game.

TUNA CHOWDER

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| 1 CAN (6½ OR 7 OUNCES) TUNA | 3 TABLESPOONS BUTTER OR OTHER FAT |
| 1 CUP DICED POTATOES | 3 TABLESPOONS FLOUR |
| 1 CUP TOMATO JUICE | 1 TEASPOON SALT |
| 1 MEDIUM ONION, SLICED | ¼ TEASPOON PEPPER |
| ½ TEASPOON CELERY SEED | 3 CUPS MILK |
| 1 CUP BOILING WATER | CHOPPED PARSLEY |

Drain tuna. Break into large pieces. Combine potatoes, tomato juice, onion, celery seed, and boiling water. Cook for 15 to 20 minutes or until potatoes are tender. Add tuna. Melt butter; blend in flour and seasonings. Add milk gradually and cook until thick and smooth, stirring constantly. Add to tuna mixture; heat. Garnish with parsley sprinkled over the top. Serves 6.