

# TRENDS AND DEVELOPMENTS

## Additions to the Fleet of U. S. Fishing Vessels

In December 1953, 57 vessels of 5 net tons and over received their first documents as fishing craft--28 more than in December 1952. Florida west coast led with 14 vessels, followed by Louisiana with 9 vessels, and Virginia and Florida east coast with 7 vessels each.

During the year 1953 a total of 729 vessels were documented for the first time as fishing vessels, compared with 675 vessels in 1952. Of the total vessels documented in 1953, 495 were built in 1953, 70 in 1952, and the remainder (164) in years prior to 1952.

Section	December		Total			
	1953	1952	1953	1952	1951	1950
	..... (Number) .....					
New England ...	1	-	20	30	36	36
Middle Atlantic .	-	2	19	26	34	45
Chesapeake ....	7	2	83	65	36	81
South Atlantic ..	16	5	116	89	118	153
Gulf .....	28	17	264	161	173	167
Pacific .....	4	3	164	203	284	231
Great Lakes ...	-	-	7	13	25	12
Alaska .....	1	-	53	88	71	83
Hawaii .....	-	-	3	-	3	4
<b>Total .....</b>	<b>57</b>	<b>29</b>	<b>729</b>	<b>675</b>	<b>780</b>	<b>812</b>

Note: Vessels have been assigned to the various sections on the basis of their home port.

Year	Number	Year	Number
1953	729	1944	635
1952	675	1943	358
1951	780	1942	358
1950	812	1941	354
1949	1,002	1940	320
1948	1,184	1939	357
1947	1,300	1938*	376
1946	1,085	1937	335
1945	741	1936*	435

\* Partly estimated.



### California

**YELLOWTAIL TAGGED BY "YELLOWFIN"** (Cruise 54-Y-1): A total of 132 yellowtail was tagged with vinylite tubing tags having monofilament nylon cores for fastening by the California Department of Fish and Game's research vessel Yellowfin on a two-week cruise completed at Los Angeles on January 17.

The cruise was made in the area along the coast of Baja California from Cedros Island to Pt. Abreojos, and the area known as the 13-fathom spot to the eastward of Uncle Sam Bank.

Experiments were also carried out with the blanket net under varied conditions on various fishes, with emphasis on the sardines, anchovies, Pacific mackerel, and jack mackerel.

A total of 24 light stations were occupied at which 52 sets were made with the blanket net. Of the 24 stations occupied, 14 yielded sardines, 8 Pacific mackerel,

and 2 jack mackerel. Approximately 8,000 sardines were taken. The largest number of sardines taken in a single set was approximately 2,200.

In general, the blanket net proved successful as a means of sampling fish attracted to a light, and also as a method of catching bait. The net worked quite well under the various conditions of wind and sea, provided it was set on the windward side of the vessel. During the trip additional weight was added to the center of the lead line and to the center of the bag. This aided in pulling the net down more quickly and evenly.

Samples of Pacific and jack mackerel were collected along the coast of Baja California and data gathered for food and maturity studies, age composition, and racial studies. Including daytime stations, Pacific mackerel were found at 9 of 35 locations and approximately 335 individuals were collected. From these a total of 85 were saved for future study. In general the species appeared to be relatively abundant throughout the survey area.



### Cans--Shipments for Fishery Products, 1953



Total shipments of metal cans for fish and sea food during 1953 amounted to 103,501 short tons of steel (based on the amount of steel consumed in the manufacture of cans), compared to 107,856 short tons in 1952 and 105,704 short tons in 1951. The decline in 1953 was probably due to smaller packs of Maine sardines and California pilchards.

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



### Federal Purchases of Fishery Products

**PURCHASES OF FRESH AND FROZEN FISH BY DEPARTMENT OF THE ARMY:**  
December 1953: Fresh and frozen fishery products purchases for the military feeding of the U. S. Army, Navy, Marine Corps, and Air Force by the Army Quartermaster Corps in December 1953 amounted to 1,361,536 pounds, valued at \$601,920 (table 1). This was a decrease of 22.8 percent in quantity and 28.3 percent in value as compared with November purchases. However, December purchases were 22.7 percent greater in quantity, but 4.6 percent less in value than a year earlier due to the much higher prices in December 1952.

Table 1 - Purchases of Fresh and Frozen Fishery Products by Department of the Army (December and the 12 Months of 1953 and 1952)

QUANTITY				VALUE			
December		January-December		December		January-December	
1953	1952	1953	1952	1953	1952	1953	1952
Lbs.	Lbs.	Lbs.	Lbs.	\$	\$	\$	\$
1,361,536	1,109,663	26,769,073	32,275,567	601,920	630,940	11,857,012	15,049,599

Army Quartermaster Corps purchases of fresh and frozen fish in 1952 amounted to 26,769,073 pounds (valued at \$11,857,012)--a decrease of 17.1 percent in quantity and 21.2 percent in value as compared with 1952, and 15.1 percent lower in quantity and 13.1 percent less in value than in 1951.

Prices paid for fresh and frozen fishery products by the Department of the Army in 1953 averaged 44.3 cents per pound as compared with 46.6 cents in 1952 and 43.2 cents in 1950.

January 1954: The Army Quartermaster Corps in January 1954 purchased 1,328,499 pounds (valued at \$597,452) of fresh and frozen fishery products--2.4 percent less in quantity and 0.7 percent less in value than purchases in December 1953 (table 2). When compared with a year earlier, January purchases were down 14.7 percent in quantity and 28.9 percent in value.

Table 2 - Purchases of Fresh and Frozen Fishery Products by Department of the Army (January 1954 and 1953)

QUANTITY		VALUE	
January		January	
1954	1953	1954	1953
Lbs.	Lbs.	\$	\$
1,328,499	1,558,172	597,452	1,084,996

An average price of 45.0 cents per pound was paid by the Department of the Army for fishery products purchased

in January 1954, compared with 53.9 cents per pound in January 1953. Prices during the early part of 1953 were higher than for any period in the past few years.

In addition to the purchases of fresh and frozen fishery products indicated above, the Armed Forces generally make some local purchases which are not included in the above figures. Therefore, actual purchases are somewhat higher than indicated, but it is not possible to obtain data on the local purchases made by military installations throughout the country.



### Foreign-Flag Vessels Cannot Land Tuna Catch or High-Seas Cargo in U. S.

In order to determine if there was a loophole in the regulations forbidding landings of fish by foreign-flag fishing vessels, the Service asked the Commissioner of Customs whether a foreign-flag vessel could land its catch of tuna taken on board on the high seas (1) at a port in the United States for transshipment in bond through the United States, or (2) at a foreign Trade Zone in the United States. In a letter dated February 4, 1954, the Bureau of Customs replied as follows:

"Unless it is a vessel which fulfills the conditions of section 4.96 (g) of the Customs Regulations (19 CFR 4.96(g)), relating to certain foreign vessels which arrive in the United States in distress, a foreign-flag vessel is prohibited by section 4311 of the Revised Statutes, as amended (46 U.S.C. 251), whether documented as a cargo vessel or otherwise, from landing at a port of the United States its catch or cargo of tuna taken on board on the high seas, regardless of the ultimate disposition intended to be made thereof. The prohibition applies as well to foreign-trade zones in the United States."

This inquiry was made to obtain clarification of the provisions of the law mentioned with respect to whether such landings in a port of the United States could be transshipped in bond through the United States to another country, or whether such landings could be made at a foreign Trade Zone in the United States. In the latter case ultimate disposition might have involved reshipment back to the country of the vessel, transshipment in bond through the United States, reshipment via a United States vessel to a port of the United States, or processing sufficiently in the foreign Trade Zone to permit entry into the United States.



## Frozen Food Packers Convention

### FROZEN FOOD (INCLUDING FISHERY PRODUCTS) PROBLEMS DISCUSSED:

Several thousand delegates representing all segments of the frozen foods industry recently attended the four-day (January 31-February 3) convention of the National Association of Frozen Food Packers in New York City. The convention agenda was said to be the most ambitious ever staged for the industry.

More than 2,000 conventioners ate a luncheon at the convention consisting entirely of prepared frozen foods, the first time it has been possible to stage such an event. Among the fishery products sampled were: fish hors d'oeuvres, fish sticks, fried breaded fantail shrimp, deviled crab in shells, breaded white fish, rainbow trout, swordfish, and frog legs.

Because of the tremendous importance of frozen fishery products, many of the items discussed at the convention were of direct interest to the fishing industry. Also, because of the increased competition that is developing within the frozenfoods industry, many of the discussions may have a direct bearing on the future economic progress of the frozen fish and shellfish industry.

The sessions offered studies on better market knowledge, private and brand-name labeling, grading of foods, transportation, research, prepared frozen foods, warehousing, raw-material procurement, food brokerage and distribution, product handling at the retail level, and packaging. Delegates represented packers, rail and motor carriers, food brokers, distributors, supermarket and chain store operators, warehousemen, suppliers, cooperatives and voluntary buying groups, and independent retailers.

Among the convention highlights was the first report made on a recent Government study of handling frozen foods at the retail level. This study, conducted in cooperation with a group of supermarket organizations, was made to determine how retail food stores could increase labor productivity and reduce costs through improved methods, equipment, materials, and layout of frozen food departments.



ods, warehousing, and transportation of frozen foods by rail and motor carriers.

Other topics discussed at the convention included size and weight of packages, physical handling and marking goods at retail, grading, market research, methods of display, trends in distribution, personnel and store-operating meth-

FROZEN FOODS OUTLOOK VERY GOOD: The general theme of the convention was that 1954 already shows signs of being a most auspicious year for the frozen foods industry. It is estimated that per-capita consumption of frozen foods during 1953 advanced 10 to 15 percent over the previous year, and 1954 should show a similar growth.

Prepared frozen foods made from a combination of products, and ready to be warmed and eaten, have the greatest sales potential in the frozen foods industry. More than 30 percent of frozen-food sales on the West Coast are for prepared products, and a similar development is expected in the East.

In a panel discussion of the future of prepared frozen foods, a featured speaker stated that prepared products have the greatest possibilities for retailers. The speaker warned, however, that it was up to the packers to merchandise the new products to the consumer before introducing them. "It is not enough to have the retailer stock the new items in his display cases. Mrs. Consumer must be presold by advertising and merchandising."

A New England frozen-food distributor said that only 10 percent of the population has tasted prepared frozen foods and 2 percent has accounted for most of the sales. He claimed that prepared frozen products now are equal to, or superior to, canned or fresh counterparts, both in quality and price, and have the added quality of convenience.

A representative of the National Association of Refrigerated Warehouses disclosed that space for perishable foods in refrigerated warehouses is currently increasing at the rate of 7 to 8 million cubic feet annually. Since the end of World War II, total cubic footage for perishable foods has increased to 450 million cubic feet from 390 million in 1945. The speaker further pointed out that 50 percent of the nation's refrigerated warehouses now have mechanical materials-handling equipment to keep frozen foods moving quickly off the loading platform and that many warehouses no longer are satisfied with maintaining zero temperatures and are going to levels of 20 degrees below zero.

THE RETAILER SPEAKS TO THE FROZEN FOOD PACKERS: The frozen food packers were given an opportunity to hear the retailers' side of "merchandising frozen foods." The following "do's and don'ts" for frozen-food packers were stressed by one retail grocers' representative from the Pacific Coast:

"Continued study for improved quality and new varieties is most important to the continued progress of the industry.

"Attractive and practical packaging for more consumer eye appeal and quality protection can best be handled at packer level. Also, casing of product in line with distributor organization surveys for proper number of units to minimize costly break-ups, and for proper case sizes for palletization and mechanical handling.

"Packers could well afford to work together to standardize on the most logical package size--the size for each product that will fill the greatest consumer need.

"We look to packers to continue research for new products with volume potential. New items add life to the industry, and buyers like them despite appearance to the contrary.

"Packers and their sales organizations are welcome also because of the sales and merchandising help supplied at both headquarters and retail level. A word of caution--please be certain the men sent to the field are well trained and that they have something to offer besides a visit.

"We look to packers and their representatives to supply a sound advertising program that will cause consumers to look for that label in the cabinet. In most cases, this means a program designed for the marketing area involved and aimed at a rifle-shot not shot-gun blast target.

"Don't force a lower profit structure on retailers....

"Have ample product to back up advertising and deals. Mystery can be rather intriguing, but not when it is The Case of the Missing Case.

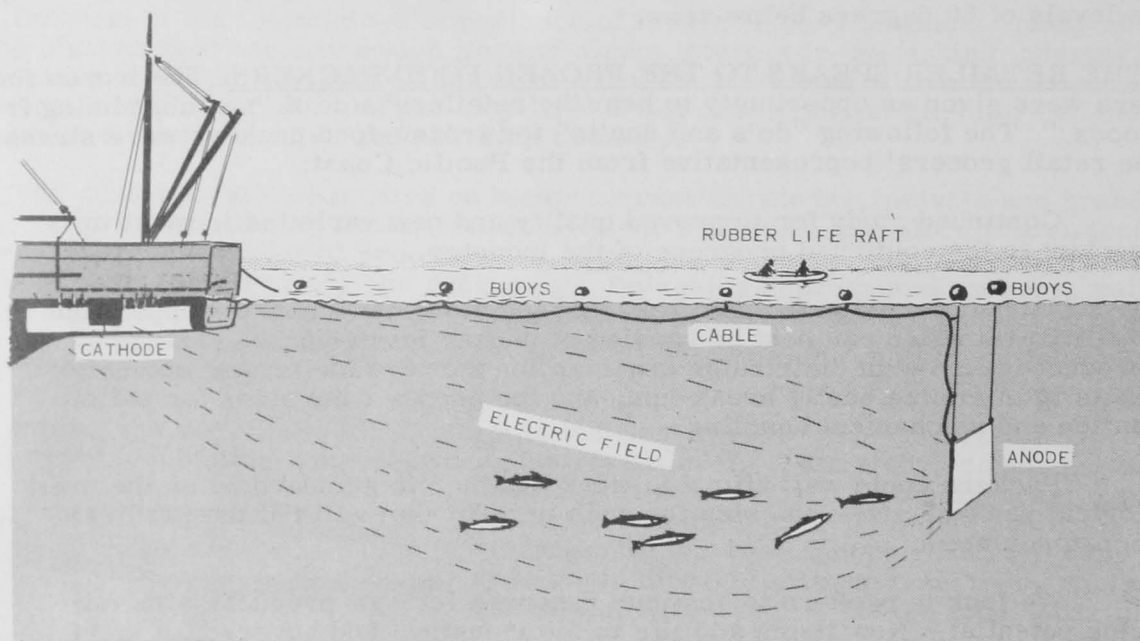
"It is our thought that this industry--all phases--can best learn together through an exchange of ideas. We depend on the advice of those experienced in their fields, and we seek your suggestions; but, we ask for and appreciate the privilege of a continued exchange of ideas and experiences."

Frozen fishery products were mentioned prominently at this important meeting of packers, distributors, retailers, and consumers, and considerable interest was shown in the wide variety of fish and shellfish displayed at the convention. The consensus of opinion among the conventioners seemed to be that fishery products have a great future--provided they meet the challenge that is developing in the other competitive food lines.



## German Electrical-Fishing Vessel Arrives in United States

The German electrical-fishing vessel R-96 has arrived in the United States, reports the December 26 issue of The Fishing News, a British fishery magazine.



An artist's conception of how the electrical-fishing experiments were conducted at sea.

The vessel will commence electro-fishing during the early part of 1954. (Editor's note: It is reported that the R-96 will operate in a fishery off the Middle Atlantic Coast.)

In a recent interview, Dr. P. F. Meyer of the Fishery Institute of Hamburg said: "Our experiments in regard to ocean fishery by means of electro-anaesthesia have been concluded. Scientifically the problem has been solved. Practical experiences are still to be harvested. That will cost a lot of money and demand quite some time. Our financial situation prevents us from carrying this side of the matter to a conclusion ourselves. For this reason the R-96 has gone to American hands, and right now the electro ship has crossed the Atlantic for U. S. A.

"The Americans have been accurately informed of our scientific results, methods, and procedure, and we--who have for years worked intensively on these experiments--need not be present at the final practical fishery.

"...The problem has been solved, but on the background of the technical gear with which the fisheries are experimenting today, miracles should not be expected."

Electrical fishing caused much anxiety in several countries where an extinction of fish stocks is feared, but the German scientists pointed out that when the new methods are applied it would be possible to spare the fry in a higher degree than before. By varying the impulse-figure and tension it is possible to catch fish of defined sizes and species. The whole thing is arranged by turning a few handles and pressing various buttons.

Note: See Commercial Fisheries Review, October 1952, pp. 62 and 75; June 1952, p. 39; October 1951, p. 25; January 1951, p. 53; and December 1950, p. 36. Also Fishery Leaflet 348 (German Commercial Electrical Fishing Device).

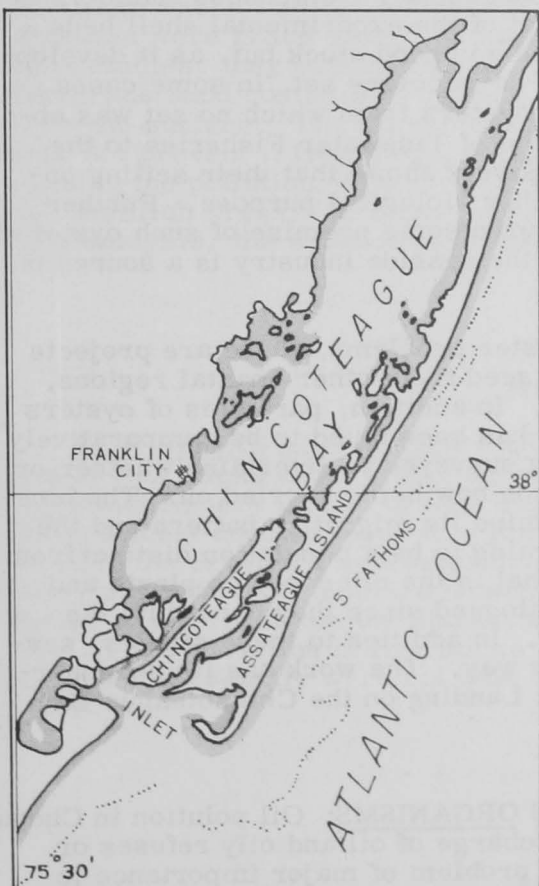


## Maryland

CHESAPEAKE BAY OYSTER PRODUCTION LIGHT: Chesapeake Bay oystermen are finding oysters scarce this season, according to the Maryland Tidewater News (January 1954) of the Department of Research and Education. Oysters are about 30 percent less plentiful than they were at the same time last year.

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CHINCOTEAGUE BAY SURVEY: The ecological and economic survey of the Chincoteague Bay area, started in the fall of 1951 by special legislative action, is still in progress. Hydrographic observations were conducted in an intensive manner until June 1953, when the number of stations was reduced as it had been decided that fewer stations would provide sufficient data to supplement those collected, to serve as checks on general conditions, and to indicate changes of a major nature should they occur. The hydrographic data during the second year of study followed the general pattern already established and appear to be reasonably conclusive for the purposes of this study. However, there is a lack of information regarding currents in Chincoteague Bay. This deficiency is due to the difficulty experienced in measuring currents of such low velocity as those concerned with in that area. It is expected, however, that such measurements will be attempted during the season ahead, according to the January 1954 Maryland Tidewater News of the Department of Research and Education.



Observations have been made on the setting of fouling organisms in the area and it has been found that there is one in particular which is a very serious pest. This is a tube-building serpulid worm which can in the period of a few weeks cover shells over with the crust of its burrows which in turn precludes any possibility of a spatfall on the shells. Certain other fouling organisms have serious implication, but not to the degree of this worm. Observations on fouling are being continued so that the setting pattern of the organisms involved may be more adequately established.

The oyster drill is known to be a problem in the Chincoteague area, where it does much damage to oysters planted, and set as well.

No specific study has been done on this pest but it is expected that an attempt will be made to determine some control measures.

During the past two years 22,000 bushels of shells and about 1,000 bushels of brood stock oysters were planted in seaside waters. Plantings were made at several different points in an effort to locate potential seed areas. The brood stock did well in all cases except one, at which point they were sanded over during a heavy storm. The shell plantings were in some cases complete failures but in other locations they gave results in varying degrees of success. The set ranged from none to 892 spat per bushel. In general the shells planted in the deeper parts of the Bay became covered with a thick coat of fouling organisms, one location being an exception. The fouling occurred in a period of only a few weeks and was predominantly the already mentioned serpulid worms. Heavy fouling did not occur on the shells planted intertidally, on which bottom conditions for spat survival were good. In a location where shells were planted in deep water near a great concentration of planted oysters, the set was fairly abundant and resulted in a nice bed of commercial seed. All other deep-water plantings were failures, apparently due to lack of brood stock close at hand. The average catch on intertidal shells was 262 spat per bushel. Considering both the shallow and the deep-water shell plantings, there appears to be some reason to expect that seed oysters can be produced in the seaside waters.

One of the major problems that confronts those who would produce seed oysters in the Chincoteague Bay is the lack of adult brood oysters pretty generally over the Bay. To obtain satisfactory sets of seed it is necessary to have a great number of brood oysters nearby to provide the needed vast quantities of larval oysters. The mortality of larvae and spat is very great and consequently tremendous numbers of them are essential to insure survival. Near most of the experimental shell beds a few hundred bushels of adult oysters were planted as brood stock but, as it developed, the numbers were not sufficient to provide a satisfactory set, in some cases no spat whatsoever being realized. The planted oysters from which no set was obtained have been made available by the Department of Tidewater Fisheries to the commercial watermen since it was fairly conclusively shown that their setting potential was negative and they would serve no further biological purpose. Further study is to be given to those bottoms that have shown some promise of such oyster production since the greatest immediate need of the seaside industry is a source of seed oysters.

In addition to the already cited studies of oyster problems, there are projects in progress on the determination of satisfactory seed from other coastal regions, and the study of oyster growth along the seaside. In addition, parasites of oysters are being investigated. Up to this time the area has been found to be comparatively free of them. The hard-clam population is being surveyed to determine whether or not damage is being done by the dredging operation now being carried on. The blue crab also is being studied in an attempt to determine its migration pattern and the size ranges in the adults, the seaside crabs seeming to be a population distinct from others along the coast. The planktonic forms, that is the microscopic plants and animals of the area, are being observed and catalogued since they constitute the basic foods of the commercial forms of sea food. In addition to these studies, several others of a more academic nature are under way. The work has its headquarters at a small field laboratory located at Public Landing on the Chincoteague Bay.

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EFFECTS OF OIL POLLUTION ON MARINE ORGANISMS: Oil pollution in Chesapeake Bay caused by deliberate or accidental discharge of oil and oily refuses or bilge water from ships and industrial plants is a problem of major importance to the fisheries of the Bay. Recently, biologists of the Maryland Department of Research and Education reviewed the effects of oil pollution on marine animals, a recent release from that Agency states.



How effective it is in killing animals or rendering their habitat unsuitable is not well documented in scientific writings. Two very careful fishery research biologists of the U. S. Fish and Wildlife Service, however, summarized most of the U. S. and foreign works that deal with oil pollution and its effect on marine life. They conducted some very unique experiments that are described below.

Oils and oil substances discharged into Bay waters do not remain floating indefinitely, for they are readily absorbed by clay, silt, and other suspended matter in the water. Agitation of the water by currents and wave action helps the settling of the oil-saturated material to the bottom, but the oil slick is not securely fixed and may be carried to distant places. That is why oily substances are frequently seen on beaches, sides of boats, and on nets of fishermen, often far removed from the source. Injury caused to ducks and other aquatic birds by oil floating on the surface is well known. One Rutgers University scientist stated, "Oil is, gallon for gallon, as thrown out, the most destructive to aquatic life of all the foreign substances now entering our coastal waters."

The toxicity of oil in sea water has been shown experimentally to be due to water-soluble substances extracted from oil, but in most instances only when present in sufficient concentration. Scientists have found that various fishes and marine invertebrates are quickly killed by these toxins when studied in the laboratory under controlled conditions. They assume, therefore, that the same mechanism operates under natural conditions, and that mortalities in the presence of huge oil pollution concentrations must be due to the poisonous elements that go into solution with water.

One aspect of the study by the research biologists was to find a way of eliminating oil slicks where larval oysters and clams occurred. These immature stages of mollusks were killed easily by their habit of swimming close to the surface. From their studies they concluded that dusting the surface with carbonized sand (a very fine grade sand coated with carbon) was a highly efficient method of removing oil from the surface. The oil becomes bound to the sand and sinks immediately. This does not prevent it from being harmful, but it does have the major advantage of localizing the pollution, thereby preventing it from spreading to other potential fish and shellfish areas. So many problems of control present themselves that, in the final analysis, the solution of oil pollution is one of prevention rather than control.



## New England

FISH STICKS AND OCEAN PERCH FILLETS MOVE WELL: Increased production of fish sticks and a rising demand for ocean perch fillets characterized the more important fishery trends in New England during this February. Landings of ocean perch almost doubled those of a year ago, but the price and demand continued to increase, the Service's representative at Gloucester reports. It was believed that heavy utilization of imported frozen cod fillets for fish sticks tended to decrease the supply of cod fillets on the market and thus increase the demand for ocean perch fillets. The production of fish sticks was still on the increase as many plants operating at full capacity were not able to keep pace with the demand.



## North Carolina

**FISHERIES PRODUCTION, JULY-DECEMBER 1953:** A report on North Carolina's commercial fisheries operations for the latter half of 1953 was presented at

a meeting of the Board of Conservation by the Assistant Fisheries Commissioner.



North Carolina shrimp trawlers

It was pointed out that the North Carolina shrimp catch during the latter part of 1953 was better than that of any like period in the State's history, according to the report (see table). The quality of the shrimp was good and prices very good. However, the food finfish catch was about 5 million pounds less, due mostly to the diversion of fishing effort from finfish to shrimp. But the value of the food finfish catch was as good as a year earlier.

The oyster season was better than expected, although there was a drop of something like 17,000 tubs from the corresponding period of last year. The hurricanes in August killed a tremendous quantity

of oysters, including those on the State-planted bottoms. Price and quality of oysters this season were above normal.

This was a poor season for clams because most of the fishermen were engaged in shrimp fishing. Clams were imported from Long Island Sound in 1953 in order for the larger clam dealers to meet their contracts.

Statistics given for crabs are not complete. However, it is believed that it was a normal year.

Production of scallops during this period was far greater than that of any recent year. The price of scallops was disappointing, but the quality was very good.

During November and December, and especially during the latter month, tremendous schools of menhaden were off the North Carolina coast. If it wasn't for the unfavorable weather that prevailed, the catch would have exceeded very greatly any catch during a similar period in the history of the industry.

North Carolina Commercial Fisheries Production, July-December 1953

Item	Unit	July-December	
		1953	1952
<b>Shellfish:</b>			
Oysters .....	tubs	89,443	106,162
Shrimp, heads-off	lbs.	5,514,429	3,482,627
Clams .....	bu.	6,021	52,020
Crabs, soft .....	doz.	450	3,882
Crabs, hard .....	bbl.	10,557	33,226
Scallops .....	gal.	4,850	595
<b>Finfish:</b>			
Food fish .....	lbs.	8,585,005	13,340,743
Menhaden .....	fish	176,714,000	138,000,000

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**MENHADEN FISHERY IN CARTERET COUNTY, 1953/54:** The menhaden industry in Carteret County closed down operations in mid-January 1954 after processing

142,000,000 fish since early in November 1953. During the 1952/53 season the catch amounted to 108,550,000 menhaden. The 1951/52 season produced 140,080,000 fish, the Service's Fishery Marketing Specialist in that State reports.

Five firms processed menhaden into dry scrap and oil in Carteret County during the past season. One company again plans to resume production in May or June. Full-scale operations for all firms usually begin in November.

**SCALLOP SEASON EXTENDED:** On January 18 scallop fishing was reopened in North Carolina on a five-day-a-week basis. Scallop fishing is permitted Mondays through Fridays, daytime only, until further notice. Heretofore, since the opening of the season on December 1, scallop fishing was permitted on Mondays, Tuesdays, and Wednesdays only. The law permits taking scallops on Mondays and Wednesdays, but permits the Commissioner to allow other open days. The extension of the season was due to an abundance of scallops and earlier bad fishing weather.

**GEAR AND NAVIGATION COURSES FOR FISHERMEN:** The North Carolina Division of Commercial Fisheries, in conjunction with the Institute of Fisheries Research, Morehead City, is preparing to set up a demonstration net loft to teach fishermen of North Carolina how to make their own nets and accessories. In addition to instruction in the making and handling of gear, the fishermen will receive a short course in navigation and safety at sea.



## Pacific Oceanic Fishery Investigations

**TUNA INVESTIGATIONS:** For an albacore survey north and east of Hawaii the Service's Pacific Oceanic Fishery Investigations (POFI) research vessels Hugh M. Smith and John R. Manning were prepared in December. The survey was to consist of studies of the ocean current system paralleled by trolling and long-line fishing operations. It was to cover a two-million-square-mile area and was being undertaken jointly with the California Department of Fish and Game whose vessel N. B. Scofield was to cover the easterly portion of the survey area.

A well known West Coast halibut and tuna fisherman completed preparations by the end of December for an early January departure of the commercial vessels North American and Alrita to the mid-Pacific yellowfin tuna grounds discovered by POFI. These vessels were scheduled to fish in the general vicinity of Christmas Island and make at least two trips each. A POFI biologist sailed aboard the North American to record the fishing activities and collect scientific data on the tunas caught.

Another POFI representative joined the vessel North Star, a freezership chartered by a California cannery in Seattle the end of December for a trip to American Samoa. The freezership is to be operated in conjunction with the Pago Pago tuna cannery and will receive long-line caught tuna from seven Japanese catcher boats. The POFI observer will make scientific observations on the tuna caught and will keep detailed records of the daily catch of each long-line fishing boat. Information on the tunas in this region is almost entirely lacking and this expedition is expected to furnish valuable information on the tuna resources in the vicinity of Samoa.



## Pacific Whale Increase Seen

A Pacific gray whale census being conducted at Point Loma, Calif., indicates this year's count will exceed 1,000 whales as compared with 850 last year, the



California Gray Whale (*Rhachianectes glaucus*)

Secretary of the Interior announced on February 1. The census is being conducted by the U. S. Fish and Wildlife Service in cooperation with the U. S. National Park Service as these giant sea mammals pass southward along the California coast in their annual winter migration.

The whales move each winter from the far north to the lagoons of lower California to breed. In the course of the migration they sweep close to the Cabrillo National Monument at Point Loma and the monument serves as a vantage point for the census.

Interest in the gray whale stems from its past economic prominence and the decimation it suffered at the hands of the whaling industry in the late 1800's and again in the 1920's. The herd's ranks are swelling and the species is expected to regain economic importance with the help of protective regulations.

Because whales inhabit the open sea and often visit waters adjacent to more than one country, their capture is regulated by international agreements. The gray whale of the Pacific annually finds its way to waters off Mexico, Canada, and the Union of Soviet Socialist Republics, as well as the United States.



## Salt Tablet Reported to Eliminate Struvite in Canned Sea Food

A special salt tablet marketed by a firm in St. Louis is reported as being a means of eliminating struvite in canned sea food.

Struvite crystals form when fish and shellfish have been processed by heat. While these crystals are tasteless and odorless, they have a gritty texture when eaten in canned food. They resemble glass fragments and have been mistaken as such by consumers. They are harmless and are formed of magnesium, ammonium, and phosphate.

The basic compounds used in the tablets are ordinary sodium chloride and sodium hexametaphosphate, the Oyster Institute of North America states.



## Service Research Vessel for "Red Tide" Control

The allotment of funds for the purchase of a research vessel to combat the "red tide" was announced on February 16 by Secretary of the Interior McKay. The "red tide" plague has periodically killed millions of fish in waters off the west coast of Florida. The vessel, to be operated by the Fish and Wildlife Service, will be based at Fort Myers, Florida, and will cost approximately \$50,000 equipped, and operating funds will come to about \$10,000.

The new vessel will allow a more intensive study of the causes of "red tide" and will help in the effort to control the menace.

At infrequent and sporadic intervals over the past 100 years there have been mass mortalities of fish on the central west coast of Florida, caused by swarming of a microscopic organism called *Gymnodinium brevis*. Such episodes occur only in this part of the Gulf of Mexico. They also occur elsewhere in the world, nearly always in the same places. They are always caused by certain species of a class of organisms called dinoflagellates (having attributes of both plants and animals) which give off substances poisonous to fish and other marine animals. Both commercial and sports fishing are adversely affected during the fish kills although no permanent decrease in fish abundance has been noted.

Long periods can elapse without red tides. No outbreaks were recorded between 1916 and 1946. Outbreaks have occurred with abnormal frequency since 1946. Between November 1946 and March 1947 dead fish and discolored water extended 125 miles from Naples, Fla., on the south to Clearwater, Fla., on the north, and seaward about 20 miles. A smaller red tide occurred briefly in November 1952. Another appeared in September 1953.

After the large outbreak of 1946/47, the U. S. Fish and Wildlife Service commenced biological studies to learn the principles underlying the causes of these blooms, with the aim of developing control or preventive measures. The studies to date indicate that the blooms seem to occur after periods of heavy rain followed by light winds blowing toward the shore. The water, enriched by land drainage, is held along the coast, thus developing conditions suitable for rapid reproduction of the microorganisms. As fish are killed, their decaying bodies are believed to release nutrients to the waters. These nutrients nourish the bloom and serve to intensify it.



## Sport Fishing License Sales Continue to Climb

Fresh-water fishing continued its upward trend of popularity during the year ended June 30, 1953, with the record sale of 17,652,478 anglers' licenses, Secretary of the Interior McKay was advised by J. L. Farley, Director of the Fish and Wildlife Service. The gross revenue derived by the 48 States from these license sales amounted to \$35,602,903.



A sport fisherman's catch.

Compared with the previous year when 17,127,896 fishing licenses were sold by the various States for \$33,609,539, the 1952/53 season totals represent an increase of 524,582 in licenses and \$1,993,364 in revenue.

Nonresident fishermen purchased 2,518,396 licenses in fiscal year 1953, an increase of 210,171

over the 2,308,225 of the previous year. States which attracted the greatest number of out-of-state anglers were Wisconsin with 301,250 nonresident license sales; Michigan, 297,727; Minnesota, 289,332; and Tennessee, 231,330.

In the number of licenses issued, Michigan yielded first place (for the first time since fiscal year 1948) to California which headed the list with 1,158,465. Michigan was in second place with 1,146,387, while Wisconsin held third place with 1,011,813.

FISHING LICENSES SOLD IN THE UNITED STATES--July 1, 1952, to June 30, 1953				
State	Resident	Non-Resident	Total Licenses	Anglers' Fees
Alabama	195,904	17,845	213,750	\$ 249,673
Arizona	82,384	43,963	126,347	335,305
Arkansas	271,625	118,811	390,436	725,256
California	1,143,037	15,428	1,158,465	3,475,705
Colorado	277,593	92,555	370,148	749,746
Connecticut	97,491	4,308	101,799	353,096
Delaware	8,787	1,682	10,469	23,599
Florida	219,678	99,099	318,777	934,992
Georgia	381,893	5,452	387,345	251,446
Idaho	173,228	60,764	233,992	632,885
Illinois	807,209	21,956	829,165	883,323
Indiana	517,187	32,341	549,528	613,817
Iowa	336,682	14,019	350,701	502,240
Kansas	270,467	5,495	275,962	425,625
Kentucky	359,551	84,385	443,936	804,826
Louisiana	89,159	13,556	102,715	134,892
Maine	130,535	67,807	198,342	604,601
Maryland	93,434	19,479	112,913	205,855
Massachusetts	202,673	6,610	209,283	603,637
Michigan	848,660	297,727	1,146,387	2,218,908
Minnesota	633,386	289,332	922,718	2,283,316
Mississippi	123,180	50,075	173,255	261,924
Missouri	580,851	49,604	630,455	1,308,417
Montana	178,800	32,648	211,448	386,440
Nebraska	199,522	9,390	208,912	322,061
Nevada	23,314	23,646	46,960	166,571
New Hampshire	77,668	45,270	122,938	396,153
New Jersey	135,322	10,258	145,580	542,951
New Mexico	67,746	39,780	107,526	359,472
New York	759,688	38,603	798,291	1,789,335
North Carolina	280,664	49,168	329,732	562,436
North Dakota	72,989	860	73,849	39,075
Ohio	744,888	41,110	785,998	1,558,055
Oklahoma	357,314	53,131	410,445	867,384
Oregon	278,283	24,440	302,723	1,122,579
Pennsylvania	732,005	25,620	757,625	1,567,570
Rhode Island	21,855	414	22,269	41,822
South Carolina	255,429	10,463	265,892	335,025
South Dakota	98,161	26,067	124,228	297,317
Tennessee	560,041	231,330	791,371	755,292
Texas	369,366	6,651	376,017	623,427
Utah	135,678	5,833	141,511	358,508
Vermont	71,883	33,351	105,234	218,510
Virginia	388,967	4,247	393,214	527,768
Washington	435,879	23,812	459,691	1,071,908
West Virginia	209,222	10,939	220,161	408,814
Wisconsin	710,563	301,250	1,011,813	2,056,118
Wyoming	124,341	57,821	182,162	645,228
TOTALS	15,134,182	2,518,396	17,652,478	\$35,602,903

Note: Includes general and special licenses, permits, and stamps, and the gross cost to anglers. The cost of combination licenses has been evenly split between the fishing and hunting tabulations.

a project under the Dingell-Johnson sport-fish restoration program. Fishing licenses in Hawaii, however, are required for the taking of introduced fresh-water game species only. As the bulk of the fishermen ply their sport in salt water, the number of licenses sold gives an incomplete measurement of the degree of sport fishing activity in Hawaii.

Note: Also see Commercial Fisheries Review, February 1953, p. 35; March 1952, p. 28; April 1951, p. 30.



## Tri-State Fisheries Commission

**MARYLAND'S RECOMMENDATION FOR TRI-STATE FISHERIES COMMISSION RESEARCH:** The Governor of Maryland has indicated that because of limited State funds available such research work as needs to be done on migratory fishes by the Chesapeake Biological Laboratory for the Tri-State Fisheries Commission should be carried on with existing facilities. The Tri-State Fisheries Commission is made up of the states of Maryland, Virginia, and North Carolina. The Governor indicated that he favored the project recommended by the Tri-State group, but expressed the hope that the Chesapeake Bay Institute (Johns Hopkins University), the Department of Tidewater Fisheries, and the Department of Research and Education might pool their resources, personnel, and facilities to do the job.

The Tri-State Commission held a series of meetings during the summer and fall of 1953 in an effort to clarify the position of the respective states on the declines in the fisheries, especially the croaker and sea trout, and to develop a common program of study to get data on which to base management programs. The movement in question came from a legislative move in Virginia followed by like action on part of the assemblies of North Carolina and Maryland.

It was the unanimous recommendation of the Tri-State Commission that a total of \$120,074 should be requested for the over-all study to cover coastal and inland waters from Delaware to South Carolina. Maryland's share (26 percent) was placed at \$31,700, Virginia's (54 percent) at \$64,400, and North Carolina's (20 percent) at \$25,000. These prorated costs were based on the values of the fisheries in the respective states, reports the January Maryland Tidewater News of the Department of Research and Education.

Note: Also see Commercial Fisheries Review, November 1953, p. 31.



### Fish Stick Production, 1953

#### U. S. FISH STICK PRODUCTION SHOWS PHENOMENAL GROWTH IN 1953:

The United States production of breaded precooked fish sticks in 1953 totaled 7,262,000 pounds, valued at \$4,042,600. Production in 1952 was negligible. Most of the fish sticks are packaged and frozen.

The development and rapid expansion of the fish-stick industry was an outstanding event in the fisheries of the United States during 1953. Consumer acceptance of

U. S. Production of Breaded Precooked Fish Sticks, 1953 (By Months)

Month	Quantity	Value
	Lbs.	\$
January .....	115,000	69,000
February .....	133,000	79,800
March .....	148,000	88,800
April .....	34,900	21,100
May .....	21,800	13,700
June .....	30,800	20,200
July .....	312,500	166,900
August .....	357,600	191,800
September .....	681,600	374,600
October .....	1,186,000	583,600
November .....	1,429,400	801,900
December .....	2,811,400	1,631,200
Total .....	7,262,000	4,042,600

Note: In addition to breaded precooked fish sticks, a small amount of frozen breaded uncooked fish sticks was produced.

this new product was so high that late in the year firms were having difficulty keeping up with their orders. Production during the first quarter of 1953 got off to a good start, but dropped considerably during the second quarter. In July, however, there was a marked increase in production, with this upward climb accelerating throughout the remainder of the year.

During 1953 fish sticks were manufactured from both imported and domestic fish fillets, and a major portion of the production during the year was made from cod and other groundfish fillets. By early 1954 the number of plants producing fish sticks had increased several fold, and such species as salmon, halibut, whiting, and Pacific rockfishes were being used.

Since many areas of the United States have not been reached by this new product, there is little doubt that production will increase markedly during 1954. If the December 1953 production rate continues throughout 1954, the production of fish sticks in the United States for the year should reach well in excess of 30 million pounds.

Although the production of all the firms which produced fish sticks during 1953 is not included in the table shown below, the figures shown account for the bulk of the production.



## U. S. Foreign Trade in Edible Fishery Products, November 1953

United States imports of fresh, frozen, and processed fish and shellfish during November 1953 totaled 61 million pounds (valued at \$16.4 million), according to the November 1953 United States Foreign Trade, a Department of Commerce publi-

United States Foreign Trade in Edible Fishery Products, November 1953 With Comparisons						
	November 1953		November 1952		Year 1952	
	Quantity 1000 Lbs.	Value Million \$	Quantity 1000 Lbs.	Value Million \$	Quantity 1000 Lbs.	Value Million \$
Imports:						
Fish and shellfish: fresh, frozen, and processed <sup>1</sup> / .....	60,906	16.4	62,530	16.9	705,118	183.1
Exports:						
Fish and shellfish: processed <sup>1</sup> / only (excluding fresh and frozen) .....	2,558	0.9	7,844	1.8	56,604	13.5

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

cation (see table). This was a decrease of 4.4 percent in quantity and 1.8 percent in value as compared with October imports of almost 64 million pounds (valued at \$16.7 million). November 1953 imports were down 2.6 percent in quantity and 3.0 percent in value from a year earlier.

United States exports of processed fish and shellfish (excluding fresh and frozen) in November 1953 amounted to almost 2.6 million pounds (valued at \$0.9 million), lower by 20 percent in quantity from October exports, but higher by 13 percent in value. Compared with November 1952, exports were down 67.4 percent in quantity and 50 percent in value.



### Virginia

**JAMES RIVER HAS GOOD OYSTER SPAT SEASON:** The James River, Virginia, seed oyster area experienced a good strike of spat during the 1953 summer spawning season, and especially so on Horsehead Bar, scientists of the Virginia Fisheries Laboratory reported. The 1953 spatfall on the seed beds was good although the biologists indicated that the new set was not as great as that of 1949 when an unusual abundance of young oysters was realized. The James River seed beds rank as superior along the coast in the quantity and quality of seed oysters produced, as well as in the vast acreage of bottom in seed production.



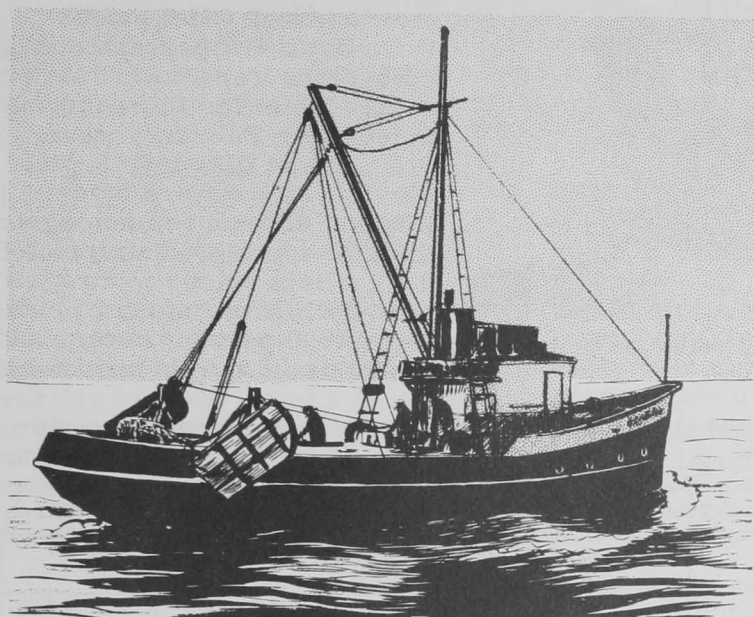
### Washington

**STATE SETS MINIMUM NET MESH REGULATION:** A minimum net mesh size of  $4\frac{1}{2}$  inches between knots for the State of Washington's offshore trawling fleet was established in January by the Washington Department of Fisheries. Trawlers operating out of Washington ports must convert cod ends to the new size by January 1, 1955, and the body of the net by January 1, 1956. Nets being used at present by the fleet have a mesh as small as 3 inches between knots.



California trawlers have been under the new net mesh size for several years and Oregon established deadlines for use of other sizes very recently.

The general provisions of the Washington State regulations referring to unlawful methods reads: "It shall be unlawful in the commercial bottom fishery to use



A typical Pacific Coast otter trawler

or possess otter trawl gear with meshes of less than  $4\frac{1}{2}$  inches between knots. This regulation shall become effective for cod ends January 1, 1955, and for the remainder of the trawl net January 1, 1956."

Under definitions of fishing gear for all areas, the Washington State regulations read:

"Otter trawl shall be defined as a bag-shaped trawl net with floats along the upper edge of the mouth and with a lead line forming the lower edge thereof, and which utilizes iron-weighted otter frames or otter doors when operated, and with minimum mesh size of  $4\frac{1}{2}$  inches in a food fishery or  $1\frac{1}{2}$  inches in the shrimp fish-

ery. Hog-ring type cod ends shall measure not more than 20 meshes in length or 100 meshes in circumference and shall be constructed of manila or hemp rope not more than  $\frac{3}{8}$ 's of an inch in diameter; meshes shall measure not less than 6 inches between rings or wires when wet. Double cod ends shall contain meshes not less than 5 inches between knots, and the double section shall measure not more than 30 meshes in length or more than 100 meshes in circumference; the double bags must be constructed of cotton web of not more than 120-thread construction, and tied to the rib lines so the knots and meshes coincide the full length of the double layer. Chafing gear shall cover not more than the last 120 meshes of the net and bag combined and not more than one-half of their circumference, and shall not be fastened to the net or bag at the trailing edge. Not more than eight rib lines may be used."

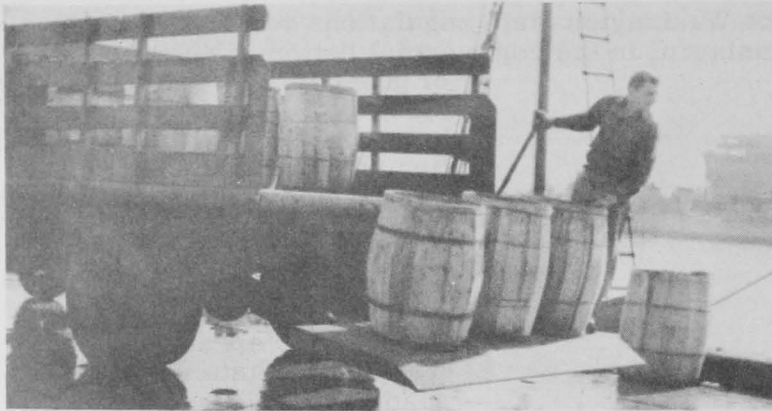


## Wholesale Prices, February 1954

Wholesale prices for edible fishery products dropped from January to February because demand was reported generally light. Also, February prices were down slightly from a year earlier. The over-all edible fish and shellfish (fresh, frozen, and canned) wholesale index for February 1954 was 107.2 percent of the 1947-49 average (see table)--6.0 percent less than the January index and 0.7 percent below a year earlier.

The greatest decline (11.3 percent) from January to February was in the drawn, dressed, or whole finfish subgroup index attributed principally to heavy offshore haddock landings at Boston and light demand. Also contributing to the drop in this subgroup were lower prices for Western halibut at New York (down 1.1 percent); all other February prices for items in this subgroup were higher than in January. Compared to a year earlier, prices for this subgroup were 3.8 percent higher, but among the individual items the trend was mixed.

The over-all February average index for the fresh processed fish and shellfish subgroup was down 8.8 percent from January, due to lower prices for all items.



Loading a truck at Boston fish pier with barrels of iced haddock for the fresh fish market.

The largest decline was for shrimp (11.4 percent) because the market for this product weakened to some extent; haddock fillet prices were down 4.9 percent; shucked oysters were down 7.2 percent. While for this subgroup prices this February were 6.2 percent less than a year earlier, there were some marked differences among the individual products; haddock fillets prices were 23.8 percent higher, shrimp prices were 19.0 percent lower, and oysters sold 2.6 percent higher.

In the frozen processed fish and shellfish subgroup, February prices were up only slightly (0.4 percent) from January. However, there were considerably greater

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, February 1954 and Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices <sup>1/</sup>		Indexes (1947-49=100)			
			(\$)		Feb.	Jan.	Dec.	Feb.
			1954	1954	1954	1954	1953	1953
<b>ALL FISH &amp; SHELLFISH (Fresh, Frozen, &amp; Canned)</b>					107.2	2/114.0	109.4	108.0
<b>Fresh &amp; Frozen Fishery Products:</b>					114.1	2/125.6	119.4	114.6
<b>Drawn, Dressed, or Whole Finfish:</b>					116.5	2/131.3	120.8	112.2
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.12	.17	119.8	170.1	148.2	114.3
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.31	.31	94.9	95.9	93.4	100.1
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.51	.49	115.2	109.0	111.2	109.0
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.61	.61	151.2	150.0	90.5	152.4
Whitefish, L. Erie pound or gill net, rnd., fresh	New York	lb.	.74	.65	148.6	131.5	126.4	131.4
Lake trout, domestic, No. 1, drawn, fresh	Chicago	lb.	.64	.61	131.1	124.0	125.0	128.1
Yellow pike, L. Michigan, rnd., fresh	New York	lb.	.60	.50	140.7	117.2	93.8	117.2
<b>Processed, Fresh (Fish &amp; Shellfish):</b>					112.6	2/123.4	121.9	120.0
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.39	.41	132.7	139.5	136.1	107.2
Shrimp, lge. (26-30 count), headless, fresh or frozen	New York	lb.	.64	.72	101.2	114.2	114.4	124.9
Oysters, shucked, standards	Norfolk	gal.	4.88	5.25	120.6	129.9	126.8	117.5
<b>Processed, Frozen (Fish &amp; Shellfish):</b>					108.3	2/108.7	108.7	112.3
<b>Fillets: Flounder (yellowtail), skinless, 1-lb. pkg.<sup>3/</sup></b>								
Haddock, sml., skins on, 1-lb. pkg. <sup>3/</sup>	Boston	lb.	.40	2/.42	103.4	2/108.7	108.7	129.7
Ocean perch, skins on, 1-lb. pkg. <sup>3/</sup>	Boston	lb.	.34	2/.33	111.4	2/102.0	100.4	76.2
Shrimp, lge. (26-30 count), 5-lb. pkg.	Gloucester	lb.	.29	2/.28	114.8	2/110.7	110.7	114.4
	Chicago	lb.	.68	.72	104.5	110.3	111.1	121.9
<b>Canned Fishery Products:</b>					96.9	2/96.9	94.5	98.1
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	case	17.70	17.70	93.9	93.9	93.9	104.4
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs. <sup>4/</sup>	Los Angeles	case	14.20	2/14.20	102.4	2/102.4	95.5	91.5
Sardines, Maine, keyless oil, No. 1/4 drawn (3 1/4 oz.), 100 cans/cs. <sup>5/</sup>	New York	case	8.20	8.20	87.3	87.3	87.3	81.9

<sup>1/</sup>Represent average prices for one day (Monday or Tuesday) during the week in which the 15th of the month occurs.  
<sup>2/</sup>Revised.  
<sup>3/</sup>Specifications revised. Pricing in future will be on 1-lb. consumer fixed-weight packages instead of 10-lb. cello-pack since the former are increasing in importance on the market.  
<sup>4/</sup>Specifications revised. Pricing in future will be on chunk style instead of solid-pack style since the former style pack is increasing in importance on the market.  
<sup>5/</sup>Since California sardines have practically disappeared from the market, prices for that product have been eliminated from the index and the weight of that group will be moved by Maine sardines.  
**NOTE:** Although some slight changes in pricing specifications have been made, the indexes computed on the basis of the new commodity specifications are directly comparable to the indexes derived from the old commodity specifications.

changes in the individual items; increases of 9.2 and 3.7 percent were noted for haddock and ocean perch fillets, respectively; and flounder fillets and shrimp decreased 4.9 and 5.3 percent, respectively. Compared to a year earlier, considerably higher prices for frozen haddock fillets were almost offset by lower prices for frozen flounder and ocean perch fillets, and shrimp.

There were no changes in the prices for the canned fishery products included in the index, although the market for canned fish was very good. But compared with a year earlier, tuna prices were up 11.9 percent, Maine sardine prices were 6.6 percent higher, while pink salmon prices were down 10.0 percent.

CHANGES IN SPECIFICATIONS OF CERTAIN ITEMS INCLUDED IN WHOLE-SALE FISH INDEX: Beginning with January 1954, certain changes were made in certain items used in computing the wholesale indexes for edible fish and shellfish. Footnotes in table 1 explain the items for which specifications have been changed.

A break has taken place in the absolute price series of those items which have undergone a change in specification. For those items for which the specifications have been changed (table 2) 1954 prices are not comparable with prices quoted for earlier periods since a break in the price series usually takes the form of a change in the reporting sample, a modification in the specifications, or a change in the unit of quotation. However, the price relatives or indexes for each individual commodity affected are adjusted so that they are continuous and comparable. The subgroup and group indexes are also continuous and comparable.

Table 2 - Major Changes in Specifications of Fishery Products, January 1954  
(Absolute price series are discontinuous, but price relatives or indexes are adjusted to form continuous series)

Item Specification	Specification Change
<u>Processed, Frozen (Fish &amp; Shellfish):</u>	
Fillets: Flounder (yellowtail), skinless, 10-lb. pkg.	1-lb. consumer package 1-lb. consumer package 1-lb. consumer package, Boston, Mass.
Haddock, sml, skins on, 10-lb. cello-pack	
Ocean perch, skins on, 10-lb. cello-pack	
<u>Canned Fishery Products:</u>	
Tuna, lt. meat, solid pack, No. 1/2 tuna (7 oz.), 48 cans/cs.	Chunk style, 6 1/2-oz. can. Pricing for this item eliminated. Weight formerly assigned to this code has been added to Maine sardines. Weight of this group will be moved by Maine sardines.
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 48 cans/cs.	

