

TRENDS AND DEVELOPMENTS

Additions to the Fleet of U. S. Fishing Vessels

A total of 56 vessels of 5 net tons and over received their first documents as fishing craft during January 1954--17 more than in January 1953. Florida west coast led with 21 vessels, followed by Louisiana and Texas with 7 vessels each.

Vessels Obtaining Their First Documents as Fishing Craft, January 1954 and Comparisons

Section	January		Total 1953	Section	January		Total 1953
	1954	1953			1954	1953	
	Number	Number	Number		Number	Number	Number
New England ..	-	2	20	Pacific	4	4	164
Middle Atlantic	-	-	19	Great Lakes.	1	-	7
Chesapeake ...	8	4	83	Alaska	3	2	53
South Atlantic .	5	8	116	Hawaii	-	-	3
Gulf	35	19	264	Total	56	39	729

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



Alaska

MILITARY PROCUREMENT PROCEDURE FOR FRESH AND FROZEN FISH: As a result of a series of meetings between military representatives, the Governor of



Left to right: Lt. Col. Allen T. Burke, QM Supply Officer; F. W. Hipkins, Fishery Marketing Specialist of U. S. Fish and Wildlife Service; Waino E. Hendricksen, Secretary of Alaska; Lt. Col. James C. McIntyre, Veterinary Officer; Captain James N. Carter, Alaska General Depot; attended meeting held in the Governor's office in Juneau, Alaska, on March 3 & 4, 1954.

Alaska's office, and the Service's fishery marketing specialist stationed in Ketchikan, the military is revising its bid procedure for fresh and frozen fishery products for delivery to Alaskan posts. Hereafter, the bids will call for the fish on a "delivered" basis, and the military will consider the freight costs involved in the delivery of the fish to the military post where the fish is to be used. Under this arrangement the fish will be procured in Alaska from qualified Alaskan suppliers unless the over-all cost, including transportation, exceeds that of the Stateside bidders.

In order to qualify as bidders, interested firms are advised to inform the Commanding General and Veterinary Officer at the Quartermaster Market Center, Seattle, Washington, that they desire to be placed on the bidders' list, and also request veterinary inspection of their plant facilities.

Since a large part of the Fish and Wildlife Service's market development program has been devoted to encouraging the military to increase its consumption of fishery products, this current development is considered as being of particular significance. Also, it offers new possibilities to many of the fishing centers in Alaska that have been experiencing economic troubles as a result of short production during the 1953 salmon fishing season.

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BERING SEA KING CRAB FISHERY STUDIES CONTINUED: A Fish and Wildlife Service biologist aboard the commercial trawler Deep Sea is continuing the study of king-crab fishing and crab populations in the Bering Sea. The vessel sailed from Seattle, Wash., late in March. Studies on the king crab were first started in 1953 when the same Service biologist accompanied a Japanese crab fleet fishing in the Bering Sea offshore of Alaska to investigate the biology of the king crab. The decision to continue the studies was made following the first meeting of the International North Pacific Fisheries Commission which was held in Washington, D. C., from February 1 to 12, 1954.

This Commission is composed of representatives from Japan, Canada, and the United States, and was established to promote proper utilization of crabs, salmon, and other fish caught on the high seas of interest to the three countries. Service Director Farley is one of the United States commissioners.

The king crab, only known in the cold waters of the North Pacific Ocean and Bering Sea, is one of our most important sources of crab meat. The most spectacular and commercially important feature about king crabs is their size. Male crabs with an over-all spread of 4 to 5 feet and weighing 15 or more pounds are not uncommon in Alaskan waters south of the Alaska Peninsula.

In 1953 U. S. and Japanese fishing fleets caught more than 1,500,000 king crabs in the Bering Sea adjacent to Bristol Bay. The U. S. part of the catch is picked and quick frozen aboard the fishing vessel.



California

COMMERCIAL FISHING VESSELS NOW NEED LICENSE: Every boat used for commercial fishing in California, whether it's a rowboat or a sea-going clipper, must be registered with the Department of Fish and Game this year, according to that Department's April Outdoor California. The registration fee set by the 1953 Legislature is \$10.

The new law became effective April 1. Its purpose is to spread the cost of fisheries surveys and management more equally among users of the State's fish resources.

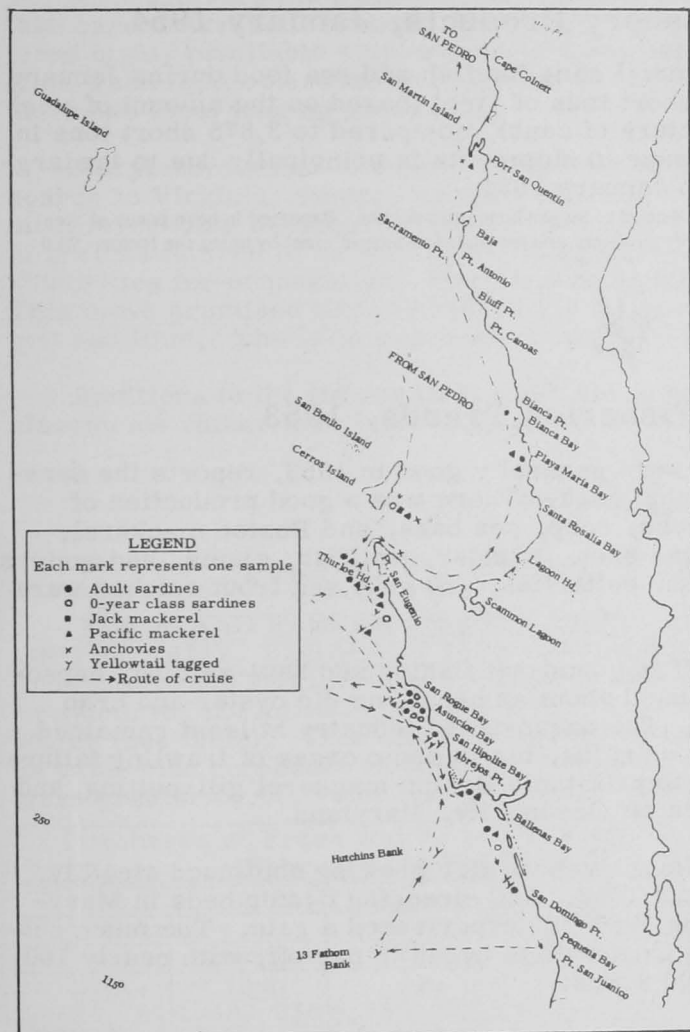
The law applies not only to full-time commercial fishermen but also to seasonal operators who fish commercially only during the peak times of the year.

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YELLOWTAIL TAGGED AND SARDINE POPULATION SURVEYED BY "YELLOWFIN" (Cruise 54-Y-2): A total of 462 yellowtail was tagged between San Cristobal Bay and 13 Fathom Bank by the California Department of Fish and Game's research vessel Yellowfin. The vessel was on a 19-day cruise along the coast of central Baja California from Cabo Colnett to Pt. San Juanico. In addition, tests were made with the blanket net in sampling fish populations; and a survey was made of the sardine population in the area between Pt. Eugenia and Hopolito Bay from 20 to 50 miles offshore. The Yellowfin returned to Los Angeles on February 14.

Of the 462 yellowtail tagged, 394 were tagged with vinylite tubing tags and 68 with jaw tags. An effort was made to get a better condition factor on yellowtail marked with jaw tags by taking the weights to the nearest quarter pound. Although 49 marked yellowtail were weighed, the roll of the ship and activity of the live fish make the results of doubtful value. Scale samples were kept from 230 of the tagged fish. Chromatograms were made from yellowtail which were casualties.

Approximately 15,000 sardines were taken in a single set with the blanket net, and 7 sets yielded more than 1,000 sardines per set. Approximately 5,000 northern anchovies were taken in one set. Other species taken included: jack smelt, round herring, needlefish, queenfish, saury, California barracuda, California bonito, halfmoon, and squid.



M/V Yellowfin (Cruise 54-Y-2) January 26-February 14, 1954. Each mark represents one sample.

Sardines in a spawning condition were collected with the blanket net 2 miles ESE. of Pt. Abrejos. The sea surface temperature at this station was 18.2° C. (64.8° F.). Sardines were taken along the entire coast surveyed with the greatest concentration occurring in the vicinity of Asuncion Bay.

The Yellowfin traveled 175 miles while scouting for fish between Pt. Eugenia and Hipolito Bay from 20 to 50 miles offshore. No schools of fish were observed in this region. Three light stations were occupied in this offshore area, but no sardines were seen or collected. Squid and juvenile sauries were present under the light at these three stations.

After a trial run during the day to adjust the high-speed net, a haul was made at night in an area where schools of fish were sighted before and during the haul. The entire net was torn from the ring during this one-hour haul.



Cans--Shipments for Fishery Products, January 1954



Total shipments of metal cans for fish and sea food during January 1954 amounted to 4,131 short tons of steel (based on the amount of steel consumed in the manufacture of cans), compared to 3,875 short tons in January 1953. The increase in shipments is principally due to the larger pack of canned tuna in January 1954.

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 Fisheries, Trends, 1953

Fisheries in the Chesapeake Bay were generally good in 1953, reports the Service's Fishery Marketing Specialist in that area. There was a good production of menhaden, alewives, hard and soft crabs, scup, sea bass, and Boston mackerel. Moderate catches of shad, striped bass, spot, flounder, wolffish, clams, and oysters were reported, while croaker, bluefish, butterfish, and gray sea trout catches were light.

There was a perceptible falling off in pound-net fishing and haul-seining, especially in Virginia; but gill-netting continued about as usual, as did oyster and crab fishing in both Maryland and Virginia. The ocean-trawl industry at least remained stable, showing no spectacular losses or gains, but in some cases of trawling failure the boats were sustained by switching to profitable Boston mackerel gill-netting, and to surf-clam dredging in a limited area off Ocean City, Maryland.

In Virginia the leasing of ground for private oyster growing continued steadily, though at a somewhat reduced pace from 1952. Sail-dredging oyster beds in Maryland after reaching the low point during 1950-52, experienced a gain. The much publicized Smith's Island Oyster-Growing Cooperative began to pay off, with nearly 100 power boats working profitably on 3,000 acres.

Prices for oysters, both shell stock and shucked, hovered around the highest in history. This was due mostly to large orders from the Armed Forces. Prices were gratifying to the fishermen, provided they caught enough fish. Alewives at times glutted the food market and the surplus was used by the reduction plant. The sale of canned alewives was stimulated by the failure of the California pilchard fishery. The marketing of salted and pickled alewives remained uncertain.

A gradual branching out into specialty lines was noted as more and more members of the industry strove to solve the uncertainties of Chesapeake Bay fish and shellfish with the possible exception of oysters. New canned and frozen lines included

quality soups, ready-to-cook crab cakes, and "seafood dinners," breaded oysters or shrimp, and pan-ready fish. There was a vast emphasis on packing frozen fish, as well as salted fish, under private supermarket labels.

Recent changeovers to new gear proved worth continuing: sea-bass pots were productive in Maryland-Virginia ocean waters; an attempt to gill net sturgeon in the Atlantic was successful. The ingenious soft-clam dredging apparatus introduced on Maryland's Eastern Shore in 1950 continued harvesting available beds in Talbot and Queen Anne's Counties, but at year's end operators were looking desperately for new beds. The menhaden industry continued its inquiries into labor-saving devices. Further developments along this line are likely to occur during 1954.

Although Virginia's seed-oyster fishery remained closed to export in order to take care of domestic demand, no envisioned scarcity materialized. The beds offered highly profitable employment to many hundreds of tongers from all over the State who might otherwise have felt the pinch because of the steady deterioration of their own local tonging grounds.

Maryland, forced to supply all its own seed oysters after being cut off from the source in Virginia, stepped up shell planting in areas where spatfall had been judged most favorable. Reassuring results were reported. Both States increased the quota of shells required to be held by shucking houses at the disposal of the conservation authorities for propagation: Maryland up to 50 percent, Virginia to 20 percent. This move promised little relief for the squeeze on manufacturers of oyster-shell grit and lime. The largest producer operated mainly with reef shells from Alabama.

Additions to the fishing fleet continued light. The new boats represented replacements rather than increased vessel-building activity.



Federal Purchases of Fishery Products

FRESH AND FROZEN FISHERY PRODUCTS PURCHASED BY DEPARTMENT OF THE ARMY, FEBRUARY 1954: The Army Quartermaster Corps in February 1954 purchased 2,421,724 pounds (valued at \$1,011,558) of fresh and frozen fishery products for the military feeding of the U. S. Army, Navy, Marine Corps, and Air Force (see table). This was 82.3 percent greater in quantity and 69.3 percent higher in value than purchases in January; compared with a year ago, February purchases were greater by 63.3 and 16.8 percent, respectively.

Purchases of Fresh and Frozen Fishery Products by Department of the Army (February and the First Two Months of 1954 and 1953)							
QUANTITY				VALUE			
February		January-February		February		January-February	
1954	1953	1954	1953	1954	1953	1954	1953
Lbs.	Lbs.	Lbs.	Lbs.	\$	\$	\$	\$
2,421,724	1,483,034	3,750,223	3,041,206	1,011,558	866,229	1,609,010	1,706,245

Fresh and frozen fish purchases by the Army Quartermaster Corps during the first two months in 1954 totaled 3,750,223 pounds (valued at \$1,609,010)--23.3 percent more in quantity, but 5.7 percent lower in value as compared with the similar period a year earlier.

The over-all average price paid for fresh and frozen fishery products by the Department of the Army in February was 41.8 cents per pound, compared with 45.0 cents in January and 58.4 cents in February 1953.

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.

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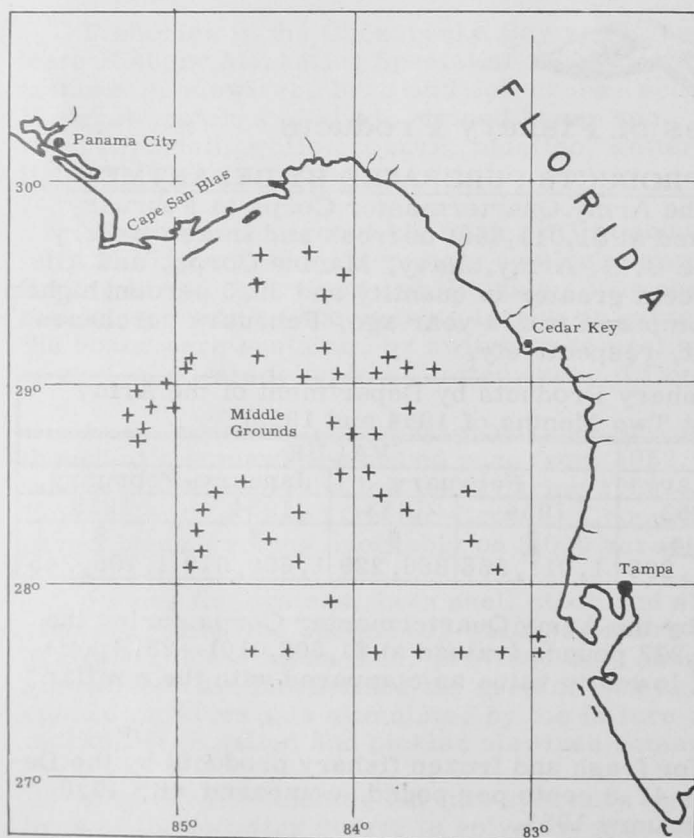
U. S. ARMED FORCES IN GERMANY BUY NORWEGIAN OCEAN PERCH FILLETS: The U. S. Armed Forces in Germany recently purchased 100 metric tons of frozen ocean perch and haddock fillets from Norway, a March 19 U. S. Embassy dispatch from Oslo reports. While this sale was considered relatively small, it was gratifying to the Norwegian cooperative fish exporting company because sales on this market have been infrequent.

The major hindrances to increased fish sales by Norway to the U. S. Army in Europe have been the poor catches of the last three years and the need to send available supplies to the developing U. S. market, according to a Norwegian trade source. Another handicap has been the requirement that the U. S. Army inspect the fish during processing. This prevents the Norwegians from selling fish out of stocks on hand, and makes it difficult for the selling organization to guarantee delivery on a fixed date.



Gulf Exploratory Fishery Program

"ECHOGRAPH" DEPTH SOUNDER TESTED BY "OREGON" (Cruise 21): A newly-installed "Echograph" depth sounder was used by the Service's exploratory fishing vessel Oregon on a 3-week exploratory shrimp trawling cruise completed at Pascagoula, Mississippi, on March 23. The "Echograph" allowed the vessel to avoid major obstructions, such as large coral heads, loggerhead sponge patches, and rock outcroppings. Trawling was carried out in the area between Cape San Blas and Tampa Bay, Florida.



Approximate locations of shrimp trawl drags made by the Oregon. This chart shows distribution of fishing.

During the cruise 51 trawling stations were made east and southwest of Cape San Blas, chiefly over bottoms which previous observations had shown to be a poor trawling area, generally too hazardous for trawling with standard type gear. All of the drags were made without loss of gear. This may be attributed, at least in part, to the use of extra heavy duty shrimp trawls protected with bull hide chafing gear. Also, very precise bottom delineation was provided by the "Echograph" depth sounder.

The catches were phenomenally low. The average amount of fish and scrap obtained was the lowest for any area in the Gulf of Mexico

covered by the Oregon. A few drags made west of Cape San Blas on this cruise produced the usual large amount of scrap.

Pink shrimp were taken in very small numbers inside of the 15-fathom curve between Cedar Key and Tampa Bay. Outside the 15-fathom curve not a single shrimp of a commercially valuable species was taken.

Although all drags throughout the Cape San Blas to Tampa Bay area produced few fish, "Echograph" depth sounder recordings inside the 10-fathom curve near Tampa Bay indicated the presence of schools of small fish. Most of these were not identified but some were found to be made up of small pinfish.

The Oregon sailed from Pascagoula on March 31 on Cruise 22 and was scheduled to work on the continental slope of the west coast of Florida between Tampa Bay and Dry Tortugas. The Oregon was due to return to Pascagoula on April 23.

The objectives of this cruise were to: (1) to make exploratory drags for pink shrimp chiefly in the 15- to 25-fathom range between the Tampa Bay and the northern limits of the Tortugas pink shrimp fishery; (2) extend exploratory dragging on three east-west lines extending from the shore to the edge of the continental shelf in the approximate latitudes of Venice, Boca Grande, and Everglades, Florida; (3) continue tests of gear trawls for rough bottom, bottomless trawls, and depth sounder shrimp locating devices where conditions require use of special gear; (4) set baited long lines for tuna during the final four days of the cruise off the western tip of Florida and, on the return trip to Pascagoula, wherever depth sounder indications show the probable presence of tuna.

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SHRIMP EXPLORATIONS, 1952/53: Shrimp explorations in the Gulf of Mexico during 1952 and 1953 have resulted in discoveries of one extensive new fishing area for brown-grooved shrimp near the Mississippi Delta which was immediately utilized by the commercial fishing fleet; and one extensive area for deep-water red shrimp, a kind that has not yet been fished commercially.

Explorations by the Service's exploratory fishing vessel Oregon through 1953 for brown-grooved shrimp have been sufficiently comprehensive to define all of the major areas of possible production along the Gulf Coast of the United States and to point out that the only presently unworked area of importance is the 35- to 50-fathom depth range on the coast of Louisiana and Texas between the 91st and 95th meridians.

Explorations for pink-grooved shrimp have produced good catches on, or quite near, the major pink shrimp fishing grounds off Tortugas, Florida, and Campeche, Mexico, but in no other areas. The eastern Campeche Bank and the Florida west coast, believed to offer possibilities for good production of pink-grooved shrimp, are bad trawling bottom areas and profitable trawling operations in them require development of new gear or methods.

Red shrimp, a kind of shrimp not yet entering the commercial fishery, was found in 150 to 375 fathoms between Tampa and Aransas Pass. Catches show production possibilities if improvements in the methods of handling shrimp trawls in deep water can be worked out.

No evidence of stocks of white shrimp other than those now known to the shrimp fishery were found by the Oregon.

This is a summary of a report on shrimp explorations in the Gulf of Mexico by the Service's exploratory fishing vessel Oregon prepared for the meeting of the Gulf States Marine Fisheries Commission, held in New Orleans on March 18 and 19.



Hawaii

COMMERCIAL FISH CATCH, 1953: The commercial fish landings for the Territory of Hawaii during 1953 totaled 18,798,536 pounds, valued at \$3,758,217 to the fishermen--an increase of 35.7 percent in volume and 10.2 percent in value as compared to 1952 (see table). This increase is principally due to the large skipjack tuna (aku) catch which started in early spring and continued through the late summer months. The skipjack tuna catch in 1953 amounted to 12,059,406 pounds, valued at \$1,593,744--65.4 percent more in weight and 49.9 percent more in value than the catch of the previous year.

Hawaiian Commercial Fish Catch and Value by Species, 1953 and 1952										
Species		1953		1952						
		Quantity	Ex-vessel Value	Quantity	Ex-vessel Value					
English	Hawaiian	Lbs.	\$	Lbs.	\$					
Ocean Catch:										
Amberjack	kahala	94,706	17,796	168,076	39,975					
Big-eyed scad	akule	314,458	201,831	382,302	231,988					
Dolphin	mahamahi	162,554	66,728	178,601	68,954					
Goatfish	weke-ula weke moana kumu	163,967	109,669	164,226	103,677					
						ulua	297,106	94,530	231,426	84,196
						opelu	248,727	92,983	248,416	90,977
Jack crevalle	hapuupuu	74,168	20,583	91,913	31,422					
Mackerel	uku	73,514	29,761	67,024	26,085					
Sea bass	opakapaka	214,831	87,383	300,658	120,484					
Snapper:	a'u	953,376	220,145	938,961	304,509					
Gray										
Pink										
Swordfish										
Tuna and tunalike fishes:										
Albacore	ahipalaha	49,407	8,552	104,721	23,823					
Big-eyed	ahi	2,826,172	761,251	2,206,231	688,218					
Yellowfin		621,654	156,961	855,655	260,127					
Skipjack	aku	12,059,406	1,593,745	7,291,851	1,063,454					
Bonito	kawakawa	24,639	4,820	54,428	11,710					
Miscellaneous	-	619,851	291,479	570,326	259,295					
Total Ocean Catch	-	18,798,536	3,758,217	13,854,815	3,408,894					
Pond Catch:										
Bonefish or ladyfish	oio	2,446	1,239	2,078	872					
Clam	olepe	9,746	2,111	7,043	1,495					
Crabs	-	3,889	1,477	1,836	880					
Milkfish	awa	9,465	3,827	11,798	5,460					
Mullet	amaama	29,855	26,065	29,734	26,715					
Tenpounder	awaawa	3,228	1,253	5,179	2,212					
Miscellaneous	-	5,240	3,650	3,806	2,896					
Total Pond Catch	-	63,869	39,622	61,474	40,530					
Grand Total	-	18,862,405	3,797,839	13,916,289	3,449,424					

The flag-line fishery for the large tunas (big-eyed and yellowfin tuna, ahi) swordfishes (a'u), and other pelagic fishes, such as the wahoo (ono) and dolphin (mahimahi), totaled 4,693,845 pounds, valued at \$1,231,400. This represents a 7.6 percent increase in weight, but a decrease of 10.2 percent in value. A large part of this increase in volume in the flag-line catch is due to the increase in the catch of big-eyed tuna. The catch for this species totaled 2,826,172 pounds, a 28.1 percent increase over that of the previous year. The decrease in value is caused by the large amount of big-eyed and yellowfin tuna (ahi) caught, plus a highly competitive situation between two marketing organizations which auction most of the fresh fish in Honolulu.

Maryland

SURVEY REVEALS FEWER OYSTERS IN CHESAPEAKE BAY: Market-size oysters in the Chesapeake Bay were fewer in 1953 than in 1952, according to a survey of 132 oyster bars in the Maryland portion of Chesapeake Bay and tributaries during the fall of 1953. The survey was the latest cooperative annual examination of the area by the Chesapeake Bay Shellfish Investigations of the Maryland Department of Tidewater Fisheries, the Maryland Department of Research and Education, and the U. S. Fish and Wildlife Service's Branch of Fishery Biology. Small oysters were found to be fewer than market size, which may mean a smaller harvest for 1954/55. Spatfall in all places, except some Eastern Shore tributaries, was sparse and will certainly be responsible for a continued low yield of oysters from Maryland.

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STRIPED BASS SURVEY EXTENDED: The Maryland Department of Tidewater Fisheries recently appointed two biologists to conduct a survey of the spawning habits of striped bass in Maryland and to coordinate research, especially that at the Chesapeake Biological Laboratory with that of the Fisheries Commission.

The study, designed to supplement existing research conducted by the Department of Research and Education, is financed in part by Federal funds made available through the Dingell-Johnson Act. Four objectives are included in the new study: (1) delimit the spawning areas of striped bass in major rivers in the State; (2) determine the season and duration of spawning; (3) compare the production of each river to the Maryland striped bass population; (4) and determine the effect of net fishing on the spawning ground.

With the cooperation of the North Carolina Wildlife Resources Commission, the Chesapeake Biological Laboratory will continue studies in an attempt to evaluate the 15-pound top limit on striped bass in Maryland waters. A preliminary report already has been published which treats of egg production versus size and age of striped bass. The work in North Carolina, now entering its second season, attacks the problem of comparative viability of eggs from young and old striped bass.



Massachusetts

NEW BEDFORD FISHERIES PRODUCTION, 1953: The New Bedford production of fish for human consumption was down in 1953 due to: (1) a general scarcity of fish, (2) conversion of ten medium otter trawlers to scallopers, and (3) the departure of 21 vessels for the shrimp fisheries in the Gulf area during the last quarter of the year.

Production of yellowtail flounder, once the mainstay of the local small vessel fleet, reached the lowest point since 1938. The majority of yellowtail landed at New Bedford since 1949 was Georges Bank fish caught by the larger vessels. Prior to 1949 most of the fish were from the Block Island-Nantucket Lightship area, and were landed by the small inshore vessels. This latter area is now virtually barren of yellowtail flounder except for a small run during the winter months, reports the Service's Fishery Marketing Specialist in New Bedford.

Landings of groundfish and other flounders declined because of the conversion of the larger vessels to scallop fishing. The remaining large vessels concentrated on fluke and tilefish during the first quarter of the year as these species were relatively more abundant and brought higher prices.

Sea-scallop production in 1953 reached the highest peak yet recorded, but during the last quarter of the year frozen inventories were piling up, and the price was unstable.

Landings of trash fish increased and prices were higher than in 1952.



Minimum Mesh Regulation Benefits New England Haddock Fishery

New England trawler fishermen are benefiting at the rate of \$1 million per year by the new mesh regulation which went into effect on June 1, 1953, Secretary of the Interior McKay stated on March 22.

The regulation was promulgated by the United States at the recommendation of the International Commission for the North Atlantic Fisheries, which was organized three years ago to study the conservation of groundfish in the Northwest Atlantic--an area fished by ten countries.

The regulation requires a minimum size of $4\frac{1}{2}$ inches for trawl nets used in haddock fishing. Before regulation, the average size used was 2-7/8 inches.

The regulation is designed to conserve undersize haddock which were previously destroyed at sea. The saving of these small fish is expected to increase the sustained yield of the haddock stocks by about 30 percent. Over and above this benefit, the large-mesh nets are proving more efficient in capturing the larger size of haddock and other fish.

During the first seven months of regulation, eight control or study boats were licensed to fish with the old small-mesh nets. Using these as a basis of comparison, it was found that the vessels which had converted to large mesh discarded almost no undersized haddock, but at the same time landed more pounds of haddock and other groundfish.

During a three-month study period (October to December 1953), the average catch per trip by the study boats was 68,000 pounds, while the average catch per trip of the converted boats was over 75,000 pounds. The catch of the study boats was down 10 percent from the 1952 period, while the catch of the converted boats held steady.

The landings of groundfish at Boston alone during the three-month period amounted to about 33 million pounds, worth about \$3 million ex-vessel. Had the regulations not been in effect, this amount would have been about 10 percent less, or down by about \$300,000. There is every indication that the advantage enjoyed by large-mesh vessels will continue throughout the year, when the benefit to the fishery will be at the rate of \$1 million annually.

Scientists of the Woods Hole, Mass., Laboratory of the U. S. Fish and Wildlife Service conducted the research leading up to the regulation, and are at present pursuing intensive research to test the effect of the law. The Service is required to report annually to the International Commission. Service observers are sent to sea on commercial trawlers regularly throughout the year to measure the sizes, ages, and quantities of fish caught and of fish discarded at sea by both the regulated boats and the study group.



Pacific Halibut Regulations for 1954 Signed by President

The Pacific Coast halibut fishing regulations for the 1954 season proposed by the International Pacific Halibut Commission were approved by President Eisenhower on April 9, 1954. The 1954 regulations appeared in the April 22, 1954, issue of the Federal Register.

The opening date for halibut fishing in all areas established by the Commission is 12:01 a.m., May 16.



Pacific Oceanic Fisheries Investigations

ALBACORE TUNA DISCOVERED NORTH OF HAWAII BY "JOHN R. MANNING" (Cruise 19): An important discovery of albacore tuna, which may foretell a new industry of the future for Hawaii, was made by the POFI research vessel John R. Manning on an 18-day cruise completed at Pearl Harbor, T.H., on February 6, Part I of Cruise 19. These fish were caught at 34° N. latitude along 160° W. longitude. Albacore tuna had never been taken in these open ocean waters before.

Fishing was carried out by the long-line method, the vessel employing about 13 miles of line with baited hooks every 100 feet. The lines were hung from flagged buoys and sunk to depths of about 300 feet below the surface. Sets were made in the early morning and the line hauled in the afternoon. Although fishing only experimental amounts of gear, over one ton of albacore tuna was caught in one day before heavy weather set in preventing further fishing.

Although many attempts were made to locate the depth of fishing gear by the use of the "fathometer," no success was attained and the depths at which the fish were taken will have to be indirectly calculated.

A total of 47 albacore tuna, 69 big-eyed tuna, 3 yellowfin tuna, 4 skipjack tuna, 40 sharks, and 26 miscellaneous fishes were taken in the 9 days of fishing. An unexpected high concentration of big-eyed tuna was encountered just south of where the albacore tuna were caught, being centered at 31° N. latitude.

The concentration of small big-eyed tuna was a distinct surprise. Since this is the first time any numbers of 50- to 60-pound big-eyed tuna have been taken in central Pacific waters, the question arises as to whether this region is a nursery grounds for the smaller big-eyed. The large albacore, ranging from 45 to 75 pounds, were larger than expected. The tagging of these and subsequent albacore tuna may answer the question as to whether these fish contribute to the Japanese fishery--possibly at another time of the year.

It was of interest to find that these large albacore, reaching 75 pounds in weight, were in a nonspawning condition. The reproductive organs in all were very small, decidedly months from active spawning condition. The big-eyed appeared to be in an early maturing condition. The skipjack were not in a spawning condition.

Since so many of the big-eyed tuna and albacore tuna were alive, the opportunity afforded itself to tag these viable fish. Thus, 30 big-eyed tuna and 26 albacore tuna were tagged.

To test the acceptability of the tuna for canning, 16 small big-eyed less than 100 pounds in weight and 18 albacore were frozen and canned in Honolulu. The albacore made a very good pack with no green albacore but a small amount of blood streaks. The small big-eyed were fair; the meat color was light but some blood streaks were noted.

In order to study the food and feeding habits of the tunas found north of Hawaii, 12 albacore, 20 big-eyed, 3 yellowfin, and 3 skipjack stomachs were preserved for study in the laboratory. The fish were feeding actively and food seemed abundant. The tunas were feeding on sauries, hatchetfish, lancetfish, squid, shrimp, and a host of other forage organisms. Temperature records were continuously taken; a preliminary examination indicates the large adult albacore tuna were found between 58° F. and 62° F. surface water temperatures. For racial studies a series of morphometric measurements were taken from 18 albacore tuna, 32 big-eyed tuna, 3 yellowfin tuna, and 4 skipjack tuna, in addition to 3 sharks.

No surface schools of tunas were seen on this cruise outside the sight of the Hawaiian Islands, although careful wheel watch was maintained for bird flocks and school signs.

These studies of potential tuna fisheries resources are being carried on simultaneously with similar studies by the Pacific Coast states, and the California research vessel N. B. Scofield is now exploring the region east of the area being surveyed by the John R. Manning to extend our knowledge of the high-seas tunas to the west coast of the United States. Despite very bad weather the John R. Manning performed well and was due to leave Honolulu within a week to continue further research in the more northern waters.

The vessel left Pearl Harbor on February 16 on Part II of Cruise 19 and fished 7 stations along 155° W. longitude from 29° to 35°16' N. latitude; one station at 34°02' N., 150°26' W.; and another at 35°57' N., 147°00' W. Because of very bad weather conditions, the remaining stations along 147° were abandoned. The vessel returned to Pearl Harbor on March 10.

In nine days of fishing, 22 big-eyed tuna, 1 skipjack tuna, 2 broadbill swordfish, 61 sharks, 1 sting ray, and 86 lancetfish (Alepisaurus sp.) were caught. No albacore were taken during this portion of the cruise.

Fishing along 155° W. longitude was conducted in waters with surface temperatures ranging between 68° F. and 57.5° F. The remaining two stations further to the east were occupied in the 61° and 58.1° F. surface isotherms, respectively. The lowest temperature in which big-eyed tuna was taken was 61° F.

No surface schools of tunas were seen in the areas fished. Two hours of standardized surface trolling (using 5 lines) along the long-line set at each station resulted in no catch.

Attempts at locating the depth of the gear by the use of the "fathometer" met with failure. Between the 2 types of gear used (30 baskets with 5-fathom float line, 30 baskets with 15-fathom float lines) no differences were seen in the catch with the possible exception of the big-eyed tuna, only 7 of the 22 fish being caught on the shallower-fishing 5-fathom float-line gear.

Eleven big-eyed tuna were measured, tagged, and released. These tagged fish varied from 105 to 167 cm. in total length.

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TWO-VESSEL EXPEDITION CATCHES 100 TONS OF TUNA OFF CHRISTMAS ISLAND ("North American" and "Alrita," 1st Concurrent Cruise): Two commercial vessels--North American and Alrita--fishing for 31 days with long lines off Christmas Island, caught a total of 103 tons of yellowfin tuna. The vessels sailed from San Diego on January 12, fished in the vicinity of Christmas Island (2° N., 157° W.) January 28 to February 28, and arrived at Honolulu on March 7. A POFI fishery research biologist accompanied the cruise as observer.

The North American is an 86-foot live bait clipper, originally constructed as a purse seiner, and it normally fished for tuna out of San Diego. The Alrita is a 70-foot combination boat normally fishing for halibut and albacore along the North Pacific Coast. Each vessel carried a complement of 7 men.

The two vessels fished a combined total of 59 boat-days, fishing an average of 56 baskets of long-line gear per day per boat. The gear used had a 1,620-ft. main line per basket and 15 hooks per basket. Most of the fishing was done within 30 miles of Christmas Island.

The average catch was 1.9 tons of fish per day excluding sharks. Of this 1.8 tons was yellowfin tuna, with a few albacore, big-eyed, and skipjack. In addition to the tuna, a few marlin and many sharks were captured.

The yellowfin tuna averaged about 82 pounds. The catch was actually comprised of two groups of fish, one averaging about 55 pounds, and making up 41 percent of the total weight, and a second group averaging about 135 pounds, comprising 59 percent of the catch.

The North American delivered 116,200 pounds of tuna to the cannery at Honolulu, and the Alrita delivered 89,910 pounds. In addition, the two vessels combined landed 5 tons of marlin, big-eyed, wahoo, and other species that entered the local trade channels in Honolulu. Rejections at the cannery resulted in a 4 percent penalty against the Alrita's fish, and 21 percent for the North American. The reason for the variation in percentage of rejection is not yet apparent since both catches were taken in the same area.

* * * * *

ARTIFICIAL TUNA BAIT STUDIES IN 1953: Tuna kept in captivity respond vigorously to extracts of tuna flesh, viscera, or blood, or to the extract of squid or shrimp, it was disclosed in a summary of the studies by POFI in 1953 on the response of tuna to chemical stimuli. Studies of mechanics of the response show that part of the response is a "conditioning" of the fish in the pond.

Considerable sea testing of chemical extracts indicate no measurable attraction. It was concluded that the sense of smell by itself plays little part in the feeding of tuna in their natural environment.

A study of the response of tuna to visual stimuli showed the tuna to be momentarily attracted to shiny objects but the visual artificial lures were not successful in holding the school behind the boat. Another attempt is being made to develop an artificial lure imparting motion as well as appearance.

* * * * *

HAWAIIAN SKIPJACK TUNA DISTRIBUTION STUDIED: A study by the Service's Pacific Oceanic Fishery Investigations of the distribution of skipjack schools in Hawaiian waters based on the 1953 scouting has revealed that the abundance of schools continued high from close inshore to a distance of 350 miles south and west of Oahu. At the same time the Hawaiian sampan fleet was catching three-fourths of its catch within 20 miles of land, according to a quarterly report by POFI.

Trials of airplane scouting for tuna proved disappointing; about 10 times as many schools were seen over comparable areas by the vessel when compared with the plane. Since practically all fish schools are located by observing bird flocks over them, it was concluded that the dark-colored shear-waters and terns probably are an important contributing factor in the differences in scouting efficiency between vessel and plane.

* * * * *

OCEANOGRAPHIC STUDY OF ALBACORE TUNA GROUNDS COMPLETED BY "HUGH M. SMITH" (Cruise 25): A 53-day oceanographic cruise to the potential albacore tuna fishing grounds north and east of Hawaii was completed on March 17 at Honolulu by the Service's research vessel Hugh M. Smith. The vessel made detailed observations of the chemical and physical characteristics of the area. This completes the survey which included the recent experimental fishing trip of another Service vessel, the John R. Manning.

This is the most thorough oceanographic study that has ever been made of this area. It is expected that the information collected on this cruise will add greatly to a better understanding of the fish productivity and complicated current systems in the area.

The Hugh M. Smith occupied 89 hydrographic stations at which water samples for chemical analysis were collected at 13 depths between 0 and 4,000 feet. Net hauls were made at each station between the surface and 600 feet to sample zooplankton. At each station and at frequent intervals between stations, bathythermograph lowerings were made to determine subsurface temperature structure and the surface currents measured by means of an underway current meter.



Puerto Rico

MARINE LABORATORY UNDER CONSTRUCTION: A new marine laboratory was nearing completion at Mayaguez, Puerto Rico, according to a March 29 report from the University of Puerto Rico. There are seven spacious aquarium tanks on one side of the building; the tanks will eventually contain live fishes for study and public display. There will also be some smaller tanks inside for small fishes and for photography of larger fishes. At the western edge of the island there is a large corral for fishes with a three-sided pier around the outside so that visitors may walk all around and observe the sea turtles, sharks, and bright-colored coral reef fishes.

Several lines of fishery studies might be carried out as follows: (1) establish a small museum by a representative collection of preserved fishes with adequate series of different sizes of fishes for each species; (2) study of the color patterns of certain coral reef fishes which are known to change considerably with age; (3) study of the migrations of fishes through tagging or the clipping of fins; (4) keep records of the stomach contents of certain fishes to determine their food habits; (5) study the spawning habits of fishes in their natural habitat under water or in the artificial habitat of an aquarium; and (6) maintain records of any occurrences of fish poisoning or ciguatera that may occur and possibly conduct feeding experiments with laboratory animals.



U. S. Foreign Trade in Edible Fishery Products

JANUARY 1954: United States imports of fresh, frozen, and processed edible fish and shellfish during January 1954 totaled over 59 million pounds (valued at \$15.1 million), according to the January United States Foreign Trade, a Department of Commerce publication (table 1). This is an increase of 9 percent in quantity but one percent lower in value as compared with December 1953 imports of over 54 million pounds (valued at \$15.4 million). Compared with a year earlier, January imports were up 19 percent in quantity and 4 percent in value.

Exports of processed edible fish and shellfish (excluding fresh and frozen) in January 1954 totaled over 4 million pounds (valued at \$1.0 million)--higher by 13

Table 1 - United States Foreign Trade in Edible Fishery Products, January 1954 With Comparisons

	January 1954		December 1953		January 1953	
	Quantity 1000 Lbs.	Value Million \$	Quantity 1000 Lbs.	Value Million \$	Quantity 1000 Lbs.	Value Million \$
Imports:						
Fish and shellfish: fresh, frozen, and processed ^{1/}	59,263	15.1	54,219	15.4	49,954	14.5
Exports:						
Fish & shellfish: processed ^{1/} only (excluding fresh and frozen)	4,248	1.0	3,769	1.0	5,673	1.4

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

percent in quantity but unchanged in value as compared with December exports of slightly less than 4 million pounds (valued at \$1.0 million). However, January exports were down 25 percent in quantity and 29 percent in value from a year earlier.

Table 2 - United States Foreign Trade in Edible Fishery Products, 1953 and 1952

	1953		1952	
	Quantity 1000 Lbs.	Value Million \$	Quantity 1000 Lbs.	Value Million \$
Imports:				
Fish & shellfish: fresh, frozen & processed ^{1/}	724,656	193.2	705,118	183.1
Exports:				
Fish & shellfish: processed ^{1/} only (excluding fresh and frozen)	58,920	14.4	56,604	13.5

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

YEAR 1953: U-nited States imports of fresh, frozen, and processed edible fish and shellfish during 1953 amounted to over 724 million pounds (valued at \$193.2 million), an increase of 3 percent in quantity and 6 percent in

value, compared with 1952 when imports totaled 705 million pounds (valued at \$183.1). Exports in 1953 totaled almost 59 million pounds (valued at \$14.4 million) as compared with over 56 million pounds (valued at \$13.5 million) in 1952 (table 2).



Washington State

FISHERIES SCHOOL OFFERS SCHOLARSHIPS: The University of Washington School of Fisheries recently announced offers of financial assistance to outstanding graduate students, undergraduate students, and high school seniors in the form of scholarships with awards from \$250 to \$500 per school year, and by assistantships and part-time employment with stipends ranging from \$600 to \$2,000 per year.

The assistantship or part-time employment usually is, but need not necessarily be, on research leading to an advanced degree. Both summer and part-time employment are usually available in a number of fisheries research organizations located on or near the University Campus at Seattle, Washington,

Further information may be obtained from Dr. Richard Van Cleve, Director, School of Fisheries, University of Washington, Seattle 5, Washington.

Wholesale Prices, March 1954

Because of the usual seasonal increase in production, wholesale prices for fresh and frozen drawn, dressed, or whole finfish from February to March dropped; but this decline was more than completely offset by higher prices for processed fish and shellfish products. The March 1954 over-all edible fish and shellfish (fresh, frozen, and canned) wholesale index was 107.4 percent of the 1947-49 average (see table)--0.2 percent more than the February index and 4.5 percent above that of a year earlier.

Among the drawn, dressed, or whole finfish, the sharp drop (20.4 percent) in the ex-vessel price of offshore drawn large haddock from February to March was almost solely responsible for the drop (4.5 percent) that occurred in this subgroup index. However, prices for drawn large haddock this March were 30 percent higher than in the same month last year, and the index for this subgroup was still 17.3 percent higher.

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

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices ¹ / (\$)		Indexes (1947-49=100)			
			Mar.	Feb.	Mar.	Feb.	Jan.	Mar.
			1954	1954	1954	1954	1954	1953
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)								
					107.4	107.2	114.0	102.8
Fresh & Frozen Fishery Products:					112.2	114.1	125.6	105.7
Drawn, Dressed, or Whole Finfish:					111.2	116.5	131.3	94.8
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.09	.12	95.4	119.8	170.1	73.4
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.31	.31	97.0	94.9	95.9	102.1
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.56	.51	125.8	115.2	109.0	109.6
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.65	.61	161.1	151.2	150.0	100.4
Whitefish, L. Erie pound or gill net, rnd., fresh	New York	lb.	.63	.74	126.4	148.6	131.5	73.8
Lake trout, domestic, No. 1, drawn, fresh . .	Chicago	lb.	.65	.64	133.2	131.1	124.0	129.1
Yellow pike, L. Michigan, rnd., fresh	New York	lb.	.60	.60	140.7	140.7	117.2	129.0
Processed, Fresh (Fish & Shellfish):					114.9	112.6	123.4	122.1
Fillets, haddock, sml., skins on, 20-lb. tins .	Boston	lb.	.33	.39	113.1	132.7	139.5	102.1
Shrimp, lge. (26-30 count), headless, fresh or frozen	New York	lb.	.72	.64	113.0	101.2	114.2	130.4
Oysters, shucked, standards	Norfolk	gal.	4.75	4.88	117.5	120.6	129.9	117.5
Processed, Frozen (Fish & Shellfish):					110.5	108.3	108.7	112.7
Fillets: Flounder (yellowtail), skinless, 1-lb. pkg.	Boston	lb.	.38	.40	98.2	103.4	108.7	115.7
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.34	.34	105.1	111.4	102.0	76.2
Ocean perch, skins on, 1-lb. pkg.	Boston	lb.	.29	.29	117.8	114.8	110.7	114.4
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	lb.	.73	.68	113.0	104.5	110.3	127.3
Canned Fishery Products:					100.4	96.9	96.9	98.5
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs. .	Seattle	case	18.70	17.70	99.1	93.9	93.9	104.4
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	case	14.20	14.20	102.4	102.4	102.4	92.4
Sardines, Maine, keyless oil, No. 1/4 drawn (3-1/4 oz.), 100 cans/cs.	New York	case	8.70	8.20	92.6	87.3	87.3	81.9

¹/Represent average prices for one day (Monday or Tuesday) during the week in which the 15th of the month occurs.

Lower March prices for fresh haddock fillets and shucked oysters were more than offset by higher quotations for shrimp. Therefore, the March fresh processed subgroup index rose 2.0 percent above the previous month, but was down 5.9 percent from March 1953. Demand for fresh shrimp in March was better than in February.

Although March quotations for processed frozen fish and shellfish were 2 percent higher than the same month a year earlier, they were 2 percent below the previous month's prices. From February to March, lower prices for frozen flounder

and haddock fillets were more than offset by higher prices for frozen ocean perch fillets and frozen shrimp. Market conditions for frozen shrimp were better in March than in February.

The subgroup index for canned fishery products during March rose 3.6 percent above February and was 1.9 percent higher than in March 1953. Because stocks of canned pink salmon and Maine sardines were practically sold out, March prices for these products were somewhat higher than the previous month and substantially higher than a year earlier. On the other hand, although the California tuna pack during January-February this year was 70 percent greater than in the same period in 1953, a brisk demand stabilized canned tuna prices at the January level.

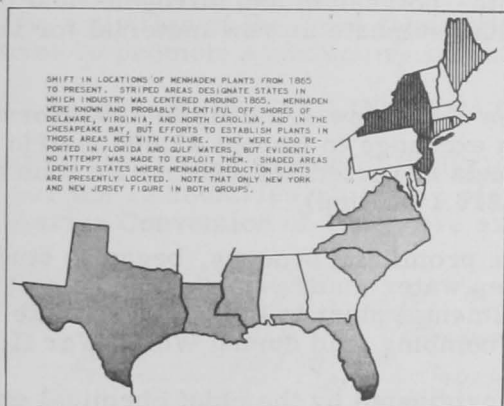


MENHADEN INDUSTRY--PAST AND PRESENT

A review of the history of the menhaden fish meal and oil industry dating back to its beginning in New England in the last century appears in Menhaden Industry--Past and Present, Fishery Leaflet 412.

In the early 1870's the total investment in menhaden processing plants and fishing vessels was less than \$3 million. Oil prices ranged usually from 35 to

45 cents per gallon, while press cake or guano brought \$6 to \$11 per ton. The value of the oil produced was approximately \$1 million annually, and an estimate of the value of the meal, based on \$11 per ton, was in the range of \$500,000 to \$600,000. These estimates are based on an average catch of 500 to 600 million fish.



ods. Meal production of 103,365 tons was about double the amount of 75 years ago.

The menhaden industry has come into its own in the years 1949 and 1950, since vitamin B₁₂ was discovered to be an important constituent of the so-called animal protein factor. This is present in menhaden and other fish meals whose importance as a feedstuff ingredient was again emphasized.

Publicity about the industry has also included a nation-wide radio broadcast from a menhaden boat, the film "The Story of Menhaden," and a short article on menhaden in a widely-read popular magazine. More people than ever now know something about menhaden, but even so, many individuals closely connected with the industry itself are unaware of its early history, development, and phenomenal growth.

Free copies of Fishery Leaflet 412 are available from the Division of Information, U. S. Fish and Wildlife Service, Washington 25, D. C.