

DEPARTMENT OF COMMERCE  
BUREAU OF FISHERIES  
HUGH M. SMITH, Commissioner

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# FISHERY INDUSTRIES OF THE UNITED STATES

REPORT OF THE  
DIVISION OF STATISTICS AND METHODS  
OF THE FISHERIES FOR 1920

By LEWIS RADCLIFFE  
*Assistant in Charge*

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APPENDIX V TO THE REPORT OF THE U. S. COMMISSIONER  
OF FISHERIES FOR 1921



Bureau of Fisheries Document No. 908

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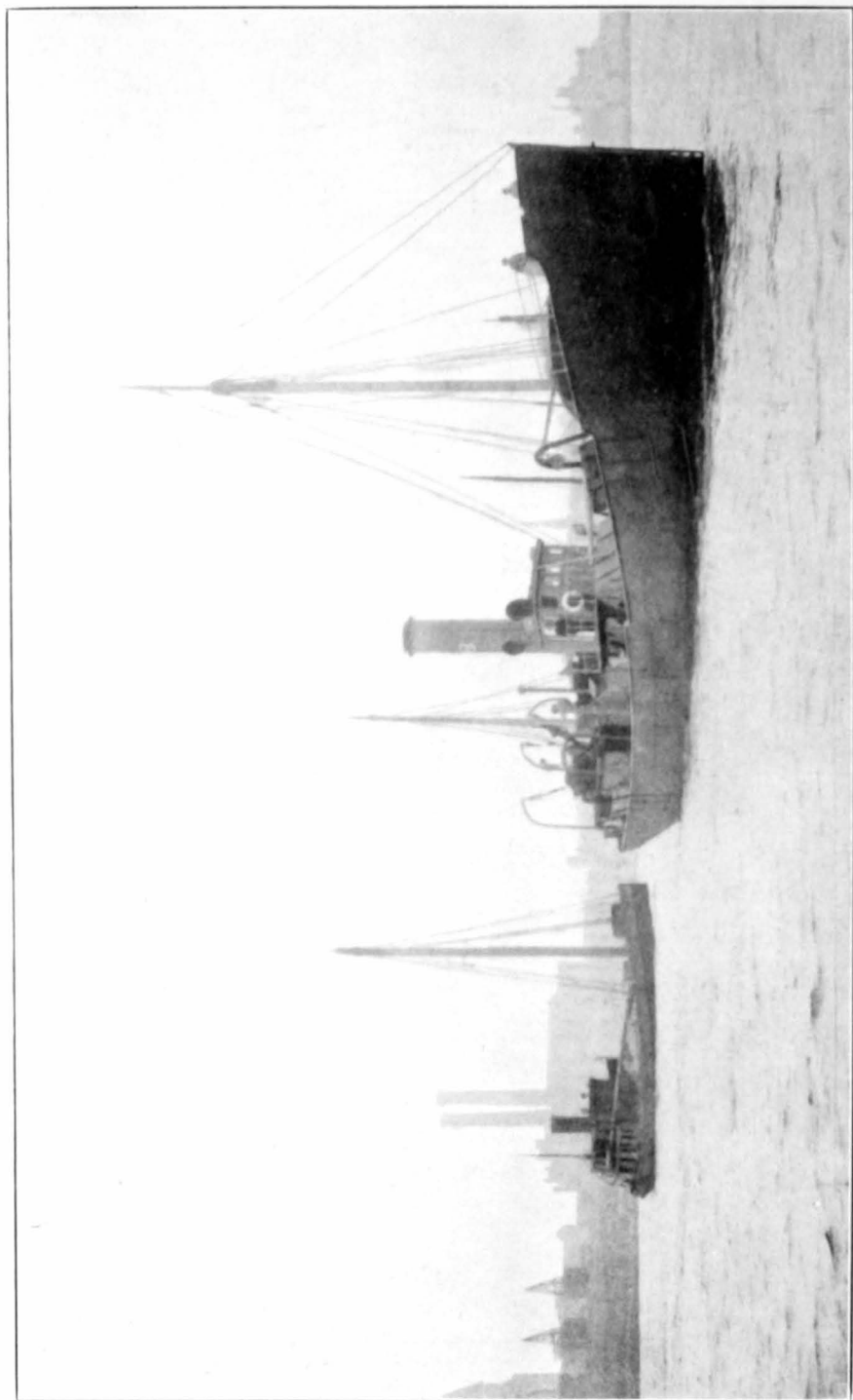


FIG. 1.—NEW ENGLAND STEAM TRAWLER.

# FISHERY INDUSTRIES OF THE UNITED STATES.

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By LEWIS RADCLIFFE, *Assistant in Charge.*

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### INTRODUCTION.

During the period of the war the production and consumption of fishery products were stimulated, receiving much encouragement from governmental and other agencies as a war measure. This resulted in making provision for a considerable expansion of facilities for the capture, preservation, and marketing of fishery products, the fulfillment of which extended into the postwar period. In this readjustment period a heavy decline in the consumption of fish not only in the United States but in other countries has been apparent. Added to this advancing prices of labor and materials, curtailment in export trade, and other factors, such as labor difficulties, produced in some respects one of the most difficult and threatening situations in the history of the industry. Even in 1919, while provisions for greater production were being fulfilled, the effects of these conditions were felt and the curtailment in production in certain of our important fisheries as compared with the previous year was quite marked. For example, many of the large New England trawlers were tied up for lack of markets. The catch of the vessel fisheries centering at Boston and Gloucester, Mass., and Portland, Me., in 1919 decreased more than 9,000,000 pounds as compared with 1918 and in 1920 there was a further decrease in excess of 16,000,000 pounds. The packs of salmon and sardines were materially curtailed in 1920, and increasing difficulty has been experienced in marketing such fish as groupers on the Gulf coast, considerable quantities being dumped for lack of markets.

These conditions have compelled a much closer, more serious study of the economic situation. As a result there has been an unusually heavy demand upon the Bureau for statistical and technological data, the conduct of investigations which promise improvement in practices and economies of operation, aid in stimulating the consumption of fish, and the extension of the use of fishery products in the arts and industries. Although the reduction in the division's appropriation for the fiscal year 1921 to \$7,500 has compelled the practical abandonment of technological research for the current fiscal year, an effort has been made to render the industry the fullest possible measure of service for its betterment and the benefit of the consuming public.

### SUMMARY OF OPERATIONS.

For effecting improvements and economies in the methods of conducting the fisheries, arrangements were perfected by the Bureau for an extended trial of seaplanes to determine their commercial value as an adjunct to the fisheries, and a fishery intelligence service was initiated in New England for supplying information as to the presence of schooling fish in the vicinity of advantageously located

lightships and lighthouses. In addition, information regarding the construction and operation of lesser known fishing gear and methods has been obtained for the use of the fisheries. The need for improvements in the methods of handling, distributing, and marketing of fishery products has been felt, and improvements, such as the exercise of greater care in handling fish by eliminating the use of pitchforks, the avoidance of needless bruising of the fish, and the adoption of some form of precooling on the vessels, has been urged upon the producers. Much assistance has been given producers in the securing and transporting of materials such as salt, barrels, etc., which were required for immediate use in preserving fish in abundance.

In the field of fisheries technology practical application has been made of methods developed in the course of its fish-salting investigations, and studies have been made and reports prepared on the preservation of fish nets and methods of determining the fatness of certain fishes. The investigations of the problems of the commercial fish canner have been continued at San Pedro, Calif. The Bureau has continued its efforts to stimulate the saving of waste products of the fisheries and their conversion into marketable commodities with excellent success. The production of fish meal and fish leather, the saving of such articles as shark fins, and the utilization of fish scales have materially increased.

The statistical activities of the division have included the collection of detailed statistics of the vessel fisheries centering at Boston and Gloucester, Mass., Portland, Me., and Seattle, Wash., and the publication of the results in monthly and annual bulletins; and canvasses of the shad fishery of the Hudson River, of the shad and alewife fishery of the Potomac River, and of the Maine sardine industry, all for the calendar year 1920. A canvass of the fisheries of the New England States for the calendar year 1919 was undertaken and the field work completed about March 1, 1921. The results of these canvasses are contained in the present report, together with the detailed tables of the canvass of the fisheries of the South Atlantic States for 1918, a summary of the storage holdings of frozen fish during 1920, and the quantity of fishery products by species and by months for California in 1920. The report also contains statistical data on the production of fish oils, scrap, and meal, a summary of the fisheries of both coasts of Florida in 1918, a summary of the fisheries of the Gulf States for various years, certain sponge statistics, etc.

#### SERVICE.

Units of the Federal Government such as this division receive an appropriation for the rendering of service. It is usually difficult to ascertain on a monetary basis the value of the service rendered, and the organization is not infrequently criticized as not rendering service in proportion to the facilities supplied for its work or through misunderstanding of its limitations. It may therefore be of interest to refer to the appreciation expressed by competent persons of the value of several phases of its work.

Of the Bureau's new method of salting fish, a practical demonstration of which was given on the St. Johns River, Fla., one writer states:

We consider the information and the demonstration worth thousands of dollars to us alone, not saying what it is worth to the industry at large on the St. Johns River.

Regarding the introduction of fish meal production on the Atlantic seaboard, one writes:

We estimate that the work done by your force in behalf of fish meal increased the value of last season's fish products at this point considerably above \$100,000, and I am frank to say that were it not for this new market I do not think it would be possible for us to operate our plants this season, owing to the very unsettled conditions in the fertilizer trade.

Of the Bureau's paper on Preservation of Fish Nets, an authority in the net and twine trade states:

It was a surprise to find it had been possible to prepare such an interesting and instructive article, and the author is to be congratulated on his splendid work.

#### Aid in Improving Fishing Operations.

Activities in this field have been confined mainly to aiding in the determination of the value of aircraft for spotting fish, to provision for supplying reports from certain lightships and lighthouses regarding the presence of schooling fish to the trade, and to studies of construction and operation of fishing apparatus, the use of which is limited.

#### FISHERY INTELLIGENCE SERVICE.

The search for fish in the sea is difficult and hazardous. In proportion to cash returns, the expenditure of time, labor, and materials is heavy. Vessels may seek catches of bluefish, mackerel, menhaden, or tuna for weeks without appreciable results. A vessel may discover good fishing but in the absence of means of communication can not advise other relatively near-by vessels operating unsuccessfully of the location of the schools. In a calling conducted under such handicaps it is important that use be made of every available aid and of every new development of science which promises to increase efficiency of operation without danger to the supply of the future.

As early as 1883 the aid of the United States Life Saving Service was enlisted by the United States Commission of Fish and Fisheries in reporting the presence of whales and other cetaceans and rare sharks and supplying information regarding them. At various times the Bureau's vessels have been employed in behalf of the fishing industry in locating schools of fish such as mackerel and tuna. In 1917, the Bureau of Fisheries, with the aid of the Washington-Alaska Military Cable and Telegraph System, operated by the War Department, inaugurated an intelligence service to communicate by telegraph to a number of coastal towns in Alaska the current prices of certain species of fishes offered at Seattle and Ketchikan. This service furnishes at a very small cost information which could not be gotten by private individuals without considerable effort and cost and is appreciated. Details of this service are to be found in Alaska Fisheries and Fur Industries reports of the Bureau for the years 1917 to 1921.

#### USE OF AIRCRAFT.

In April, 1919, attended by representatives of the New England fisheries, the Bureau of Fisheries, and the patrol division of Naval Aviation, a conference was held in Washington, D. C., at which tentative arrangements were made for a properly qualified observer



to make flights over such parts of the Atlantic as seemed necessary for spotting schools of fish, such as mackerel, and for forwarding the information obtained to organizations of the fisheries. At this meeting the subject of direct communication between planes and fishing vessels by means of the radio telephone was considered. The possibility of employing seaplanes to advantage in the menhaden fishery was also called to the attention of operators in the Chesapeake region, but nothing resulted from either of these negotiations during the year.

On July 28, 1919, W. W. Welsh, scientific assistant, Bureau of Fisheries, made a flight of about 1½ hours in a naval seaplane from Cape May, N. J., to Five Fathom Bank. This flight was made at a speed of about 40 miles an hour at an altitude of 500 to 1,000 feet. Mr. Welsh reported that no schools of menhaden were breaking water at the surface but that large numbers of small schools were observed at estimated depths of from 2 to 10 feet or more. He stated that:

The range of visibility of the menhaden schools varied according to the depth of the school and the angle of incidence of the sun's rays. Had the fish been ruffling the surface they could have been seen as far as the size of the school and the atmospheric conditions permitted. This was evident by the visibility of tide rips and cat's-paws of wind upon the surface. The deeper the school the more necessary it was to approach it in order to see it. The deepest schools observed were only visible from directly above. When the sun's rays were reflected from the surface, it was impossible to see anything, and the visibility improved as the eye was directed away from the angle of incidence of the sun. On the particular day in question the majority of the schools of fish were at such depth that they were invisible at a greater angle than 45 or 50° from the nadir, and then only on the side of the plane away from the sun. But some schools nearer the surface could be seen much farther off. Besides the general value of such observations, in no other way can such a clear idea be obtained of the abundance or scarcity of schooling fish and the characteristic appearance of the schools. \* \* \*

The most evident opportunity for the practical use of aircraft in the commercial fisheries at the present time lies in their employment as scouts for the purse-seine fishermen in the pursuit of such species as menhaden, mackerel, bluefish, bluebacks, kyacks, and other schooling fish. In the case of the spring mackerel fishery it is believed that the use of aircraft would save much time in locating the fish upon their first appearance and in enabling the fishermen to keep in touch with the fish as they appeared farther north.

In January, 1920, representatives of the Naval Aviation Service and the Bureau of Fisheries again discussed the possibility of using seaplanes in locating fish on the north Atlantic coast, and on February 25, at the request of the Secretary of Commerce, the Secretary of the Navy authorized the experiment, and the proposal was placed before various fishery organizations. The menhaden fishermen showed constructive interest in the subject, and the commandant of the Fifth Naval District detailed two Navy seaplanes, with pilots, and the fishing companies provided observers familiar with the species.

The fishing areas in Chesapeake Bay and along the coast between Assoteague and Bodie Island Lights were blocked off into lettered sections and numbered subdivisions for expediency in transmitting information as to the location of schools sighted. At first this information was communicated to the fishing vessels by signal flags suspended from the plane. Later after the installation of radio equipment on two vessels and at the shore station of one of the companies, a radio operator accompanied the plane to transmit the messages as soon as the fish were located. These daily patrols were continued from June 14 to October 1, when the Navy Department abandoned

them on the ground that the experiment had fully demonstrated the commercial value of planes in this fishery. This first thorough test of aviation as an adjunct to the commercial fisheries has proved of great benefit to the industry, and the purchase of planes by the fishing companies is being seriously considered.

In December, 1919, as a result of arrangements between the naval authorities, the fishing interests, and the State commission, naval seaplanes were given trials at San Diego, Calif., for spotting schools of fish. They are reported to have been of some value in locating schools of sardines, but their usefulness in locating albacore, tuna, and yellowtail remains to be more definitely established. In the summer of 1920 a hydroairplane was operated for a time at San Pedro, but was not entirely successful. A dirigible trip was also made at San Diego by an official of the State commission for the same purpose. The aviation service of the United States Coast Guard, Treasury Department, has shown an interest in the utility of fish spotting in connection with its air patrol and training, and the Bureau of Fisheries is endeavoring to effect cooperation between the aviation station of that service at Morehead City, N. C., and the fishermen of that region.

The work done has yielded results of value, but should be continued for the purpose of ascertaining the value of aircraft in other fisheries, such as mackerel, bluefish, tuna, and herring.

#### NEW ENGLAND FISHERY INTELLIGENCE SERVICE.

In the summer of 1920 the Bureau investigated the possibilities of securing useful information daily from keepers of certain lightships and lighthouses as to the presence of schooling fish, such as mackerel and pollock. Through the courtesy of the Director of Naval Communications and the Commissioner of Lighthouses, the Bureau of Fisheries made arrangements to have the occurrence of such fishes reported by the keepers of *Pollock Rip*, *Nantucket Shoals*, and *Fire Island* lightships. This service was initiated about November 1, 1920, messages reporting any observations made during the preceding 24 hours being sent by radio at noon daily from these vessels to shore stations and forwarded to the Bureau's agent at Boston for dissemination and transmittal to agents in Gloucester and Portland. It was appreciated that the service was being established near the close of the season, but it was desired to have it in efficient working order on the resumption of more active fishing in the spring. If the service proves of value it is planned to increase the number of stations from which reports are received.

#### NOTES ON FISHING GEAR.

The following descriptions of fishing gear employed in the California fisheries have been furnished by R. A. Coleman, agent, Bureau of Fisheries. The use of the paranzella and lampara nets in American waters is practically restricted to southern California.

#### PARANZELLA NET.

The paranzella is the net chiefly used in deep water and bottom fishing on the California coast, especially by the large fishing companies operating with steam and power boats. This type of net (the

Italian word "paranzella" means a sloop or fishing boat propelled by sails, and this net was always used with such boats) has been in use on the Mediterranean for a long period. It is said to have been introduced in California in 1876. It is a heavy and strongly constructed net, intended for dragging the bottom in a manner similar to the otter trawl, although it is of quite different make. It proves an efficient means of taking fish.

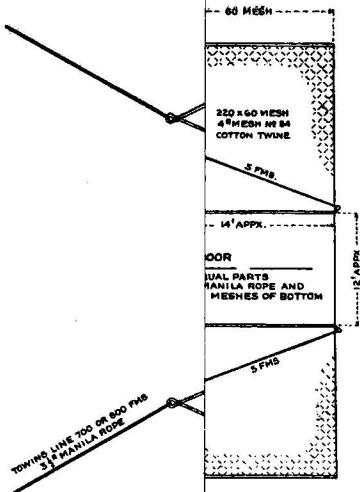
There is no strict uniformity in the method of construction. The differences are, however, relatively slight, and the type is constant. The nets differ in length from 25 to 35 fathoms and in form according to the use to be made of them and individual fancy. They are made in several sections or "pieces," varying from four to eight.

The net illustrated (fig. 2) and on which the discussion is based is the true type of the paranzella and has eight pieces. The first, the wings, which are 150 meshes (3-inch) in length by 300 in width, are made of No. 9 or 12 cotton twine. The wings are often more extended, if it is desired to obtain greater sweep, and may reach considerable length. The second piece is 200 meshes (2½-inch) in length by 300 in width, of No. 9 twine. The third is 100 meshes in length (2½-inch) by 250 in width, of No. 12 twine. The fourth is 60 meshes in length (2½-inch) by 225 in width, of No. 18 twine. The fifth is 18 or 20 meshes (3¼ or 3½ inch) in length by 270 in width, of No. 42 or 60 twine, and is practically a portion of the bunt. Many nets omit this piece entirely. The sixth piece forms the bag, or bunt, proper. It is 60 meshes (4-inch) in length by 220 in width, of No. 84 twine. Sometimes the top is made of 3½-inch mesh, No. 42 twine, while the sides and bottom are 4-inch mesh, of No. 84 twine or rope. The other pieces are the *ques* (*scagnetto*, in Italian), which serve to strengthen the net, and especially to help carry the weight of the bag. The top *que* is 62 meshes (4-inch) wide at the front end, tapering to 30 meshes at the back end, reduction being made at the center, 9 fathoms long. The bottom *que* is 42 meshes (8-inch) wide in front, tapering to 30 meshes at the other end, reduction being made in the center, and is 8 fathoms long, No. 64 twine being used for both *ques*. It will be noted that the bottom *que* is about a fathom behind the top *que*.

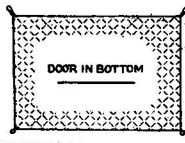
The head of the top *que* is attached to the rope (3½-inch soft manila, which carries the wings and takes the strain of the net) in a special manner, as illustrated in the drawing of the net. It does not follow the curve, but its end is straight and is lashed to the rope (using No. 60 or 84 twine), gradually lengthening at the sides of the *que* to accommodate the curve. Two meshes are picked up by the needle, an overhand knot is made in them, and the lashing led to the rope, when three round turns are taken and fastened.

A crown of about 20 corks, graduated in size, is sometimes attached to the front end of the top *que* to assist in sustaining it when the strain is expected to be heavy.

For convenience in removing the fish from the bag, either two or three openings, or "doors," are left in the top. These are 20 or more meshes in length and are trimmed with 1 or 1½ inch manila rope and lashed together with No. 9 or No. 12 thread rope. There is also a bottom, or end, door to the bag, trimmed as the others. It is closer to the bottom of the net than to the top.

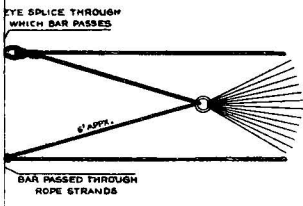


BACK OR BOTTOM VIEW  
OF BUNT OR BAG OF NET



40 MESHEs WIDE IN CENTER OF WIDTH;  
LASHED TOGETHER WITH 1" ROPE;  
CLOSER TO BOTTOM THAN TO TOP.

CROWN OF 20 CORKEs OF GRADUATED SIZES;  
SOMETIMES ATTACHED TO TOP OF QUE TO AID  
IN SUPPORTING IT.

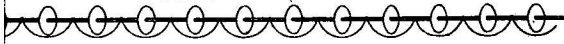


NET MAKER'S NEEDLE;  
MADE ALL SIZES FROM  
3" OR 4" UP TO 2';  
GENERALLY OF HARDWOOD,  
BUT SOMETIMES OF BRASS  
OR OTHER MATERIAL



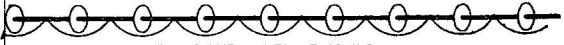
FISHERMAN'S KNOT;  
CONSIDERED BEST BECAUSE  
MOST EASILY MADE

TAKING 3 MESHEs TO THE LASHING



1/2" LINE 1 1/4" MANILA CORKEs ARE ABOUT 5" IN DIA. AND EITHER ROUND OR OVAL.  
LASHINGS USED ACCORDING TO EXPECTED STRAIN ON NET

TAKING 4 MESHEs TO THE LASHING



PARANZELL

SAN FRANCISCO, CAL.

R A COLEMAN  
AGENT U S BUREAU  
OF  
FISHERIES  
  
NO SCALE



BOTTOM OR LEAD LINE. SOFT MANILA NO 120  
LEADs ARE 8' LONG, MADE OF SHEET OF LEAD BEATEN TIGHT ON LINE  
THIMBLE TURNED IN TWO PIECEs TO FIT ROPE AND LASHED ON

The cork line is about 35 fathoms long, of 1½-inch manila rope. It carries about 35 corks on each side. These corks are either round or oval and are about 6 inches in diameter, perforated in the center for reeving on the line.

The lead line, which really carries the weight and strain of the whole net, is of soft manila, and varies in circumference from 3½ to 4½ inches, according to size of net and preference of maker. The lead line bounds not only the longitudinal bottom of the net, but likewise the entire four sides of the end of the bunt, thus giving great strength and lifting power to that part. It is also practically continuous over the front of the net, being carried along the lower sides of the wings to the towing bar, and thence around the top of the wings and front, or top que, and of the net, making a complete circuit. Sometimes the portion bounding the upper sides of the wings and top que is a half inch or so less circumference (of soft manila) than the lead line proper. This upper portion of the line carries 6 or 8 wooden thimbles to the side, similar to those on the lead line, though generally more rounded in shape. These are intended to prevent chafing when the net is hoisted aboard.

The lead line proper carries 6 to 10 leads on each side. These leads weigh 1 pound each. They come in flat pieces and are beaten into place about the line. (Some fishermen say that leads are not necessary at all, as the weight of the net holds it well at the bottom.) In addition there are on each side 4 wooden thimbles about 8 inches long. They are turned in two pieces to fit the rope and are lashed about it. Their purpose is to lessen the chafing.

The towing bar is about 24 inches in length by 2 inches in diameter, of pine or hardwood. For details of the method of its use, and also for the method by which the weight and strain of the net is taken at the towing end, reference is directed to the illustration. The ring by which the net head is attached to the towing bar hangs about 6 feet behind the bar.

The net is hung from the cork line by lashings, or seizings, at intervals of either three or four meshes, according to expected strain, and the loops are allowed to fall about 6 inches below the cork line.

From the front top corners of the bag two 60-fathom, 4½-inch hard manila ropes are attached. These are led to the winch when the net is being hauled, in order to carry the weight of the bag with its load of fish. Two 5-fathom ropes of the same size, or sometimes 3½-inch, are attached to the top back corners of the bag, and when it is desired to hoist the bag on board these are bent onto the 60-fathom ropes at the front end of the bag, which is thus hoisted from its four corners.

The fish are taken from the net through the doors with a heavy scoop net of 2½ or 3 feet diameter, with strong wooden handle. These scoops are sometimes so heavy that it requires two men to operate them.

The net is towed by two 60-foot, or more, seagoing fishing boats. The towing lines or warps are of 3½-inch hard manila 700 or 800 fathoms in length.

Operations are carried on in the following manner: When it has been determined by sounding that a suitable bottom has been found, the boat which carries the net slows down. The other boat comes alongside and passes its towing line to the first. This is attached

to one wing of the net. The boats then separate, the net is shot, and they begin paying out their respective warps through special shackles at the stern. After 50 or 60 fathoms have passed out an iron weight, or sinker, weighing 25 to 35 pounds is attached to each line, in order to sink the net, and the remainder of the rope, 450 or 500 fathoms, is payed out. The towing speed varies from  $2\frac{1}{2}$  to 4 knots per hour. The opening in the net is about 12 fathoms from one towing bar to the other. Ordinarily the boats tow about 800 feet apart. In stormy weather this distance is somewhat reduced, and in fine weather is extended.

In some instances fishermen prefer to purchase the bunt of their nets ready-made, in which case it is usually made by machinery. Sometimes, also, other parts of the net are purchased. A figure-eight knot is generally used in machine-made nets, but the parts made by hand are almost always made with the customary fisherman's knot. The illustration is not drawn to scale.

#### LAMPARA NET.

This net originated in the Mediterranean, where it has long been in use. It is said to have been brought to California about 1900. The lampara is so called from the Italian word "lampo," meaning lightning, because used chiefly in taking sardines, anchovies, and other small fishes which move with great quickness in the water, flashing as they swim. These fish are usually taken at night, in the "dark of the moon," since by day, or even on moonlight nights, they see the nets and avoid them. The lampara differs from the paranzella in that it is intended to take fish at the surface or at but a short distance below, while the paranzella is dragged on the bottom.

Although the lampara nets are used chiefly for taking sardines and other small fish, especially for bait, some nets of large dimensions—up to 2,000 feet in length by 150 in depth—have been constructed of strong, heavy twine for the capture of larger fish, such as sea bass, barracuda, yellowtail, etc. In these cases the range of size of mesh may vary from 2-inch stretched mesh in the bag to 20-inch at end of wings. So far, however, such nets have not proved a general success, as they are awkward to handle on account of their large size, and the fish captured in them are so powerful that they often tear the net.

The accompanying drawing (fig. 3) and description of the lampara net are based on information supplied by E. M. Nielsen, assistant to the California Fish and Game Commission at Monterey, and were taken from a net of average size and make owned by a local fisherman.

Referring to figure 3 and its legend, it will be noted that section 3 is of heavy netting to withstand wear and tear when the fish are taken out of the net and section 4 acts as a wall to prevent the fish from escaping. Section 5 is light and of small mesh so that the fish do not gill in it; the net is usually fished in the dark of the moon, and the phosphorescence in the water tends to deflect the fish from the wings backward toward the bag of the net. The lead line is  $\frac{7}{8}$ -inch diameter hemp rope and carries lead weights to a weight of about 150 pounds, the leads being about 18 inches apart.

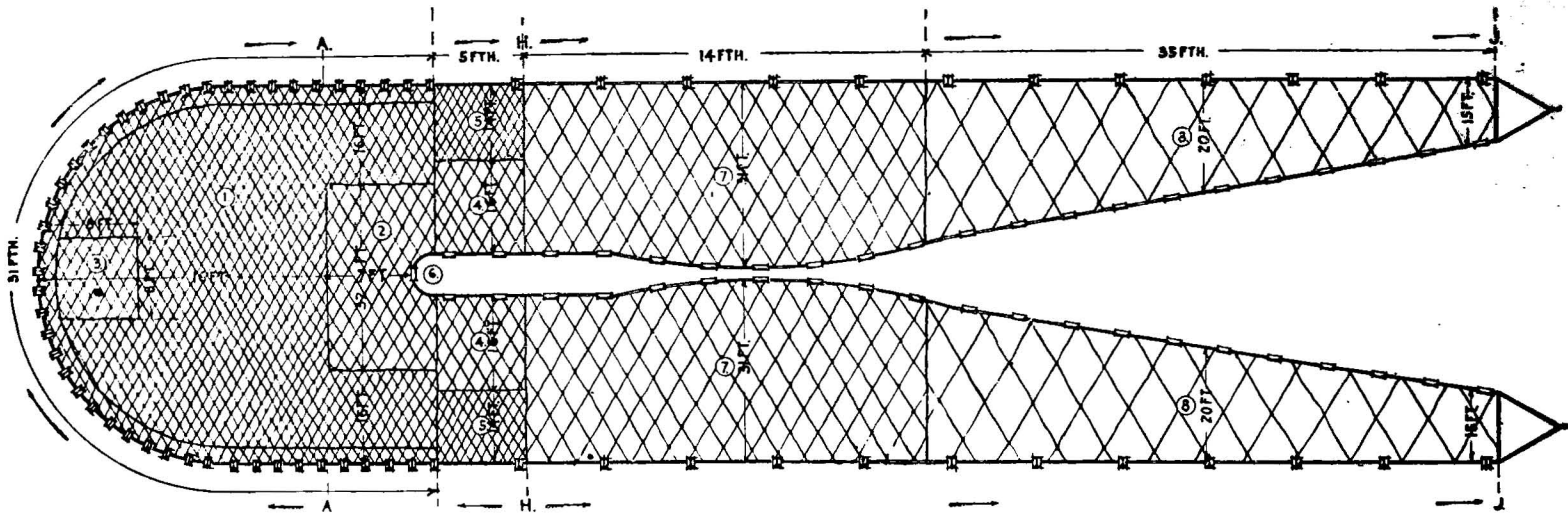


FIG. 3.—Lampara net. Section 1, 26-6 thread,  $\frac{1}{4}$ -inch mesh; 2, Mendocino or key of net 6-ply, 3-inch mesh; 3, heavy netting, 6-ply, 1-inch mesh, 8 by 8 feet; 4, 6-ply, 3-inch mesh; 5, part of bag of 26-6 thread,  $\frac{1}{4}$ -inch mesh; 6, horseshoe, where wings divide; 7, wing-section of 5-inch mesh; 8, wing-section of  $8\frac{1}{4}$ -inch mesh; A, strip of netting 10 inches wide, 16-ply, 1-inch mesh of heavy mesh, to hold bag to cork line and withstand wear and tear; H-H, cork line of  $\frac{1}{4}$ -inch diameter hemp rope, 500 corks in pairs, 6-inch interspace between pairs; H-J, wing cork lines, 500 corks in pairs on each wing, interspaces about 3 feet.

The lampara net is made of cotton twine and may be operated either with one large boat or with two boats. The operation with one boat is carried out as follows: When a school of fish is located, one end of the net is thrown out with a buoy attached, sometimes anchored; then the boat is pulled around the fish in a circle, paying out the net until the boat is back to the buoy from which it started. Then an anchor is generally put over the side away from the net to hold the boat off. Then the fishermen start hauling both ends of the net from the bow and the stern, until the bag is hauled up alongside. After getting the wings into the boat and the bag alongside, the fish are dipped out into the well or box. The net is then overhauled and made ready for another lay. From three to five men are required to operate in this way.

When two boats are used, the bag is dropped first; then the fish are circled by the boats pulling in opposite directions, paying out the coiled net until they meet, passing one another, one end of the net being passed over the other and the boats anchored. The wings are crossed while the net is being hauled in. The bag is thus hauled up between the boats, when the fish are taken out. Six to eight men are required to operate in this way.

A modification of the lampara has sometimes been used of late, consisting of a purse, or semipurse attachment. It is in all respects a lampara net except that a purse line is added to the bunt of the net, which enables the operators to pull the lead line in more quickly after the net is partly in, thus impounding the fish in the bunt of the net. It is claimed that by this device it is easier to catch the fish in the daytime without their sounding and getting under the net when operating in deep water. A shallower net may be used, thus making its operation quicker and more economical. This device has not, however, been generally adopted.

#### HERRING GILL NET.

The herring gill net used in San Francisco Bay, Calif., is usually about 50 fathoms in length by 2 in depth. It is made of 2-inch mesh, 2-ply cotton twine. The top strip of meshes, 3 or 4 inches wide, abutting the cork line, is made of 4 or 5 ply twine to give it greater strength. The cork line is one-half inch diameter manila, with corks, 2 inches in diameter, at intervals of 2 feet. The lead line is three-eighths-inch manila, and the leads, weighing about 4 ounces, are 3 feet apart. The net is operated from one boat and is handled by two men. These nets are generally purchased ready-made.

#### SMELT NET.

Smelt nets in use on San Francisco Bay are usually made of linen twine. They are 28 to 30 fathoms long by 10 to 12 feet in depth and are constructed of  $1\frac{1}{2}$  or 2 inch mesh. In other respects they resemble the herring nets.

#### TRAMMEL NET.

A three-web trammel net observed in use in southern California was 200 fathoms long by  $2\frac{1}{2}$  deep. The small web was of  $7\frac{1}{2}$ -inch mesh, and the large outside webs of 18-inch mesh.



**DEVELOPMENT OF IMPROVEMENTS IN METHODS OF HANDLING, DISTRIBUTING, AND MARKETING.****FRESH FISH.**

One of the most important means for increasing the consumption of fish is to supply the consumer with a product closely approximating the quality of the fish as taken from the water. This necessitates reducing the amount of deterioration from "catch" to consumer to a minimum. Considering the length of time that elapses after the fish are taken from the water until they reach the consumer, some deterioration is inevitable, but that a marked degree of improvement in reducing the amount can be made is undoubtedly possible. With such improvement many persons who now enjoy freshly caught fish, but who rarely buy "fresh" fish in the market, will be added to the list of regular consumers. As deterioration sets in as soon as the fish are dead, the first step is to improve methods of handling the fish on boat or vessel and at the points of distribution.

It is important to handle fish with the greatest possible care, to avoid bruising or forking them, and to avoid warmth. Fish should be handled with the same care as fruits; they should not be forked, bruised, tread on, thrown about needlessly and roughly, or piled too deeply in boat, box, or barrel. Failure to observe these precautions will cause spoilage just as the spoilage of fruits is hastened by similar treatment. The temperature of fish is about the same as that of the water in which they live, usually slightly higher. Fish taken from warm water will therefore spoil more quickly than if taken from cold water. The warmer the water is the greater the care required to prevent spoilage. If the fish taken from warm water are piled deeply it is but natural that the temperature of the mass will shortly begin to rise, with resultant spoilage. It is therefore important to keep the fish away from warmth and to cool fish taken from warm water as quickly as possible.

The Bureau has impressed upon those in the fisheries the importance of avoiding the use of fork or pew as far as practicable, using where necessary only a one-tined fork and forking the fish in the head instead of the body, and has encouraged the installation of precooling devices to remove the body heat of the fish as speedily as practicable. It is believed that a cold brine circulatory system or an adaptation of the system of freezing fish in brine may be worked out for use on vessels or boats. In fact, some experiments have already been made to this end by those in the fisheries.

There is fully as great if not greater need for improving methods of distribution and the handling of the fish in the retail markets. The shipper should consider the advantages of packing the fish in shallow boxes instead of in barrels; and the retailer, in view of the length of time that has elapsed since the fish were caught, should observe every precaution which will retard deterioration as well as offer the fish for sale in an attractive manner and amid sanitary surroundings.

**KIPPERED FISH.**

The preservation of fish by smoking is a very ancient and widely known practice. The products preserved in this manner are among the tastiest of foods. The necessity for marketing the product

within a short period of time has restricted the volume of production and confined the practice largely to the centers of consumption. To minimize these difficulties the canning of the smoked fish has received greater attention in recent years, much of the product being labeled as kippered fish. In the preparation of such fish a variety of practices have sprung up. For example, of 10 packs recently examined, in 1 pack the fish were split through the back, in 2 they were unsplit, and in the remaining 7 they were cut lengthwise into separate sections. Nine packs contained headless fish; one, tailless. In Service and Regulatory Announcements No. 26 of the Bureau of Chemistry, issued December 30, 1920, the following tentative definitions are recognized by that bureau:

**Kipper.**—A fish which has been split through the back from tail to head, eviscerated, lightly salted, and lightly smoked. Example, kippered herring. **Kipper unsplit.**—A fish which has been headed and eviscerated (but not split), lightly salted, and lightly smoked. Example, kippered herring unsplit.

The characteristic appearance of kippered herring and bloater herring as prepared for the smoked fish market are shown in figure 4.

#### INCREASING THE USE OF FISH AS FOOD.

A summary of the conditions affecting the marketing of fish has been given in the introduction to the present report and attention called to the handicaps under which the Bureau has labored in meeting the menacing situation which confronted the industry. Efforts to obtain additional funds for demonstrations in fish cookery and similar activities were unavailing and the Bureau's activities were limited almost wholly to the issuance of helpful economic circulars and placards and to furnishing informative matter.

#### THE HADDOCK.

With the recent increase in the number of trawlers operating in the New England fisheries, there has been a large increase in the catch of haddock, resulting in the production of this species in excess of the market demand. To illustrate, the vessel landings at Boston and Gloucester for the three-year period 1918 to 1920 increased about 50 per cent in comparison with the period 1908 to 1910, and for Boston, Gloucester, and Portland, the landings in 1920 were nearly 30 per cent greater than in 1916, while the increase in the price to the fishermen was but \$0.006 per pound. The landings of the vessel fisheries at these ports in 1920 amounted to 73,345,581 pounds.

The Bureau has issued a placard and a small cookbook<sup>2</sup> recommending the use of this fish. In this economic circular attention is called to the fact that the haddock is abundant on the great fishing banks which stretch from Cape Cod to Newfoundland, and at certain seasons frequents the shores; that it is a relative of the cod, one of the "dry" fishes, and possesses many of the same qualities, the average constituents of the two fishes, based on a number of analyses, being as follows:

	Proteins.	Fats.	Ash.	Water.
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Haddock.....	17.10	0.26	1.25	81.39
Cod.....	16.00	.30	1.24	82.46

<sup>2</sup> Moore, H. F.: The Haddock: One of the Best Salt-water Fishes. With Recipes for Cooking It. Bureau of Fisheries Economic Circular No. 47, 8 p., issued Aug. 18, 1920. Washington.

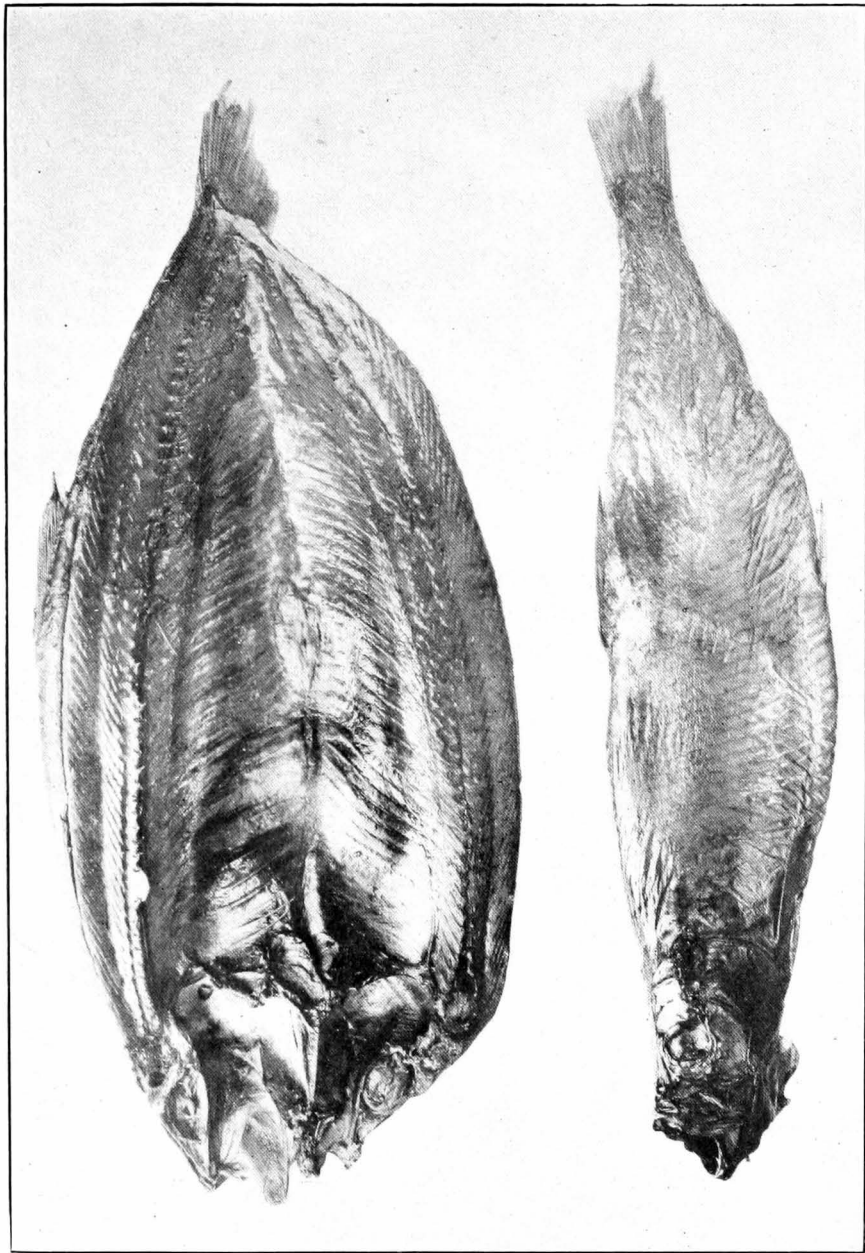


FIG. 4.—UPPER, KIPPERED HERRING; LOWER, BLOATER HERRING.

## FROZEN FISH.

Freezing conserves fish in times of abundance and cheapness for use in times of scarcity. As a rule fish are now frozen under excellent conditions, usually within a short time after they are caught. If perfectly fresh when frozen, if properly stored, handled, and prepared for the table, they are often superior in quality, texture, and flavor to fresh fish shipped long distances packed in ice. Some of the important species frozen are whiting, halibut, cod, hake, haddock, pollock, ciscoes, salmon, mackerel, sablefish, squeteague, smelts, whitefish, lake trout, butterfish, croakers, shad, and yellow pike.

As an aid to increasing the consumption of frozen fish and removing certain prejudices, the Bureau has issued a poster and leaflet recommending this commodity. The leaflet stresses the importance of keeping frozen fish at a low temperature until used for food and of never thawing and refreezing or subjecting them to rises in temperature or bruising, and emphasizes the necessity of buying them frozen and placing them in an ice box or cool place for thawing before cooking. For statistics of the holdings of frozen fish by species and by months in 1920, see page 52.

## TECHNOLOGICAL INVESTIGATIONS.

The small appropriation granted for the fiscal year beginning July 1, 1920, has made it impossible to conduct regular investigations in this field, limiting the work mainly to a review of literature of methods which will be helpful in future investigations and to certain minor activities which could be done at little expense. Appreciating the importance of the technological investigations in progress at the experimental plant at San Pedro to the fisheries of the Pacific coast, the California Fish and Game Commission has taken over the laboratory and is operating it for the current fiscal year.

## SALTING RIVER HERRING.

The technological investigations of the basic principles governing the salting of fish which have been described in previous reports have revealed the possibilities of effecting certain refinements and improvements in common practice, of salting fish at higher temperatures and therefore in warm climates and of producing a product superior to much of that now marketed. In order to give practical application to the results, arrangements were made to initiate the salting of fish at points in Florida where previous attempts by usual methods had failed. A practical salter of long experience was employed, given instructions and opportunity to try out these improvements in the Bureau's Fishery Products Laboratory, and detailed to Welaka, Fla., for instructing local fishermen desirous of giving such methods a trial.

At Welaka the run of river herring lasts from about January 1 to March 15. During the early part of the season the catch is marketed without difficulty, but later when the fish appear at more northern points the demand diminishes and the price falls to a point at which it is unprofitable to continue fishing. The possibility of salting the fish taken at this period was welcomed by the local fishermen.

The instructions given resulted in the successful salting of 80,000 fish, and purchasers of the fish expressed a high appreciation of the quality of the product. Plans were developed for establishing local markets for the fish and for conducting the work on a large commercial scale.

A paper<sup>3</sup> by the Bureau's technologist, H. F. Taylor, has been published by the Bureau for the use of fish salters, and it points out the practical application of the principles developed by work in this field. These include the careful handling of fish before salting; thorough cleaning, especially the removal of all blood; the use of salt of a high degree of purity; and the application of salt in the dry condition.

#### REFRIGERATION OF FISH.

To supply authoritative technical data bearing on the refrigeration of fish, the relative merits of freezing fish in air and in brine and the like, the Bureau has assembled necessary equipment including electrical measuring apparatus. Lack of funds and the loss of technological workers have prevented the prosecution of this investigation. The demand for the Bureau's data on refrigeration, particularly freezing in brine by the various processes, has been heavy and it is believed has been highly appreciated by the trade. Practical application of the principles in the precooling and freezing of fish have been made and give promise of effecting important advances in the distribution of fish of excellent quality. The possibilities of precooling the catch as taken by the fishing vessels merit serious consideration. A number of demonstrations of brine freezing have been made by the Bureau during the year. As a result of demonstrations given for the benefit of representatives of the Bureau of Plant Industry, that bureau has made provision for the application of this method to the freezing of fruits and vegetables and is conducting investigations in its particular field.

#### CANNING OF PACIFIC COAST FISHES.

When the Bureau equipped its small experimental canning laboratory in southern California, one of the more pressing lines of investigation was the development of satisfactory methods of canning little utilized fishes to render available larger quantities of protein food and conserve meat. As a result much attention was given to the possibilities of developing suitable methods for canning such fishes as mackerel, bonito, barracuda, sea bass, and smelts and to improving the packs of pilchard, tuna, and yellowtail. Several hundred packs were put up and held in storage for examination periodically, and in a few cases methods which appeared unusually promising and for which there was an immediate demand have been released. The results of this work are being prepared for publication. With the lessening of the demand for greatly increasing production and in view of the underconsumption of fish and difficulties of marketing not only new fishes, but staple varieties, in recent months the laboratory has concerned itself with the more important work of developing standard methods

<sup>3</sup> Taylor, Harden F.: Improvements in Process of Salting River Herring, Especially Adapted to Warm Climates. Appendix II, Report, U. S. Commissioner of Fisheries for 1921, 7 p., B. F. Doc. 903. Washington, 1921.

of canning the usual species which will yield standard packs and to the solution of the practical problems of the canners. For example, it is making a careful investigation of the possibilities of recovering the fry bath oil and of keeping it free from the objectionable substances acquired by continued use. This problem is much more complex than was anticipated when the work was undertaken and, if it can be solved, it will be of marked value to the industry.

#### PRESERVATION OF FISH NETS.

Most of the investigations in the preservation of nets have been made in Norway, very little investigation or experimentation being noted in the fishery or scientific journals in other countries. This important means of economizing in the expense of nets appears to have been largely neglected in the United States, the principal preservative used being tar, which can be used only for the coarser kinds of nets. As the fishing gear employed by our fishermen represents an investment in excess of 15 million dollars, a large part of which is in twine, and in view of the increased cost of such netting, the importance of lengthening the life of such gear will be appreciated. To contribute to this end, a paper on the subject has been prepared,<sup>4</sup> reviewing the literature of the subject, presenting the fundamental principles so far as they are known, and giving for use those recipes which, from a chemical standpoint, seem best calculated to serve their purpose. In addition provision is being made for the conduct of additional tests for the purpose of affording still further aid to our fishermen.

#### INCREASING THE USE OF BY-PRODUCTS OF FISHERIES.

Although the Bureau's activities in this field during the year were practically confined to suggestions through correspondence or by personal visits, the results achieved have been exceedingly gratifying and important progress is to be noted in the saving of fish waste, the manufacture of fish meal, the production of fish leather, and the utilization of fish scales. The decline in value of fish oil and scrap to prewar levels will undoubtedly affect operations in 1921.

#### FISH OILS.

By converting the figures published by the Bureau of the Census in Animal and Vegetable Fats and Oils for calendar years 1919 and 1920, on the basis of  $7\frac{1}{2}$  pounds to the gallon, the production of fish oils in gallons in 1920 was as follows: Menhaden oil, 3,676,453; whale oil, 3,073,574; sperm oil, 416,737; herring oil, 380,379; cod and cod-liver oil, 196,108; and all other, including marine animals, 1,060,322; a total of 8,803,574. On the basis of reports from the Pacific Coast States and Alaska, the production of fish oils in 1920 approximated 3,066,000 gallons.

Imports of fish oils entered for consumption for the calendar year 1919 amounted to 2,599,072 gallons, valued at \$2,928,993. This

<sup>4</sup>Taylor, Harden F.: Preservation of Fish Nets. Appendix IV, Report, U. S. Commissioner of Fisheries for 1920, 35 p., 1 fig., B. F. Doc. 898. Washington, 1921.

amount includes cod oil, 1,152,252 gallons, valued at \$1,107,221; cod-liver oil, 235,805 gallons, valued at \$665,080; herring and other fish oils, 542,112 gallons, valued at \$437,836; seal oil, 23,121 gallons, valued at \$21,598; sperm oil, 124,747 gallons, valued at \$124,511; and other whale oil, 521,035 gallons, valued at \$572,747. The exports of fish oils in 1919 amounted to 1,085,551 gallons, valued at \$976,831. Of this amount 526,980 gallons, valued at \$401,466 went to England; 409,122 gallons, valued at \$353,221 to Scotland; and 59,722 gallons, valued at \$70,309 to Canada.

#### FISH SCRAP AND MEAL.

The estimated production of fish and whale scrap and meal in 1920 was 130,000 tons, a material increase over previous years. Of this amount, 16,898<sup>5</sup> tons are credited to the Pacific Coast States and Alaska. On the west coast, as a result of the heavy demand for fertilizer material, more than the usual amount of scrap was used for this purpose. In the menhaden industry of the Atlantic coast, the value of the Bureau's assistance in encouraging the production of fish meal has been greatly appreciated. At least 5,000 tons of meal was turned out by the producers in 1920 and considerable quantities of unground scrap are reported as sold to manufacturers interested in supplying stock feeds. The Bureau of Animal Industry of the Department of Agriculture has continued its hog-feeding tests, using various fish meals, and samples have been supplied to some 15 State experiment stations with satisfactory results. The experiments in progress include the feeding of meal of high oil content, samples without removal of natural oil with additional oil added, and meal made from decomposed fish. If these tests yield satisfactory results, the producers of fish meal should be reasonably assured of markets for their product as soon as the farmers have become acquainted with the merits of this commodity. The whaling companies have recently expressed an interest in the manufacture of whale meal and have provided material for a feeding test.

Considerable quantities of fish waste and waste fish incident to the New England fisheries remain unutilized, and in some cases its disposal is an item of no little expense to the producer. Lack of a regular supply makes the operation of the larger reduction plants impracticable, and the smaller plants appear to be not wholly satisfactory for the proper reduction of some of the raw materials in greatest abundance. The Bureau appreciates the need of solving the problems of this field and hopes to be in position to take them up in the near future.

#### FISH LEATHER.

Notwithstanding the increase in the usual supplies of materials for tanning into leather, the possibilities of employing the hides of sharks and other unutilized aquatic animals continues to attract attention, and the number of inquiries for detailed information is large. Several companies are interested in developing the industry and in the establishment of fisheries for these forms. The Bureau of

<sup>5</sup> See Pacific Fisherman Yearbook, January, 1921, p. 105-106.

Standards is continuing its investigations of the characteristics and qualities of these leathers. One sample of shark leather possessed a tensile strength in excess of 6,500 pounds per square inch exceeding that of calfskin tested. Wearing tests of shoes are also being made. For this purpose 14 pairs of shoes, one shoe of each pair of shark leather and its mate of calfskin; seven pairs of shoes, one of porpoise and mate of side leather; and two pairs of shoes, one shoe of whale leather and mate of calfskin, are being used. It is assured that leather of good quality can be made from shark hides, and ready markets thus far have been found for good grades. There is need for more attention to the subject of quantity-production, to the trial of small, easily movable reduction plants to care for the oil, scrap, and fins, and to developing the interest of fishermen to save and utilize their catch of sharks. A report is being prepared covering the investigations in this field.

#### SHARK FINS.

There is an apparent demand for a much larger supply of dried shark fins. San Francisco is the center of the industry in the United States, the receipts at that port amounting to about 5 tons per month. Much the larger portion is imported from the west coast of Mexico, the balance being received from California points and a few shipments from the Atlantic coast. The Chinese merchants are the largest buyers and export the bulk of the material to China, the balance being absorbed by the local trade.

Unlike conditions in the principal oriental markets, very little distinction as to the species of sharks from which the fins are taken is made, provided the fins are of good size, properly trimmed and cured. The fin should be cut off at the body, with all fleshy parts trimmed off, leaving only the true fin. The marketable fins are the dorsal on the back, the pectorals or anterior paired fins, and the anal. The large dorsal is preferred, while the caudal or tail is worthless. The fins must be at least 6 inches long, and those ranging from 8 to 14 inches are preferred.

For curing the fins should be thoroughly dried in the sun without salt or other treatment, then packed, preferably in cases or barrels weighing about 250 pounds, or put up in sacks to weigh 150 or 200 pounds. Choice grades have commanded as high as 65 to 75 cents per pound, but fins badly cured, improperly trimmed, etc., command much less.

#### PEARL ESSENCE OR FISH SCALE ESSENCE.

The art of using the silvery pigment from fish scales for ornamental purposes is said to have been discovered by the Chinese. In 1680 artificial pearls were first made in western Europe by Jacquin, a rosary maker in Paris, and the trade has been largely conducted in France, Germany, and Italy. The silvery coating of the scales of certain fishes, freed from organic matter and composed of minute, oblong bodies which en masse under suitable conditions supply an iridescent effect, is employed for the purpose. This material is known as essence d'orient, pearl essence, or fish-scale essence. In the manufacture of the artificial pearls the inner wall of the thin



glass spheres is coated with this essence and the cavity filled with a hard white wax.

In the past the best scales for the purpose were obtained from one of the cyprinid fishes of Europe. The supply of pearl essence was curtailed by the outbreak of the Great War, and in 1915 and 1916 numerous inquiries were received by the Bureau concerning the fishes from whose scales the essence could be prepared and details of manufacture of the essence and of artificial pearls. Such information as could be found was supplied, and some experiments were made with the scales of native fishes. Promising samples, although never free from color, were made from the scales of the alewife, or river herring. After treating the scales with ammonia the lustrous particles were separated out by centrifugation. Samples submitted to American representatives of Parisian pearl manufacturers were pronounced off color and lacking in luster. Later one of the Bureau's technologists made some additional experiments, including the digestion of the proteinaceous material, leaving the lustrous particles and a pearly suspension produced, but the results were not wholly satisfactory. At about this time others had succeeded in making pearl essence from the scales of native fishes and the experiments were discontinued for more important investigations. According to report the scales of the alewife, or river herring, sea herring, and shad are employed. The scales are agitated in an ammonia solution and the lustrous particles separated by straining the liquid through several cloths. The material produced is reported to be fully the equal of the imported essence for the manufacture of artificial pearls. The fishermen receive from 15 to 50 cents per pound for the scales, and considerable quantities are now being used for the purpose.

## NEW ENGLAND VESSEL FISHERIES.

### GENERAL STATISTICS.

In the vessel fisheries centering at Boston and Gloucester, Mass., and Portland, Me., during the past year the number of trips and the catch were not so large as in the previous year, but there was a considerable increase in the total value of the products. There was a large increase in the products landed at Boston during the year, amounting to 14.67 per cent in quantity and 30.19 per cent in value, while at Gloucester there was a decrease of 34.51 per cent in quantity and 31.93 per cent in value, and at Portland a decrease of 40.22 per cent in quantity and 8.60 per cent in value. Statistics of these fisheries have been collected by the local agents and published in monthly bulletins showing by species and fishing grounds the quantities and values of fishery products landed by American and Canadian fishing vessels during the year at these ports. Two annual bulletins have been issued, one showing the catch by months and the other by fishing grounds.

The fishing fleet at these ports during the calendar year 1920 numbered 471 sail, steam, and gasoline screw vessels, including 41 American and 3 Canadian steam trawlers. These vessels landed at Boston 3,342 trips, aggregating 118,558,902 pounds of fish, valued at \$6,136,569; at Gloucester, 2,381 trips, aggregating 46,740,296 pounds, valued at \$1,460,336; and at Portland, 1,883 trips, aggre-

gating 12,981,503 pounds, valued at \$630,108. The total for the three ports amounted to 7,606 trips, aggregating 178,280,701 pounds of fresh and salted fish, having a value to the fishermen of \$8,227,013. This total includes 54 trips, 43 at Boston, 1 at Gloucester, and 10 at Portland, landed by 18 Canadian fishing vessels, amounting to 2,588,218 pounds of fish, valued at \$119,028. Of this quantity, 1,308,774 pounds, valued at \$62,147, were landed at Boston; 271,580 pounds, valued at \$13,606, at Gloucester; and 1,007,864 pounds, valued at \$43,275, at Portland. There was an increase of 9 vessels and 15 trips, but a decrease of 707,929 pounds in the quantity of fish landed, with an increase of \$12,767 in the value, as compared with the previous year. These fish were landed in accordance with an arrangement with the Canadian Government as an emergency war measure granting reciprocal privileges to fishing vessels, by which Canadian fishing vessels were permitted to land their fares at American ports direct from the fishing grounds. Canadian vessels began to utilize this privilege in April, 1918, and the arrangement is still in operation.

Compared with the previous year there was a decrease of 663 trips, or 8.01 per cent, in the total number landed by the fishing fleet at Boston, Gloucester, and Portland, and of 18,200,569 pounds, or 9.26 per cent, in the quantity, with an increase of \$678,630, or 8.99 per cent, in the value of the products landed. The only important species showing an increase in both quantity and value were halibut, mackerel, and swordfish. The catch of halibut increased 1,674,669 pounds, or 79.19 per cent, in quantity, and \$354,630, or 91.59 per cent, in value; the mackerel catch increased 1,580,525 pounds, or 27.66 per cent, in quantity, and \$215,852, or 39.44 per cent, in value; and the catch of swordfish increased 1,648,942 pounds, or 186.80 per cent, in quantity, and \$281,834, or 132.71 per cent, in value. The catch of cod decreased 3,108,838 pounds, or 4.75 per cent, in quantity, but increased \$54,456, or 2.10 per cent, in value; haddock decreased 7,436,708 pounds, or 8.99 per cent, in quantity, and \$53,886, or 1.92 per cent, in value; pollock, 10,191,066 pounds, or 54.34 per cent, in quantity, and \$118,387, or 31.11 per cent, in value; cusk, 208,459 pounds, or 10.10 per cent, in quantity, and \$14,099, or 22.67 per cent, in value; and herring, 3,361,901 pounds, or 32.45 per cent, in quantity, and \$73,487, or 30.64 per cent, in value. The catch of hake increased 381,880 pounds, or 8.80 per cent, in quantity, but decreased \$27,177, or 15.01 per cent, in value. The catch of Newfoundland herring decreased 404,753 pounds, or 11.55 per cent, in quantity, and \$79,626, or 41.95 per cent, in value. There were no tilefish landed at Boston during the year. In the various other species combined there was an increase of 853,897 pounds, or 20.66 per cent, in quantity, and of \$60,368, or 37.85 per cent, in value.

The following tables present in detail, by fishing grounds and by months, the products landed at Boston and Gloucester, Mass., and Portland, Me., by American and Canadian fishing vessels, for the calendar year 1920. The weights of fresh and salted fish given in these statistics represent the fish as landed from the vessels, and the values are those received by the fishermen. The grades, or sizes, given for certain species are those recognized in the trade.

STATEMENT, BY FISHING GROUNDS, OF QUANTITIES AND VALUES OF CERTAIN FISHERY PRODUCTS LANDED AT BOSTON AND GLOUCESTER, MASS., AND PORTLAND, ME., BY AMERICAN AND CANADIAN FISHING VESSELS, CALENDAR YEAR 1920.

Fishing grounds.	Number of trips.	Cod.											
		Large (10 pounds and over).				Market (under 10 and over 2½ pounds).				Scrod (1 to 2½ pounds).			
		Fresh.		Salted.		Fresh.		Salted.		Fresh.		Salted.	
		Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
LANDED AT BOSTON.													
<i>East of 66° W. longitude.</i>													
By American vessels:													
La Have Bank.....	54	767, 285	\$51, 941			615, 401	\$23, 382			25, 720	\$360		
Western Bank.....	85	1, 101, 050	61, 002			456, 395	18, 094			3, 375	80		
Quereau Bank.....	9	43, 840	1, 628			6, 300	212						
Green Bank.....	3												
Grand Bank.....	9	38, 900	2, 123			4, 200	126						
St. Peters Bank.....	4	3, 100	186										
Burgeo Bank.....	2												
Cape North.....	1	16, 950	1, 526			35, 600	952			5, 500	110		
Cape Shore.....	38	67, 100	4, 589			54, 045	1, 968			6, 060	96		
Roseway Bank.....	1	5, 000	260			5, 800	174						
By Canadian vessels: La Have Bank.....	3	28, 520	1, 730			30, 500	1, 052			1, 450	15		
<i>West of 66° W. longitude.</i>													
By American vessels:													
Browns Bank.....	104	1, 527, 829	92, 713			1, 344, 270	45, 915			23, 850	445		
Georges Bank.....	807	10, 054, 075	618, 606			4, 775, 817	172, 304			21, 825	361		
Cashes Bank.....	3	14, 855	932			5, 000	201						
Fippenies Bank.....	4	32, 940	3, 279			21, 205	1, 133			6, 910	138		
Middle Bank.....	58	106, 257	11, 399			74, 220	4, 533			27, 585	447		
Jeffreys Ledge.....	59	60, 598	4, 867			48, 885	2, 345			13, 950	219		
South Channel.....	560	2, 582, 571	166, 365			2, 241, 185	75, 734			46, 780	765		
Nantucket Shoals.....	121	120, 365	7, 113			259, 695	8, 532			2, 110	39		
Off Chatham.....	221	1, 328, 904	81, 414			1, 121, 769	37, 209			66, 955	1, 067		
South.....	9												
Shore, general.....	1, 147	775, 106	47, 740			342, 155	14, 693			7, 540	135		
By Canadian vessels:													
Browns Bank.....	25	225, 992	12, 049			410, 902	10, 352			7, 405	102		
Georges Bank.....	15	102, 855	6, 351			154, 355	4, 354			1, 700	16		
Total.....	3, 342	19, 004, 092	1, 177, 813			12, 007, 699	423, 265			268, 715	4, 395		

## LANDED AT GLOUCESTER.

*East of 66° W. longitude.*

## By American vessels:

La Have Bank	20	401,440	11,628	36,183	\$2,071	181,565	4,407	2,970	\$154	1,155	11		
Western Bank	89	4,126,450	121,026	287,663	17,443	2,967,020	73,428	306,126	17,173	51,910	587	14,480	\$605
Quereau Bank	73	3,710,340	105,672	801,232	44,130	4,091,229	93,400	1,182,225	58,741	14,870	173	76,632	2,786
Green Bank	5	83,435	2,410	59,805	3,275	12,660	295	6,610	331				
Grand Bank	25	470,567	12,246	355,695	21,088	56,560	1,447	75,120	4,105	2,430	69	3,215	121
St. Peters Bank	5	265,390	7,962	4,955	297	86,035	2,151	760	42	1,085	41		
Off Newfoundland	12												
Cape Shore	22	95,850	2,975			41,000	1,043			350	5		
The Gully	5	19,215	714	12,250	710	2,050	83	1,255	63				
By Canadian vessels: Quereau Bank	1			113,065	5,653			149,330	7,466			8,785	439

*West of 66° W. longitude.*

## By American vessels:

Browns Bank	16	248,975	7,633			319,115	8,194			6,470	93		
Georges Bank	180	2,245,228	67,332	46,619	2,509	2,112,540	53,690	78,761	3,888	24,736	299	1,820	53
Jeffreys Ledge	1	6,000	165			7,660	172						
Ipswich Bay	1												
South Channel	38	136,170	4,065			456,033	11,382			27,398	363		
Nantucket Shoals	49	865	28			3,115	83						
Seal Island	4	80,850	2,396	21,300	1,169	37,820	1,005	8,960	467				
Shore, general	1,835	2,195,290	100,951	595	36	35,050	863			3,470	51		
Total	2,381	14,086,065	452,203	1,739,372	98,381	10,409,452	251,643	1,812,117	92,430	133,874	1,692	104,932	4,004

## LANDED AT PORTLAND.

*East of 66° W. longitude.*

## By American vessels:

La Have Bank	5	17,715	522			7,475	151			270	3		
Western Bank	6	8,965	348	1,460	95	3,790	127	315	20				
Quereau Bank	3												
Green Bank	2	900	50										
Grand Bank	11	26,565	771	4,320	270	3,700	102						
St. Peters Bank	6	615	31										
Off Newfoundland	1												
Cape Shore	11	21,825	821			31,140	922			1,710	31		
The Gully	4												
By Canadian vessels:													
La Have Bank	2	56,540	1,930	2,085	156	20,060	502	575	37			370	17
Western Bank	3	50,000	1,000	62,218	3,532			98,046	5,393			24,500	1,348

STATEMENT, BY FISHING GROUNDS, OF QUANTITIES AND VALUES OF CERTAIN FISHERY PRODUCTS LANDED AT BOSTON AND GLOUCESTER, MASS., AND PORTLAND, ME., BY AMERICAN AND CANADIAN FISHING VESSELS, CALENDAR YEAR 1920—Continued.

Fishing grounds.	Number of trips.	Cod.											
		Large (10 pounds and over).				Market (under 10 and over 2½ pounds).				Scrod (1 to 2½ pounds).			
		Fresh.		Salted.		Fresh.		Salted.		Fresh.		Salted.	
LANDED AT PORTLAND—continued.													
<i>West of 66° W. longitude.</i>													
By American vessels:													
		Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Browns Bank.....	1												
Georges Bank.....	17	31,300	\$2,504			2,785	\$223						
Cashes Bank.....	13	53,556	2,458			11,167	326			605	\$8		
Platts Bank.....	46	101,916	6,695			51,815	2,304			26,227	267		
Jeffreys Ledge.....	57	41,674	3,117			34,280	1,683			10,825	152		
South Channel.....	2	510	20			649	16						
Shore, general.....	1,688	1,344,769	75,592	6,135	\$434	417,870	15,716	1,375	\$82	116,052	2,017	595	\$18
By Canadian vessels: Georges Bank.													
	5												
Total.....	1,883	1,756,850	95,859	76,218	4,487	584,731	22,072	100,311	5,532	155,689	2,478	25,465	1,383
Grand total.....	7,606	34,847,007	1,725,875	1,815,590	102,868	23,001,882	696,980	1,912,428	97,962	558,278	8,565	130,397	5,387

Fishing grounds.	Haddock.						Hake.							
	Large (over 2½ pounds).				Scrod (1 to 2½ pounds).		Large (6 pounds and over).				Small (under 6 pounds).			
	Fresh.		Salted.		Fresh.		Fresh.		Salted.		Fresh.		Salted.	
LANDED AT BOSTON.														
<i>East of 66° W. longitude.</i>														
By American vessels:														
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
La Have Bank.....	756,030	\$36,377					10,700	\$623			34,395	\$1,362		
Western Bank.....	1,540,445	66,615					1,585	108			10,100	474		

Quereau Bank.....	300	5					7,700	194									
Grand Bank.....							12,000	440				3,235	82				
St. Peters Bank.....	700	42															
Cape North.....	8,000	480															
Cape Shore.....	113,700	4,092					730	22				3,350	133				
Roseway Bank.....	1,650	132										300	12				
By Canadian vessels: La Have Bank..	46,410	2,174															
<i>West of 66° W. longitude.</i>																	
By American vessels:																	
Browns Bank.....	1,055,260	42,689					20,540	1,015				12,250	442				
Georges Bank.....	20,809,185	850,624				3,550	\$132	19,160	802			30,065	968				
Cashes Bank.....							1,640	98				13,160	446				
Fippenies Bank.....	4,555	312					12,080	763				28,735	1,194				
Middle Bank.....	324,925	20,252					26,915	2,115				158,790	7,014				
Jeffreys Ledge.....	287,463	18,813				1,170	32	43,985	1,964			138,908	6,226				
South Channel.....	34,748,683	1,231,340				22,210	515	459,870	15,666			1,103,845	33,993				
Nantucket Shoals.....	1,177,669	46,299				875	26	675	27			3,365	140				
Off Chatham.....	3,159,665	127,203				2,875	48	132,125	5,373			259,716	9,011				
Shore, general.....	586,133	25,555				770	19	64,745	2,365			133,740	4,058				
By Canadian vessels:												1,000	20				
Browns Bank.....	44,415	1,451															
Georges Bank.....	55,250	1,601															
Total.....	64,720,438	2,476,056				31,450	772	814,450	31,575			1,934,954	65,575				
<b>LANDED AT GLOUCESTER.</b>																	
<i>East of 66° W. longitude.</i>																	
By American vessels:																	
La Have Bank.....	111,570	1,139						82,465	1,236	2,805	\$72						
Western Bank.....	1,115,205	16,118				29,187	368	119,530	1,794	3,492	94						
Quereau Bank.....	394,120	5,005	18,550	\$557				16,095	244	7,365	178						
Green Bank.....	240	4						10,470	157	3,680	99						
Grand Bank.....	1,836	27	9,750	297				63,885	958	19,710	567					455	\$9
St. Peters Bank.....	11,920	178						24,120	487								
Cape Shore.....	15,850	198															
The Gully.....								1,565	22	7,930	194						
<i>West of 66° W. longitude.</i>																	
By American vessels:																	
Browns Bank.....	129,500	1,508						19,710	295								
Georges Bank.....	2,505,070	38,681				6,840	51	45,635	680								
Jeffreys Ledge.....	19,200	192						440	7								
South Channel.....	2,224,225	26,985				110,100	1,377	31,800	465								
Nantucket Shoals.....	45,000	675				47,035	588										
Seal Island.....								28,400	426	6,200	117						
Shore, general.....	1,798,495	85,381						306,125	16,138								
Total.....	8,372,231	176,091	28,300	854	193,162	2,384	750,240	22,909	51,182	1,321						455	9

STATEMENT, BY FISHING GROUNDS, OF QUANTITIES AND VALUES OF CERTAIN FISHERY PRODUCTS LANDED AT BOSTON AND GLOUCESTER, MASS., AND PORTLAND, ME., BY AMERICAN AND CANADIAN FISHING VESSELS, CALENDAR YEAR 1920—Continued.

Fishing grounds.	Haddock.						Hake.							
	Large (over 2½ pounds).				Scrod (1 to 2½ pounds).		Large (6 pounds and over).				Small (under 6 pounds).			
	Fresh.		Salted.		Fresh.		Fresh.		Salted.		Fresh.		Salted.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
LANDED AT PORTLAND.														
<i>East of 66° W. longitude.</i>														
By American vessels:														
La Have Bank.....	23,125	\$534									1,790	\$31		
Western Bank.....											515	17		
Green Bank.....											470	6		
Grand Bank.....	390	6					10,190	\$153	1,940	\$49				
St. Peters Bank.....							255	10			90	4		
Off Newfoundland.....							2,000	30						
Cape Shore.....	28,260	1,324			4,320	\$65	230	14			3,720	111		
The Gully.....											1,000	35		
By Canadian vessels:														
La Have Bank.....	605	12					2,000	42			5,295	79	1,375	\$45
Western Bank.....	454,500	9,090	16,143	\$484										
<i>West of 66° W. longitude.</i>														
By American vessels:														
Georges Bank.....	131,640	3,748												
Cashes Bank.....	555	18					2,765	153			36,261	859		
Platts Bank.....	25,757	2,030			508	11	29,931	1,001			232,315	5,575		
Jeffreys Ledge.....	255,895	19,423			12,622	417	12,402	778			196,987	5,841		
South Channel.....	394,568	9,861												
Shore, general.....	575,651	36,592			9,357	280	58,839	2,471			569,423	14,873	282	10
Total.....	1,890,946	82,638	16,143	484	26,807	773	118,612	4,652	1,940	49	1,047,866	27,731	1,657	55
Grand total.....	74,983,615	2,734,785	44,443	1,338	251,419	3,929	1,683,302	59,136	53,122	1,370	2,982,820	93,306	2,112	64

Fishing grounds.	Pollock.				Cusk.				Halibut.			
	Fresh.		Salted.		Fresh.		Salted.		Fresh.		Salted.	
LANDED AT BOSTON. <i>East of 66° W. longitude.</i>	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>By American vessels:</b>												
La Have Bank.....	39,695	\$1,394			79,745	\$2,351			83,766	\$19,229		
Western Bank.....	89,240	4,131			6,035	271			213,958	40,500		
Quereau Bank.....	870	20			880	22			218,389	42,551		
Green Bank.....									96,701	19,773		
Grand Bank.....					600	18			271,785	50,431		
St. Peters Bank.....									108,163	19,906		
Burgeo Bank.....	28,000	5,600							43,357	8,486		
Cape Shore.....	6,800	137			3,430	59			41,979	4,163	5,000	\$450
Roseway Bank.....					1,000	20			249	63		
<b>By Canadian vessels: La Have Bank.....</b>	555	16			2,500	50			1,327	463		
<i>West of 66° W. longitude.</i>												
<b>By American vessels:</b>												
Browns Bank.....	108,515	4,275			133,105	4,257			115,871	26,617		
Georges Bank.....	692,874	24,375			91,790	2,996			1,101,946	220,320		
Cashes Bank.....	4,240	167			6,408	176			1,185	329		
Fippenies Bank.....	8,365	246			27,780	480			34	10		
Middle Bank.....	89,090	3,154			67,925	1,522			3,193	981		
Jeffreys Ledge.....	76,320	2,621			75,750	2,340			2,519	676		
South Channel.....	622,825	24,139			133,987	2,969			120,507	27,785		
Nantucket Shoals.....	19,127	642			385	15			4,513	1,140		
Off Chatham.....	239,084	9,209			58,820	2,005			36,153	8,760		
Shore, general.....	1,260,529	40,821			38,000	1,104			31,630	3,568	7,000	700
<b>By Canadian vessels:</b>												
Browns Bank.....	38,060	1,018			14,687	421			2,017	566		
Georges Bank.....	12,885	456			2,800	34			1,290	298		
<b>Total.....</b>	<b>3,337,074</b>	<b>122,421</b>			<b>745,627</b>	<b>21,110</b>			<b>2,500,532</b>	<b>496,615</b>	<b>12,000</b>	<b>1,150</b>
<b>LANDED AT GLOUCESTER.</b> <i>East of 66° W. longitude.</i>												
<b>By American vessels:</b>												
La Have Bank.....	12,120	141	780	\$20	166,515	2,709	1,256	\$46	30,843	6,189	70	7
Western Bank.....	147,785	2,002	560	16	174,020	3,389			52,758	9,707	75	9
Quereau Bank.....	89,010	1,195	12,725	366	28,380	601			8,291	1,424	4,715	605
Green Bank.....	50	1			4,595	89	1,640	58			2,596	389
Grand Bank.....	1,085	14	2,005	60	18,705	386	1,055	37			1,880	177
St. Peters Bank.....					22,565	370		2				
Cape Shore.....	600	8										
The Gully.....			120	3	520	8	185	6				
<b>By Canadian vessels: Quereau Bank.....</b>											400	48



STATEMENT, BY FISHING GROUNDS, OF QUANTITIES AND VALUES OF CERTAIN FISHERY PRODUCTS LANDED AT BOSTON AND GLOUCESTER, MASS., AND PORTLAND, ME., BY AMERICAN AND CANADIAN FISHING VESSELS, CALENDAR YEAR 1920—Continued.

Fishing grounds.	Pollock.				Cusk.				Halibut.			
	Fresh.		Salted.		Fresh.		Salted.		Fresh.		Salted.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
LANDED AT GLOUCESTER—continued.												
<i>West of 66° W. longitude.</i>												
By American vessels:												
Browns Bank.....	10,505	\$137			36,250	\$718						
Georges Bank.....	114,669	2,023			99,381	1,940	242	\$6	14,485	\$2,112		
Jeffreys Ledge.....	3,110	39										
South Channel.....	48,555	634			10,530	186			90	14		
Nantucket Shoals.....	9,340	126										
Seal Island.....	1,710	20	590	\$15	26,915	680	685	67				
Shore, general.....	3,745,246	112,252			9,854	195			622	152		
Total.....	4,183,785	118,592	16,780	480	598,230	11,271	5,353	230	107,089	19,598	9,736	\$1,235
LANDED AT PORTLAND.												
<i>East of 66° W. longitude.</i>												
By American vessels:												
La Have Bank.....	1,065	11			3,560	105			60,722	12,402		
Western Bank.....					125	4			157,827	29,256		
Quereau Bank.....									104,485	23,095		
Green Bank.....									68,093	11,683		
Grand Bank.....					600	14			286,651	51,886		
St. Peters Bank.....									162,339	33,929		
Off Newfoundland.....					2,000	50			11,225	2,070		
Cape Shore.....	340	5			10,320	176			497	100		
The Gully.....									83,504	17,731		
By Canadian vessels:												
La Have Bank.....	760	9	2,370	77	42,155	633			40,131	6,200		
Western Bank.....	53,975	1,406							576	128		
<i>West of 66° W. longitude.</i>												
By American vessels:												
Georges Bank.....									39,488	7,446		
Cashes Bank.....	3,383	88			23,099	630			6,816	1,418		
Platts Bank.....	30,855	843			121,405	2,858			1,776	360		
Jeffreys Ledge.....	13,467	419			77,380	2,393			1,629	317		
South Channel.....	955	20										
Shore, general.....	913,207	17,671	2,885	86	224,625	8,588	260	8	134,184	25,202		
Total.....	1,018,007	20,472	5,255	163	505,269	15,451	260	8	1,159,973	223,223		
Grand total.....	8,538,866	261,485	22,035	643	1,849,126	47,832	5,613	238	3,767,591	739,431	21,736	2,385

## Mackerel.

Fishing grounds.	Large (over 2½ pounds).				Medium (1½ to 2½ pounds).				Small (under 1½ pounds).			
	Fresh.		Salted.		Fresh.		Salted.		Fresh.		Salted.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
LANDED AT BOSTON.												
<i>East of 66° W. longitude.</i>												
By American vessels: Cape Shore .....	1,149,153	\$113,532	180,200	\$15,454			20,000	\$1,800				
<i>West of 66° W. longitude.</i>												
By American vessels:												
Georges Bank .....	67,148	15,474			23,975	\$3,403			1,947	\$496		
Middle Bank .....									5,960	1,529		
South Channel .....	38,675	4,254			37,075	3,988			3,500	385		
Nantucket Shoals .....	1,117,220	93,037	27,400	2,331	633,315	67,329	1,800	189	63,030	8,832		
Off Chatham .....	787	246			128,646	24,808			158,864	30,315		
South .....	384,630	32,222	9,000	630								
Shore, general .....	1,686,882	172,701	5,700	477	401,676	48,448	1,000	70	106,437	18,545		
Total .....	4,444,495	431,466	222,300	18,892	1,224,687	147,976	22,800	2,059	339,738	60,102		
LANDED AT GLOUCESTER.												
<i>East of 66° W. longitude.</i>												
By American vessels: Cape Shore .....	16,550	790	461,687	39,428								
<i>West of 66° W. longitude.</i>												
By American vessels:												
Georges Bank .....			333	50								
Nantucket Shoals .....	11,881	1,339	231,884	23,997	55,145	3,991	66,988	7,081			1,200	\$102
Shore, general .....	66,709	11,409										
Total .....	95,140	13,538	693,904	63,475	55,145	3,991	66,988	7,081			1,200	102
LANDED AT PORTLAND.												
<i>East of 66° W. longitude.</i>												
By American vessels: Cape Shore .....	73,625	6,392	2,000	175								
<i>West of 66° W. longitude.</i>												
By American vessels:												
Georges Bank .....	13,322	2,689										
Shore, general .....	13,542	1,768			23,750	3,319			1,085	69		
Total .....	100,489	10,849	2,000	175	23,750	3,319			1,085	69		
Grand total .....	4,640,124	455,853	918,204	82,542	1,303,582	155,286	89,788	9,140	340,823	60,171	1,200	102

STATEMENT, BY FISHING GROUNDS, OF QUANTITIES AND VALUES OF CERTAIN FISHERY PRODUCTS LANDED AT BOSTON AND GLOUCESTER, MASS., AND PORTLAND, ME., BY AMERICAN AND CANADIAN FISHING VESSELS, CALENDAR YEAR 1920—Continued.

Fishing grounds.	Miscellaneous.				Total.				Grand total.	
	Fresh.		Salted.		Fresh.		Salted.		Pounds.	Value.
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.		
LANDED AT BOSTON.										
<i>East of 66° W. longitude.</i>										
By American vessels:										
La Have Bank.....	7,919	\$736			2,420,656	\$137,755			2,420,656	\$137,755
Western Bank.....	10,297	1,158			3,432,480	192,433			3,432,480	192,433
Quereau Bank.....	328	85			270,907	44,523			270,907	44,523
Green Bank.....	250	100			96,951	19,873			96,951	19,873
Grand Bank.....	120	30			323,305	52,922			323,305	52,922
St. Peters Bank.....					127,198	20,656			127,198	20,656
Burgeo Bank.....					71,357	14,086			71,357	14,086
Cape North.....					66,050	3,068			66,050	3,068
Cape Shore.....	11,818	1,980			1,458,165	130,771	205,200	\$17,704	1,663,365	148,475
Roseway Bank.....					13,999	661			13,999	661
By Canadian vessels: La Have Bank.....					111,262	5,500			111,262	5,500
<i>West of 66° W. longitude.</i>										
By American vessels:										
Browns Bank.....	103,227	5,029			4,444,717	223,397			4,444,717	223,397
Georges Bank.....	2,419,339	431,268			40,112,696	2,342,129			40,112,696	2,342,129
Cashes Bank.....					46,488	2,349			46,488	2,349
Fippeties Bank.....	200	8			142,804	7,563			142,804	7,563
Middle Bank.....	39,893	2,709			924,753	55,655			924,753	55,655
Jeffreys Ledge.....	14,802	810			764,350	40,913			764,350	40,913
South Channel.....	881,360	47,580			43,043,073	1,635,478			43,043,073	1,635,478
Nantucket Shoals.....	65,632	5,098			3,467,976	238,269	29,200	2,520	3,497,176	240,789
Off Chatham.....	235,264	13,034			6,929,627	349,702			6,929,627	349,702
South.....					384,630	32,222	9,000	630	393,630	32,852
Shore, general.....	3,015,503	128,144			8,450,846	507,896	13,700	1,247	8,464,546	509,143
By Canadian vessels:										
Browns Bank.....	31,814	3,305			776,292	29,284			776,292	29,284
Georges Bank.....	90,085	14,253			421,220	27,363			421,220	27,363
Total.....	6,927,851	655,327			118,301,802	6,114,468	257,100	22,101	118,558,902	6,136,569

LANDED AT GLOUCESTER.

East of 66° W. longitude.

52025° — 21 — 33	By American vessels:									
	La Have Bank.....				987,673	27,460	44,064	2,370	1,031,737	29,830
	Western Bank.....				8,783,865	231,419	612,396	35,340	9,396,261	266,759
	Quereau Bank.....				8,352,335	207,714	2,103,664	107,371	10,455,999	315,085
	Green Bank.....				111,450	2,956	74,331	4,152	185,781	7,108
	Grand Bank.....				615,068	17,147	468,885	26,461	1,083,953	43,608
	St. Peters Bank.....				411,115	11,189	5,785	341	416,900	11,530
	Off Newfoundland.....			1 3,097,024	\$110,157				3,097,024	110,157
	Cape Shore.....				170,200	5,019	461,687	39,428	631,887	44,447
	The Gully.....				23,350	827	21,750	976	45,100	1,803
By Canadian vessels: Quereau Bank.....							271,580	13,606	271,580	13,606

West of 66° W. longitude.

By American vessels:										
Browns Bank.....					770,525	18,578			770,525	18,578
Georges Bank.....	3,924	754			7,172,508	167,562	127,775	6,506	7,300,283	174,068
Jeffreys Ledge.....					36,410	575			36,410	575
Ipswich Bay.....	26,600	466			26,600	466			26,600	466
South Channel.....					3,044,901	45,471			3,044,901	45,471
Nantucket Shoals.....					172,381	6,830	300,072	31,180	472,453	38,010
Seal Island.....					175,695	4,527	37,735	1,835	213,430	6,362
Shore, general.....	98,016	5,445			8,258,877	332,837	595	36	8,259,472	332,873
<b>Total.....</b>	<b>128,540</b>	<b>6,665</b>	<b>3,097,024</b>	<b>110,157</b>	<b>3,9112,953</b>	<b>1,080,577</b>	<b>7,627,343</b>	<b>379,759</b>	<b>46,740,296</b>	<b>1,460,336</b>

LANDED AT PORTLAND.

East of 66° W. longitude.

By American vessels:										
La Have Bank.....	300	75			116,022	13,834			116,022	13,834
Western Bank.....					171,222	29,752	1,775	115	172,997	29,867
Quereau Bank.....	310	78			104,795	23,173			104,795	23,173
Green Bank.....					69,463	11,739			69,463	11,739
Grand Bank.....					328,096	52,932	6,260	319	334,356	53,251
St. Peters Bank.....	451	75			163,750	34,049			163,750	34,049
Off Newfoundland.....					15,225	2,150			15,225	2,150
Cape Shore.....	40,584	8,800			216,571	18,821	2,000	175	218,571	18,996
The Gully.....					84,504	17,766			84,504	17,766
By Canadian vessels:										
La Have Bank.....					167,546	9,407	6,775	332	174,321	9,739
Western Bank.....					559,051	11,624	200,907	10,757	759,958	22,381

<sup>1</sup> Herring. Other items under "Miscellaneous" include bluebacks, 31,650 pounds, value \$530; butterfish, 13,087 pounds, value \$2,561; flounders, 3,637,774 pounds, value \$166,895; herring, 3,900,960 pounds, value \$56,144; rosefish, 67,613 pounds, value \$2,030; shad, 115,792 pounds, value \$405; skates, 4,425 pounds, value \$98; smelt, 10,940 pounds, value \$1,216; sturgeon, 3,301 pounds, value \$630; swordfish, 2,531,669 pounds, value \$494,202; tuna, 12,001 pounds, value \$944; whiting, 800 pounds, value \$4; wolffish, 170,729 pounds, value \$4,926; squid, 1,980 pounds, value \$36; lobster, 100 pounds, value \$33; livers, 772,329 pounds, value \$24,715; sounds, 6,383 pounds, value, \$320; and spawn, 121,776 pounds, value \$8,167.

STATEMENT, BY FISHING GROUNDS, OF QUANTITIES AND VALUES OF CERTAIN FISHERY PRODUCTS LANDED AT BOSTON AND GLOUCESTER, MASS., AND PORTLAND, ME., BY AMERICAN AND CANADIAN FISHING VESSELS, CALENDAR YEAR 1920—Continued.

Fishing grounds.	Miscellaneous.				Total.				Grand total.	
	Fresh.		Salted.		Fresh.		Salted.			
LANDED AT PORTLAND—continued.										
<i>West of 66° W. longitude.</i>										
By American vessels:	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Browns Bank.....	10,466	\$2,198			10,466	\$2,198			10,466	\$2,198
Georges Bank.....	122,235	22,273			340,770	38,883			340,770	38,883
Cashes Bank.....	350	8			138,587	5,966			138,587	5,966
Platts Bank.....	10,713	232			633,218	22,476			633,218	22,476
Jeffreys Ledge.....	21,137	804			678,298	35,344			678,298	35,344
South Channel.....	265	13			396,947	9,930			396,947	9,930
Shore, general.....	4,081,784	62,415			8,484,138	266,573	11,532	\$638	8,495,670	267,211
By Canadian vessels: Georges Bank.....	73,585	11,155			73,585	11,155			73,585	11,155
Total.....	4,362,180	108,186			12,752,254	617,772	229,249	12,336	12,981,503	630,108
Grand total.....	11,418,571	770,178	3,097,024	110,157	170,167,009	7,812,817	8,113,692	414,196	178,280,701	8,227,013

STATEMENT, BY MONTHS, OF QUANTITIES AND VALUES OF CERTAIN FISHERY PRODUCTS LANDED AT BOSTON AND GLOUCESTER, MASS., AND PORTLAND, ME., BY AMERICAN AND CANADIAN FISHING VESSELS, 1920.<sup>1</sup>

Month.	Number of trips.	Cod.											
		Large (10 pounds and over).				Market (under 10 and over 2½ pounds).				Scrod (1 to 2½ pounds).			
		Fresh.		Salted.		Fresh.		Salted.		Fresh.		Salted.	
LANDED AT BOSTON.		<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
January.....	209	947,700	\$88,987			716,380	\$37,070			40,355	\$901		
February.....	195	2,075,600	164,798			547,332	29,240			6,895	170		
March.....	315	3,333,703	182,451			906,045	36,193			5,485	127		
April.....	214	1,353,829	69,357			617,078	21,289			16,090	267		
May.....	254	1,565,234	71,246			1,030,387	33,451			24,885	368		
June.....	271	1,570,580	89,377			1,299,085	41,024			8,760	126		

July.....	314	1,363,398	79,121	.....	.....	1,371,48 <sup>1</sup>	39,663	.....	.....	5,020	63	.....	.....	.....
August.....	355	1,746,450	90,245	.....	.....	1,593,327	40,710	.....	.....	4,480	45	.....	.....	.....
September.....	344	1,548,565	92,425	.....	.....	1,136,314	38,364	.....	.....	19,180	264	.....	.....	.....
October.....	289	1,582,428	92,570	.....	.....	1,061,248	33,569	.....	.....	11,505	123	.....	.....	.....
November.....	329	1,147,438	94,290	.....	.....	989,522	40,537	.....	.....	51,530	702	.....	.....	.....
December.....	253	769,167	62,946	.....	.....	739,495	32,155	.....	.....	74,530	1,239	.....	.....	.....
Total.....	3,342	19,004,092	1,177,813	.....	.....	12,007,699	423,265	.....	.....	268,715	4,395	.....	.....	.....
LANDED AT GLOUCESTER.														
January.....	194	206,935	13,722	1,000	\$60	18,645	492	540	\$27	3,205	46	.....	.....	.....
February.....	112	154,300	10,712	.....	.....	8,125	259	.....	.....	85	2	.....	.....	.....
March.....	332	1,085,210	41,214	.....	.....	142,200	3,445	.....	.....	845	8	.....	.....	.....
April.....	452	2,375,320	80,192	4,110	247	655,775	17,124	600	30	5,180	58	.....	.....	.....
May.....	286	2,739,765	83,620	17,625	1,065	1,845,590	46,792	8,325	458	19,130	286	390	\$12	.....
June.....	99	2,294,832	69,458	327,443	19,839	2,178,833	53,186	308,206	17,290	51,868	610	14,245	598	.....
July.....	90	2,218,950	66,066	365,010	21,833	2,233,894	54,064	137,770	7,394	10,895	126	4,305	164	.....
August.....	73	1,583,575	41,318	156,852	8,460	1,918,220	42,310	133,885	6,531	20,241	250	955	32	.....
September.....	83	514,483	15,362	302,246	16,512	693,131	17,213	446,501	20,919	8,830	110	17,282	509	.....
October.....	211	494,915	14,250	377,975	20,494	418,825	9,675	570,575	29,359	7,705	133	48,970	1,875	.....
November.....	221	188,285	6,632	179,788	9,469	182,525	4,434	205,075	10,390	3,175	35	18,785	814	.....
December.....	228	229,495	9,657	402	.....	113,689	2,649	640	32	2,715	28	.....	.....	.....
Total.....	2,381	14,086,065	452,203	1,739,372	98,381	10,409,452	251,643	1,812,117	92,430	133,874	1,692	104,932	4,004	.....
LANDED AT PORTLAND.														
January.....	90	48,271	4,564	.....	.....	53,181	2,997	.....	.....	18,132	439	.....	.....	.....
February.....	59	64,735	5,059	.....	.....	21,917	1,632	.....	.....	4,899	170	.....	.....	.....
March.....	172	104,225	6,253	1,460	95	58,903	2,530	315	20	7,696	192	.....	.....	.....
April.....	234	243,170	10,287	4,405	275	127,173	3,685	.....	.....	7,484	111	.....	.....	.....
May.....	234	193,011	8,550	.....	.....	57,208	1,587	.....	.....	5,378	73	.....	.....	.....
June.....	377	225,766	12,246	50	3	27,632	887	.....	.....	3,829	54	.....	.....	.....
July.....	154	262,688	15,011	1,345	101	43,816	1,184	45	2	1,668	23	.....	.....	.....
August.....	133	254,424	11,366	2,085	156	21,801	691	330	21	3,877	42	370	17	.....
September.....	113	108,584	5,868	66,873	3,857	38,284	1,285	98,996	5,449	12,701	445	25,055	1,365	.....
October.....	130	128,667	6,209	.....	.....	38,975	1,195	50	3	11,166	116	40	1	.....
November.....	110	64,811	5,323	.....	.....	37,529	1,848	.....	.....	19,178	202	.....	.....	.....
December.....	77	58,498	5,123	.....	.....	58,312	2,551	.....	.....	59,681	611	.....	.....	.....
Total.....	1,883	1,756,850	95,859	76,218	4,487	584,731	22,072	100,311	5,532	155,689	2,478	25,465	1,383	.....
Grand total.....	7,606	34,847,007	1,725,875	1,815,590	102,868	23,001,882	696,980	1,912,428	97,962	558,278	8,565	130,397	5,387	.....
Grounds east of 66° W. long.....	520	11,427,557	400,091	1,740,941	98,720	8,712,525	224,018	1,823,332	93,525	115,885	1,581	127,982	5,316	.....
Grounds west of 66° W. long.....	7,086	23,419,450	1,325,784	74,649	4,148	14,289,357	472,962	89,096	4,437	442,393	6,984	2,415	71	.....
Landed at Boston in 1919.....	2,754	20,134,589	1,039,220	.....	.....	9,038,012	321,434	.....	.....	385,344	7,788	.....	.....	.....
Landed at Gloucester in 1919.....	2,965	18,508,512	567,307	3,065,779	171,873	8,616,805	229,526	1,562,770	74,811	137,801	2,202	94,502	4,077	.....
Landed at Portland in 1919.....	2,550	2,856,747	131,202	.....	.....	874,935	31,644	208	6	98,416	2,091	.....	.....	.....

<sup>1</sup> The above statistics for the year 1920 include 54 trips landed by Canadian fishing vessels, 43 at Boston, 1 at Gloucester, and 10 at Portland, amounting to 2,588,218 pounds of fish, value \$119,028.

STATEMENT. BY MONTHS, OF QUANTITIES AND VALUES OF CERTAIN FISHERY PRODUCTS LANDED AT BOSTON AND GLOUCESTER, MASS., AND PORTLAND, ME., BY AMERICAN AND CANADIAN FISHING VESSELS, 1920—Continued.

Month.	Haddock.						Hake.							
	Large (over 2½ pounds).				Scrod (1 to 2½ pounds).		Large (6 pounds and over).				Small (under 6 pounds).			
	Fresh.		Salted.		Fresh.		Fresh.		Salted.		Fresh.		Salted.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
LANDED AT BOSTON.														
January.....	5,996,213	\$330,008			4,800	\$175	13,163	\$898			31,241	\$2,770		
February.....	6,214,746	309,801					11,759	1,254			9,415	828		
March.....	8,910,530	302,420			645	15	17,940	1,145			17,200	1,033		
April.....	4,531,355	165,729			17,980	437	15,160	738			15,680	693		
May.....	5,099,480	181,700			4,075	90	24,795	1,156			65,195	2,353		
June.....	4,412,980	150,987			2,260	23	33,070	1,629			79,020	2,803		
July.....	3,677,270	120,113			290	6	30,880	1,114			220,315	5,282		
August.....	4,658,175	121,035			100	2	93,845	3,046			290,554	7,914		
September.....	5,780,368	144,946					59,370	2,600			269,255	11,070		
October.....	6,067,915	154,611					279,074	7,561			302,385	7,125		
November.....	4,756,689	246,401					200,990	7,784			400,024	13,267		
December.....	4,614,717	248,305			1,300	24	34,404	2,650			233,670	10,437		
Total.....	64,720,438	2,476,056			31,450	772	814,450	31,575			1,934,954	65,575		
LANDED AT GLOUCESTER.														
January.....	80,275	4,318					24,290	1,344	100	\$3			455	\$9
February.....	235,675	14,056					10,085	1,026						
March.....	1,331,725	35,737					15,785	1,159						
April.....	1,470,680	49,157	890	\$32			17,820	1,059						
May.....	944,050	19,230			166,515	2,082	48,890	795	2,052	51				
June.....	1,159,150	16,873	50	1	19,807	251	27,990	420	30	1				
July.....	348,631	4,957	18,740	562			76,775	1,276	2,570	67				
August.....	839,590	9,150					138,800	2,081	1,440	43				
September.....	1,381,910	13,801	4,185	126	6,840	51	88,475	1,869	10,235	233				
October.....	491,095	4,844	3,290	99			88,990	1,558	22,135	611				
November.....	26,895	747	1,145	34			64,265	2,125	8,160	200				
December.....	62,555	3,221					148,075	8,197	4,460	112				
Total.....	8,372,231	176,091	28,300	854	193,162	2,384	750,240	22,909	51,182	1,321			455	9

LANDED AT PORTLAND.														
January	102,880	8,385			2,967	111	2,109	164			12,916	716		
February	137,535	11,467			6,165	260	2,273	238			24,427	1,755		
March	158,860	11,536			5,515	164	7,748	615			75,713	3,956		
April	268,253	13,091			6,474	100	14,090	726	1,940	49	147,360	4,633		
May	181,099	6,088			1,871	46	20,781	553			167,171	3,677		
June	15,234	1,167			456	10	8,419	245			63,458	1,365		
July	4,046	281			96	6	16,996	496			67,888	1,255	282	10
August	852,479	19,119			265	7	6,582	173			36,179	624	1,375	45
September	6,611	330	16,143	484	485	11	2,211	79			16,242	458		
October	19,710	849			785	15	23,770	484			157,109	2,669		
November	57,331	4,051			1,385	35	8,366	471			188,161	3,589		
December	86,908	6,274			343	8	5,267	408			91,242	3,034		
Total	1,890,946	82,638	16,143	484	26,807	773	118,612	4,652	1,940	49	1,047,866	27,731	1,657	55
Grand total	74,983,615	2,734,785	44,443	1,338	251,419	3,929	1,683,302	59,136	53,122	1,370	2,982,820	93,306	2,112	64
Grounds east of 66° W. long	4,624,856	143,552	44,443	1,338	33,507	433	365,520	6,534	46,922	1,253	64,270	2,346	1,830	54
Grounds west of 66° W. long	70,358,759	2,591,233			217,912	3,496	1,317,782	52,602	6,200	117	2,918,560	90,960	282	10
Landed at Boston in 1919	55,556,950	2,128,151			2,291,254	59,886	808,379	39,706			1,497,928	64,720		
Landed at Gloucester in 1919	17,150,377	396,149	155,162	6,240	538,421	6,718	746,097	24,130	39,070	1,269	500	8		
Landed at Portland in 1919	6,954,764	195,183			69,257	1,611	188,887	11,934			1,058,165	39,271	450	15

Month.	Pollock.				Cusk.				Halibut.			
	Fresh.		Salted.		Fresh.		Salted.		Fresh.		Salted.	
LANDED AT BOSTON.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
January	53,695	\$3,634			97,890	\$4,481			30,859	\$9,908		
February	19,860	1,692			27,300	1,543			83,713	19,634		
March	34,296	2,459			24,435	1,081			121,167	24,550		
April	64,475	4,488			56,540	1,960			232,726	52,352		
May	154,533	6,692			34,690	991			502,851	84,970		
June	232,805	7,722			44,133	1,374			388,058	65,420	12,000	\$1,150
July	250,974	10,446			29,885	776			274,798	49,847		
August	479,310	24,567			32,660	860			299,100	62,392		
September	514,250	16,024			25,278	623			241,928	52,403		
October	640,112	15,193			51,161	1,077			189,309	41,415		
November	511,479	15,919			136,875	2,588			111,992	25,349		
December	381,285	13,585			184,880	3,756			24,031	8,375		
Total	3,337,074	122,421			745,627	21,110			2,500,532	496,615	12,000	1,150



STATEMENT, BY MONTHS, OF QUANTITIES AND VALUES OF CERTAIN FISHERY PRODUCTS LANDED AT BOSTON AND GLOUCESTER, MASS., AND PORTLAND, ME., BY AMERICAN AND CANADIAN FISHING VESSELS, 1920—Continued.

Month.	Pollock.				Cusk.				Halibut.			
	Fresh.		Salted.		Fresh.		Salted.		Fresh.		Salted.	
	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
LANDED AT GLOUCESTER.												
January.....	373,154	\$23,327			4,905	\$123			622	\$152		
February.....	37,780	3,649			895	23			23,370	4,173		
March.....	46,090	3,401			1,525	35						
April.....	66,065	3,971			10,100	205						
May.....	78,030	1,754	200	\$85	58,360	1,147			23,178	4,741	75	\$9
June.....	107,490	1,465	140	4	10,305	222			20,675	2,895	65	7
July.....	52,875	717	2,485	71	166,700	3,454	1,891	\$68			2,985	264
August.....	29,530	430	8,735	261	154,781	3,104	315	11	8,401	1,448		
September.....	140,140	2,290	1,780	40	64,410	1,216	962	74			3,971	554
October.....	1,191,897	14,927	3,220	93	95,659	1,222	2,000	71			2,065	332
November.....	1,004,959	25,739	220	6	12,410	220	185	6	30,843	6,189	575	69
December.....	1,055,775	36,922			18,180	300						
Total.....	4,183,785	118,592	16,780	480	598,230	11,271	5,353	230	107,089	19,598	9,736	1,235
LANDED AT PORTLAND.												
January.....	3,077	161			19,566	1,333			33,149	7,194		
February.....	3,123	229			12,937	998			53,998	10,710		
March.....	8,697	526			50,200	2,665			84,218	15,989		
April.....	22,159	1,123			93,281	2,334			105,674	24,230		
May.....	86,502	2,879			71,690	1,579			155,961	25,209		
June.....	429,008	5,659			13,202	458			117,021	18,597		
July.....	31,659	609			39,971	1,046			136,547	25,092		
August.....	38,034	775	2,370	77	28,507	645			91,639	18,788		
September.....	166,525	4,149	2,770	83	8,383	356	260	8	101,163	21,506		
October.....	126,955	2,099	115	3	51,243	1,132			122,120	22,654		
November.....	68,459	1,293			73,277	1,660			153,455	32,230		
December.....	33,809	970			43,012	1,235			5,028	1,024		
Total.....	1,018,007	-20,472	5,255	163	505,269	15,451	260	8	1,159,973	223,223		
Grand total.....	8,538,866	261,485	22,035	643	1,849,126	47,832	5,613	238	3,767,594	739,436	21,736	2,385
Grounds east of 66° W. long.....	471,950	16,090	18,560	542	568,250	11,325	4,426	157	2,147,616	411,365	14,736	1,685
Grounds west of 66° W. long.....	8,066,916	245,395	3,475	101	1,280,876	36,507	1,187	81	1,619,973	328,071	7,000	700
Landed at Boston in 1919.....	3,000,781	105,036			736,654	22,986			1,329,384	250,112	2,000	320
Landed at Gloucester in 1919.....	14,598,786	248,205	55,101	1,400	608,957	13,373	37,962	1,658	357,460	54,820	12,600	1,770
Landed at Portland in 1919.....	1,096,784	25,859	515	15	679,625	24,152			413,217	80,169		

Month.	Mackerel.											
	Large (over 2½ pounds).				Medium (1½ to 2½ pounds).				Small (under 1½ pounds).			
	Fresh.		Salted.		Fresh.		Salted.		Fresh.		Salted.	
	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
LANDED AT BOSTON.												
May.....	1,311,600	\$119,557	9,000	\$630	310,350	\$23,247	21,000	\$1,870	24,190	\$1,283	.....	.....
June.....	2,323,096	203,205	197,700	16,934	625,860	71,202	1,800	189	64,130	10,410	.....	.....
July.....	514,385	50,756	15,600	1,328	119,827	21,626	.....	.....	65,857	12,028	.....	.....
August.....	32,244	7,173	.....	.....	56,600	11,747	.....	.....	179,601	34,852	.....	.....
September.....	42,235	11,214	.....	.....	.....	.....	.....	.....	5,960	1,529	.....	.....
October.....	36,465	6,915	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
November.....	178,290	30,920	.....	.....	108,260	19,109	.....	.....	.....	.....	.....	.....
December.....	6,180	1,726	.....	.....	3,790	1,045	.....	.....	.....	.....	.....	.....
Total.....	4,444,495	431,466	222,300	18,892	1,224,687	147,976	22,800	2,059	339,738	60,102	.....	.....
LANDED AT GLOUCESTER.												
June.....	16,550	790	461,687	39,428	.....	.....	.....	.....	.....	.....	.....	.....
July.....	10,801	1,080	230,084	23,779	45,260	2,263	65,800	6,952	.....	.....	1,200	\$102
August.....	.....	.....	1,800	218	1,400	280	800	88	.....	.....	.....	.....
September.....	.....	.....	.....	.....	8,485	1,448	388	41	.....	.....	.....	.....
October.....	13,691	2,908	333	50	.....	.....	.....	.....	.....	.....	.....	.....
November.....	54,098	8,760	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	95,140	13,538	693,904	63,475	55,145	3,991	66,988	7,081	.....	.....	1,200	102
LANDED AT PORTLAND.												
June.....	82,259	7,249	2,000	175	3,515	400	.....	.....	.....	.....	.....	.....
July.....	12,146	2,045	.....	.....	1,466	183	.....	.....	.....	.....	.....	.....
August.....	1,707	419	.....	.....	1,417	116	.....	.....	410	6	.....	.....
September.....	3,542	940	.....	.....	.....	.....	.....	.....	125	8	.....	.....
October.....	.....	.....	.....	.....	.....	.....	.....	.....	550	55	.....	.....
November.....	835	196	.....	.....	17,352	2,620	.....	.....	.....	.....	.....	.....
Total.....	100,489	10,849	2,000	175	23,750	3,319	.....	.....	1,085	69	.....	.....
Grand total.....	4,640,124	455,853	918,204	82,542	1,303,582	155,286	89,788	9,140	340,823	60,171	1,200	102
Grounds east of 66° W. long.....	1,239,328	120,714	643,887	55,057	.....	.....	20,000	1,800	.....	.....	.....	.....
Grounds west of 66° W. long.....	3,400,796	335,139	274,317	27,485	1,303,582	155,286	69,788	7,340	340,823	60,171	1,200	102
Landed at Boston in 1919.....	2,621,081	237,742	166,000	13,556	179,125	13,899	.....	.....	1,063,778	108,019	3,200	442
Landed at Gloucester in 1919.....	221,129	34,211	1,183,959	102,223	1,035	98	6,400	950	21,898	838	34,288	2,538
Landed at Portland in 1919.....	188,050	29,881	4,559	427	12,800	1,461	.....	.....	5,874	955	20	2

STATEMENT, BY MONTHS, OF QUANTITIES AND VALUES OF CERTAIN FISHERY PRODUCTS LANDED AT BOSTON AND GLOUCESTER, MASS., AND PORTLAND, ME., BY AMERICAN AND CANADIAN FISHING VESSELS, 1920—Continued.

Month.	Miscellaneous. <sup>2</sup>				Total.				Grand total.	
	Fresh.		Salted.		Fresh.		Salted.			
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
LANDED AT BOSTON.										
January.....	299,732	\$17,499			8,232,028	\$496,331			8,232,028	\$496,331
February.....	377,747	21,069			9,374,367	550,029			9,374,367	550,029
March.....	578,038	30,369			13,949,484	581,843			13,949,484	581,843
April.....	462,526	17,546			7,384,439	334,856			7,384,439	334,856
May.....	365,681	9,892			10,183,406	512,466	9,000	\$630	10,192,406	513,096
June.....	259,563	14,997			10,987,950	603,217	230,700	19,954	11,218,650	623,171
July.....	1,115,278	174,053			9,543,969	612,852	17,400	1,517	9,561,369	614,369
August.....	1,345,219	202,010			10,761,148	593,653			10,761,148	593,653
September.....	756,457	101,593			10,629,401	518,125			10,629,401	518,125
October.....	475,278	18,999			10,702,840	380,687			10,702,840	380,687
November.....	366,873	17,705			8,959,962	514,571			8,959,962	514,571
December.....	525,459	29,595			7,592,808	415,838			7,592,808	415,838
Total.....	6,927,851	655,327			118,301,802	6,114,468	257,100	22,101	118,558,902	6,136,569
LANDED AT GLOUCESTER.										
January.....	61,856	3,346	1,564,228	\$70,374	773,887	46,870	1,566,323	70,473	2,340,210	117,343
February.....	36,300	2,110			506,615	36,010			506,615	36,010
March.....					2,623,380	84,999			2,623,380	84,999
April.....					4,600,940	151,766	5,600	309	4,606,540	152,075
May.....					5,923,508	160,447	28,667	1,600	5,952,175	162,047
June.....					5,887,500	146,170	1,111,866	77,168	6,999,366	223,338
July.....					5,164,781	134,003	832,840	61,256	5,997,621	195,259
August.....	26,600	466			4,721,138	100,837	304,782	15,644	5,025,920	116,481
September.....	3,784	743			2,910,488	54,103	787,568	39,008	3,698,056	93,111
October.....					2,802,777	49,517	1,030,563	52,984	3,833,340	102,501
November.....					1,567,455	54,881	413,933	20,988	1,981,388	75,869
December.....			1,532,796	39,783	1,630,484	60,974	1,545,201	40,329	3,175,685	101,303
Total.....	128,540	6,665	3,097,024	110,157	39,112,953	1,080,577	7,627,343	379,759	46,740,296	1,460,336
LANDED AT PORTLAND.										
January.....	10,033	378			306,281	26,442			306,281	26,442
February.....	16,089	668			348,098	33,186			348,098	33,186
March.....	18,041	599			579,816	45,025	1,775	115	581,591	45,140
April.....	14,678	408			1,049,796	60,728	6,345	324	1,056,141	61,052
May.....	329,163	5,034			1,269,835	55,275			1,269,835	55,275
June.....	3,132,993	47,778			4,122,792	96,115	2,095	180	4,124,887	96,295

July.....	133,495	23,430	.....	.....	752,482	70,661	1,957	132	751,439	70,793
August.....	132,102	15,125	.....	.....	1,469,423	67,896	6,775	332	1,476,198	68,228
September.....	314,132	11,855	.....	.....	778,988	47,300	210,097	11,246	989,085	58,546
October.....	239,828	2,092	.....	.....	920,878	39,569	205	7	921,083	39,576
November.....	15,465	687	.....	.....	705,604	54,205	.....	.....	705,604	54,205
December.....	6,161	132	.....	.....	448,261	21,370	.....	.....	448,261	21,370
Total.....	4,362,180	108,186	.....	.....	12,752,254	617,772	229,249	12,336	12,981,503	630,108
Grand total.....	11,418,571	770,178	3,097,024	110,157	170,167,009	7,812,817	8,113,692	414,196	178,280,701	8,227,013
Grounds east of 66° W. long.....	72,377	13,177	3,097,024	110,157	29,843,631	1,351,226	7,584,083	369,604	37,427,714	1,720,830
Grounds west of 66° W. long.....	11,346,194	757,001	.....	.....	140,323,378	6,461,591	529,609	44,592	140,852,987	6,506,183
Landed at Boston in 1919.....	4,565,511	300,048	11,400	285	103,208,770	4,698,747	182,600	14,603	103,391,370	4,713,350
Landed at Gloucester in 1919.....	113,809	9,415	3,501,777	189,783	61,621,587	1,587,000	9,749,370	558,592	71,370,957	2,145,592
Landed at Portland in 1919.....	7,215,670	113,563	.....	.....	21,713,191	688,976	5,752	465	21,718,943	689,441

<sup>2</sup> Includes herring from Newfoundland, 3,097,024 pounds salted, value \$110,157.

The fishery products landed at Boston and Gloucester, Mass., and Portland, Me., by fishing vessels each year are taken principally from fishing grounds lying off the coast of the United States. In the calendar year 1920, 78.88 per cent of the quantity and 79 per cent of the value of the catch landed by American and Canadian fishing vessels were taken from these grounds; 3.35 per cent of the quantity and 4.63 per cent of the value, consisting largely of herring, from fishing banks off the coast of Newfoundland, and 17.75 per cent of the quantity and 16.36 per cent of the value from fishing grounds off the Canadian Provinces. Newfoundland herring constituted 1.73 per cent of the quantity and 1.33 per cent of the value of the fishery products landed at these ports during the year. The herring were taken from the treaty coast of Newfoundland, and the cod, haddock, hake, halibut, and other species from that region were obtained from fishing banks on the high seas. All fish caught by American fishing vessels off the coast of the Canadian Provinces were from offshore fishing grounds. The catch from each of these regions is given in detail in the following table:

QUANTITY AND VALUE OF FISH LANDED BY AMERICAN AND CANADIAN FISHING VESSELS AT BOSTON AND GLOUCESTER, MASS., AND PORTLAND, ME., IN 1920, FROM FISHING GROUNDS OFF THE COAST OF THE UNITED STATES, NEWFOUNDLAND, AND CANADIAN PROVINCES.

Species.	United States.		Newfoundland.		Canadian Provinces.		Total.	
	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Cod:								
Fresh.....	38,032,530	\$1,802,329	1,056,142	\$32,010	19,318,495	\$597,081	58,407,167	\$2,431,420
Salted.....	135,900	7,020	510,480	29,529	3,212,035	169,668	3,858,415	206,217
Haddock:								
Fresh.....	70,576,671	2,594,729	15,086	257	4,643,277	143,728	75,235,034	2,738,714
Salted.....			9,750	297	34,693	1,041	44,443	1,338
Hake:								
Fresh.....	4,207,942	143,136	134,415	2,521	323,765	6,785	4,666,122	152,442
Salted.....	282	10	25,785	724	29,167	700	55,234	1,434
Pollock:								
Fresh.....	8,065,206	245,375	29,135	5,615	444,525	10,495	8,538,866	261,485
Salted.....	2,885	86	2,005	60	17,145	497	22,035	643
Cusk:								
Fresh.....	1,253,961	35,827	49,065	927	546,100	11,078	1,849,126	47,832
Salted.....	502	14	2,765	97	2,346	127	5,613	238
Halibut:								
Fresh.....	1,619,978	328,071	1,048,314	198,164	1,099,302	213,201	3,767,594	739,436
Salted.....	7,000	700	4,476	566	10,260	1,119	21,736	2,385
Mackerel:								
Fresh.....	5,045,201	550,596			1,239,328	120,714	6,284,529	671,310
Salted.....	345,305	34,927			663,887	56,857	1,009,192	91,784
Herring:								
Fresh.....	3,900,960	56,144					3,900,960	56,144
Salted.....			3,097,024	110,157			3,097,024	110,157
Swordfish: Fresh.....	2,471,837	481,399	751	203	59,081	12,600	2,531,669	494,202
Miscellaneous: Fresh....	4,973,397	219,458	70	2	12,475	372	4,985,942	219,832
Total.....	140,639,557	6,499,821	5,985,263	381,129	31,655,881	1,346,063	178,280,701	8,227,013

## SPECIES.

## COD.

In 1920 the fishing fleet landing fish at Boston, Gloucester, and Portland was not quite so large as in the previous year. There were 20 vessels in the salt-bank fishery, or 11 more than in the previous year, and 111 in the market fishery, the same number as in the previous year. These vessels landed their fares of cod and other

ground fish at these ports during the year, and large quantities of cod were also landed by vessels fishing on the shore grounds. The total catch of cod landed at these ports during the year was 62,265,-582 pounds, valued at \$2,637,637, of which 58,407,167 pounds, valued at \$2,431,420, were fresh, and 3,858,415 pounds, valued at \$206,217, were salted. Cod ranked second among the various species landed.

## HADDOCK.

The catch of haddock for the year ranked first in both quantity and value, exceeding that of cod by 13,013,895 pounds and \$102,415. The quantity of haddock landed at these ports by fishing vessels during the year amounted to 75,279,477 pounds, valued at \$2,740,052, all of which was fresh except 44,445 pounds, valued at \$1,338. These fish were taken chiefly on Georges Bank and in South Channel, and the greater part of the catch, or 64,751,888 pounds, valued at \$2,746,828, was landed at Boston.

## HAKE.

The catch of hake amounted to 4,721,356 pounds, valued at \$153,876, all landed fresh except 55,234 pounds, valued at \$1,434, salted. There was an increase of 381,880 pounds, or 8.80 per cent, in the quantity, but a decrease of \$27,177, or 15.01 per cent, in the value as compared with the previous year. The yield of this species has been comparatively small in recent years.

## POLLOCK.

The catch of pollock amounted to 8,560,901 pounds, valued at \$262,128, all landed fresh except 22,035 pounds, valued at \$643, salted. This was the smallest catch of pollock in many years. There was a falling off in the catch of this species of over 10,000,000 pounds as compared with the previous year.

## CUSK.

The catch of cusk amounted to 1,854,739 pounds, valued at \$48,070, all of which was fresh, except 5,613 pounds, valued at \$238, salted. The yield was 200,000 pounds less than in the previous year. The catch of this species has declined considerably in recent years.

## HALIBUT.

The quantity of halibut landed was 3,789,330 pounds, valued at \$741,821, all of which was fresh except 21,736 pounds salted, valued at \$2,385. There was an increase of 1,674,669 pounds in quantity and \$354,630 in value as compared with the previous year. The catch was the largest taken in any year in the past five years. The next largest catch in this period was in 1916, when 3,458,765 pounds were landed at these ports. There has been a large increase in the receipts of halibut at Portland, which amounted in 1920 to 1,159,973 pounds, the next largest in the past five years being 535,314 pounds in 1916. There has also been a large increase in the receipts of halibut at Boston in recent years, but a decrease in those at Gloucester.

## MACKEREL.

The total catch of fresh mackerel taken by the American fishing fleet in 1920 was 79,799 barrels, compared with 53,992 barrels in 1919, an increase of 25,807 barrels. The total catch of salted mackerel was 4,897 barrels, compared with 7,007 barrels the previous year, a decrease of 2,110 barrels. The quantity of mackerel landed at Boston, Gloucester, and Portland by the fishing fleet during the year was 7,293,721 pounds, valued at \$763,094, of which 6,284,529 pounds, valued at \$671,310, were fresh, and 1,009,192 pounds, valued at \$91,784, were salted. These were all landed by American fishing vessels. There was an increase in the total catch of mackerel landed at these ports of 1,580,525 pounds in quantity and \$215,852 in value over the previous year.

The season of 1920 was one of the best on record in the southern mackerel fishery for both the purse-seine and gill-net vessels. The fleet numbered about 50 seiners and 125 netters. The first fare, consisting of 3,600 pounds of large mackerel, was landed by a Gloucester vessel, April 14, at Cape May. Some of the best stocks made by the seiners in the southern fishery were from \$9,153 to \$26,449, the crews sharing from \$197 to \$649. The mackerel caught weighed from 1½ to 3½ pounds each, averaging about 2 pounds each, and sold from 8 to 22 cents per pound, according to market conditions. The schooner *Helen G. McLean*, from Nova Scotia, engaged in the southern mackerel fishery, and is said to be the only Canadian vessel to engage in this fishery for 25 years. The first arrival at Boston was a fare of 35,000 pounds of large and medium fresh mackerel on May 14, caught 35 miles south by west of Block Island, and sold at 18 cents per pound. In May there was a large body of mackerel off South Shoal Lightship, and the receipts at Boston landed by vessels were larger than for the same month in any recent year. The catch of mackerel on the Cape Shore was disappointing; the weather was foggy and the fish were well offshore, wild, and hard to catch. The first fares landed at Boston from this locality arrived on June 7. The fresh mackerel sold at 12 cents per pound and the salted mackerel at \$17 to \$17.50 per barrel. Later arrivals of fresh mackerel sold from 10 to 10½ cents per pound. The Cape Shore fleet consisted of 30 vessels, which landed 1,290,000 pounds of fresh mackerel and 3,217 barrels of salt mackerel, compared with 32 vessels, and 2,119,000 pounds of fresh and 6,275 barrels of salt mackerel the previous year. The total catch of mackerel up to July 1 was 60,842 barrels fresh and 3,357 barrels salted, compared with 38,787 barrels fresh and 6,452 barrels salted the previous year.

## SWORDFISH.

The catch of swordfish amounted to 2,531,669 pounds, valued at \$494,202. The number of vessels engaged in this fishery was 62, or 6 more than in the previous year, and there was a large increase in the catch.

## FLOUNDERS.

The catch of flounders in the vessel fisheries amounted to 3,637,774 pounds, valued at \$166,895, an increase of 1,185,918 pounds, or 48.36 per cent, in quantity, and \$63,845, or 61.95 per cent, in value.

The catch taken by boats under 5 tons net tonnage is not included in these statistics.

HERRING.

The catch of herring amounted to 6,997,984 pounds, valued at \$166,301. Of this quantity, 3,900,960 pounds, valued at \$56,144, were taken off the coast of the United States and landed fresh, and 3,097,024 pounds, valued at \$110,157, were salted Newfoundland herring.

VESSEL FISHERIES AT SEATTLE, WASH.

In the vessel fisheries at Seattle, Wash., there has been some increase in the total quantity and value of products landed by the fishing fleet, but considerable falling off in the products landed by collecting vessels as compared with the previous year. The increase in products landed by the fishing fleet was due to a larger catch of halibut, there being a marked decrease in the catch of sablefish, "lingcod," and rockfishes. Statistics of the vessel fisheries at Seattle have been collected by the local agent and published as monthly and annual statistical bulletins, giving the quantity and value of fishery products landed by American fishing and collecting vessels at that port.

In 1920 the fishing fleet at Seattle landed 822 trips, aggregating 14,355,450 pounds of fish, having a value to the fishermen of \$1,992,759. This catch was taken from the various fishing grounds along the coast from Oregon to Portlock Bank, Alaska. The fishing areas from which the largest quantities of fish were obtained were Flattery Banks, west coast of Vancouver Island, and Hecate Strait. The products included halibut, 12,683,450 pounds, valued at \$1,913,849; sablefish, 950,200 pounds, valued at \$49,963; "lingcod," 513,035 pounds, valued at \$21,153; and rockfishes, 208,765 pounds, valued at \$7,794. Compared with the previous year there was an increase of 152 trips by fishing vessels, and of 704,430 pounds, or 5.16 per cent, in the quantity, and of \$462,475, or 30.22 per cent, in the value, of the products landed. The catch of halibut increased 1,572,730 pounds, or 14.15 per cent, in quantity, and \$491,330, or 34.53 per cent, in value, but there was a decrease in the catch of other species landed by fishing vessels. Sablefish decreased 603,400 pounds, or 38.83 per cent, in quantity, and \$24,327, or 32.74 per cent, in value; "lingcod," 209,965 pounds, or 29.04 per cent, in quantity, and \$3,280, or 13.42 per cent, in value; and rockfishes, 54,935 pounds, or 20.83 per cent, in quantity, and \$1,248, or 13.80 per cent, in value.

The fishery products taken in Puget Sound and landed at Seattle by collecting vessels during the year amounted to 9,813,966 pounds, valued at \$881,066. These products included salmon, 7,911,820 pounds, valued at \$765,145; herring, 345,100 pounds, valued at \$5,714; sturgeon, 1,860 pounds, valued at \$186; steelhead trout, 139,882 pounds, valued at \$19,094; smelt, 521,201 pounds, valued at \$29,795; perch, 47,520 pounds, valued at \$3,002; rockfishes, 130,200 pounds, valued at \$8,793; "lingcod," 44,904 pounds, valued at \$2,324; flounders, 86,065 pounds, valued at \$1,720; sole, 128,920 pounds, valued at \$4,475; and crabs, 456,494 pounds, valued at \$40,818. There was a decrease in the products landed by collecting vessels, compared with the previous year, of 1,995,484 pounds, or 16.89 per cent, in quantity, and \$102,753, or 10.44 per cent, in value.



This was due to a large falling off in the catch of salmon, amounting to 2,475,883 pounds, or 23.83 per cent, in quantity, and \$137,572, or 15.23 per cent, in value. The decrease in salmon was offset to some extent by a considerable increase in various less important species.

The following table and figure 5 present the most productive fishing grounds in the order of their importance visited by the fishing fleet at Seattle during the past five years, with the quantity of halibut and other species taken from these areas in 1920, and also the average production of these species for the 5-year period from 1916 to 1920, inclusive:

POUNDS OF HALIBUT AND OTHER FISH LANDED BY FISHING VESSELS AT SEATTLE, WASH., IN 1920, COMPARED WITH THE 5-YEAR AVERAGE, 1916 TO 1920, SHOWN BY FISHING GROUNDS.

Fishing grounds.	Halibut.	Other fish.	Total.
Hecate Strait:			
1920.....	4,645,300	208,300	4,853,600
5-year average.....	3,285,343	335,321	3,620,664
Flattery Banks:			
1920.....	2,661,000	806,500	3,467,500
5-year average.....	2,504,936	1,376,590	3,881,526
Vancouver Island (west coast):			
1920.....	1,873,600	387,800	2,261,400
5-year average.....	1,051,370	497,800	1,549,170
Portlock Bank:			
1920.....	952,050	1,600	953,650
5-year average.....	1,444,804	61,091	1,505,895
Yakutat grounds:			
1920.....	906,000	5,000	911,000
5-year average.....	2,137,458	95,531	2,232,989
All others:			
1920.....	1,645,500	262,800	1,908,300
5-year average.....	2,237,298	785,166	3,022,464

## FISHING GROUNDS

## MILLIONS OF POUNDS

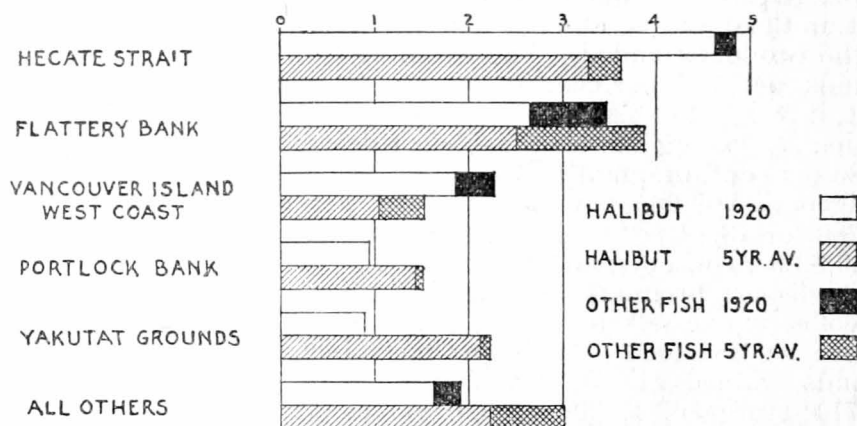


FIG. 5.—Quantities of halibut and other fish landed by fishing vessels at Seattle, Wash., in 1920, compared with the five-year average, 1916 to 1920, shown by fishing grounds.

The quantity and value of fishery products landed at Seattle by fishing and collecting vessels in 1920 are given in detail in the following table:

## QUANTITIES AND VALUES OF CERTAIN FISHERY PRODUCTS (FRESH) LANDED AT SEATTLE, WASH., BY AMERICAN FISHING VESSELS, CALENDAR YEAR 1920.

	Number of trips.	Halibut.		Sablefish.	
		Pounds.	Value.	Pounds.	Value.
<b>BY FISHING GROUNDS.</b>					
Oregon coast.....	2	49,000	\$7,137		
Columbia River grounds.....	1	30,000	3,945	3,000	\$150
Grays Harbor grounds.....	13	218,000	32,892	153,000	7,650
Flattery Banks.....	326	2,661,000	421,536	421,100	22,440
West coast, Vancouver Island.....	166	1,873,600	318,092	210,900	11,888
Cape Scott grounds.....	18	198,000	27,966	4,000	200
Queen Charlotte Islands grounds.....	20	581,500	86,187	30,000	1,500
Hecate Strait.....	221	4,645,300	792,994	98,200	4,505
Forrester Island grounds.....	14	497,000	72,993	25,000	1,330
Cape Spencer.....	3	72,000	11,145		
Yakutat grounds.....	24	906,000	114,943	5,000	300
Portlock Bank.....	14	952,050	114,024		
<b>Total.....</b>	<b>822</b>	<b>12,683,450</b>	<b>1,913,849</b>	<b>950,200</b>	<b>49,963</b>
<b>BY MONTHS.</b>					
January.....	7	191,700	30,130	9,000	460
February.....	28	563,900	75,410	31,500	1,555
March.....	68	935,000	128,394	95,800	2,970
April.....	88	977,200	154,618	22,200	1,020
May.....	119	1,717,600	234,024	29,500	1,425
June.....	100	1,769,050	265,044	70,600	3,125
July.....	105	1,932,000	276,791	235,800	11,790
August.....	111	1,802,800	269,672	213,000	10,050
September.....	76	1,094,600	178,657	115,000	7,285
October.....	64	740,800	147,894	108,000	6,480
November.....	46	917,000	144,075	50,000	2,855
December.....	10	41,800	9,140	5,800	348
<b>Total.....</b>	<b>822</b>	<b>12,683,450</b>	<b>1,913,849</b>	<b>950,200</b>	<b>49,963</b>

	"Lingcod."		Rockfishes.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>BY FISHING GROUNDS.</b>						
Oregon coast.....					49,000	\$7,137
Columbia River grounds.....	2,000	\$60	1,000	\$30	36,000	4,180
Gray's Harbor grounds.....	14,000	500	2,000	60	387,000	41,102
Flattery Banks.....	298,365	12,491	87,035	3,453	3,467,500	159,920
West coast, Vancouver Island.....	133,860	5,825	43,040	2,007	2,261,400	337,812
Cape Scott grounds.....	6,500	130	3,300	66	211,800	28,362
Queen Charlotte Islands grounds.....	8,000	300	6,000	180	625,500	88,167
Hecate Strait.....	45,710	1,676	64,390	1,878	4,853,600	711,053
Forrester Island grounds.....	3,000	140	2,000	120	527,000	74,883
Cape Spencer.....					72,000	11,145
Yakutat grounds.....					911,000	115,243
Portlock Bank.....	1,600	31			953,650	114,035
<b>Total.....</b>	<b>513,035</b>	<b>21,153</b>	<b>208,765</b>	<b>7,794</b>	<b>14,355,450</b>	<b>1,992,759</b>
<b>BY MONTHS.</b>						
January.....	8,000	539			208,700	31,120
February.....	25,000	1,140	8,000	580	628,400	78,685
March.....	48,900	1,507	20,800	644	1,064,500	133,515
April.....	93,535	2,408	46,665	1,204	1,139,600	159,250
May.....	29,000	580	13,800	276	1,789,900	236,305
June.....	23,600	591	19,000	360	1,882,250	269,120
July.....	26,900	560	16,000	360	2,209,800	289,501
August.....	57,000	2,200	15,500	595	2,088,300	283,117
September.....	144,000	8,497	49,000	2,655	1,402,600	197,094
October.....	48,500	2,730	16,000	940	913,300	158,044
November.....	9,500	410	4,000	180	980,500	147,520
December.....					47,600	9,488
<b>Total.....</b>	<b>513,035</b>	<b>21,153</b>	<b>208,765</b>	<b>7,794</b>	<b>14,355,450</b>	<b>1,992,759</b>

FISHERY PRODUCTS, BY MONTHS, TAKEN IN PUGET SOUND AND LANDED AT SEATTLE, WASH., BY COLLECTING VESSELS, 1920.

Species.	January.		February.		March.		April.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Herring.....	42,000	\$2,440	144,000	\$1,440	55,000	\$550		
Salmon:								
Chum or keta.....	120,000	8,000						
King or spring.....	14,000	1,400					47,200	\$7,080
Coho or silver.....							60,000	9,000
Miscellaneous.....	4,000	400						
Trout: Steelhead.....							21,600	3,190
Smelt.....	55,000	2,200	56,000	1,960	20,000	1,600	25,000	3,000
Perch.....					5,100	357	8,200	452
Rockfishes.....	8,400	504	16,600	1,162	15,650	782	11,000	770
“Lingcod”.....	6,000	300	12,000	720	8,000	400		
Flounders.....					12,600	252	6,880	137
Sole.....	21,600	840	28,000	700	20,000	800	14,000	560
Crabs.....	56,078	4,678	48,000	3,491	70,620	4,865	19,260	1,400
Total.....	327,078	20,762	304,600	9,473	206,970	9,606	213,140	25,589

Species.	May.		June.		July.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Sturgeon.....			1,860	\$186		
Herring.....			12,300	246	3,300	\$33
Salmon:						
Humpback or pink.....					31,750	1,905
Chum or keta.....					55,750	2,787
King or spring.....	248,000	\$34,720	803,450	112,483	860,930	103,311
Coho or silver.....			38,440	4,612	126,730	12,673
Sockeye or red.....			80,000	9,600	26,680	2,668
Miscellaneous.....	42,000	5,880				
Trout: Steelhead.....	24,000	3,360	29,660	3,559	5,300	530
Perch.....			6,320	379	4,000	240
Rockfishes.....	10,000	800	13,800	897	8,000	560
Flounders.....	9,600	192	17,500	350	10,600	212
Sole.....	15,000	600	9,640	289		
Total.....	348,600	45,552	1,012,970	132,601	1,133,040	124,919

Species.	August.		September.		October.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Herring.....	18,000	\$300	10,000	\$100		
Salmon:						
Humpback or pink.....	8,400	336				
Chum or keta.....	158,540	6,340	250,800	12,740	1,438,280	\$86,296
King or spring.....	895,800	107,496	320,150	35,216	59,540	7,144
Coho or silver.....	196,180	20,618	312,600	31,260	464,400	46,440
Sockeye or red.....	20,000	2,040				
Trout: Steelhead.....					2,590	259
Smelt.....	80,600	4,030	28,999	1,680	76,660	4,597
Perch.....			5,300	318	4,600	276
Rockfishes.....	12,000	840	10,150	710	10,000	600
Flounders.....			12,000	240	7,225	144
Sole.....	6,680	266				
Crabs.....					91,608	7,287
Total.....	1,396,200	142,266	949,999	82,264	2,154,903	153,043

Species.	November.		December.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Sturgeon.....					1,860	\$186
Herring.....			60,500	\$605	345,100	5,714
Salmon:						
Humpback or pink.....					40,150	2,241
Chum or keta.....	769,920	\$38,496	359,000	43,080	3,152,290	197,739
King or spring.....	12,600	1,764	8,000	1,280	3,269,670	411,894
Coho or silver.....	49,080	3,926	29,600	4,154	1,277,030	132,683
Sockeye or red.....					126,680	14,308
Miscellaneous.....					46,000	6,280
Trout: Steelhead.....	10,452	1,254	46,280	6,942	139,882	19,094
Smelt.....	106,142	6,368	72,800	4,360	521,201	29,795
Perch.....	14,000	980			47,520	3,002
Rockfishes.....	8,600	688	6,000	480	130,200	8,793
“Lingcod”.....	12,424	645	6,480	259	44,904	2,324
Flounders.....	6,060	121	3,600	72	86,065	1,720
Sole.....			14,000	420	128,920	4,475
Crabs.....	79,200	11,880	91,728	7,217	1,456,494	40,818
Total.....	1,068,478	66,122	697,988	68,869	9,813,966	881,066

### FISHERY PRODUCTS RECEIVED AT MUNICIPAL FISH WHARF AND MARKET, WASHINGTON, D. C.<sup>6</sup>

The total receipts of fishery products at the Municipal Fish Wharf and Market, Washington, D. C., in 1920, were 8,573,984 pounds, a decrease of 2,159,102 pounds, or 20.11 per cent, as compared with 1919. The five most important products in terms of quantity were: Squeteagues or "sea trout," 1,925,334 pounds; oysters, 1,284,707 pounds, or 183,529 bushels; river herring, 1,068,660 pounds; shad, 1,035,822 pounds; and croaker, 743,415 pounds. These represent a total of 6,057,938 pounds, or 70.65 per cent of the entire receipts at this market for the year. Although differing in the order of their importance, these were the five principal species in 1919, representing 69.49 per cent of the entire receipts of the market for that year. The decrease in the total receipts of fish in 1920 as compared with the previous year is significant in view of the reported general decrease in the consumption of fishery products.

To supply local housewives with information as to species which are abundant in the Washington markets and seasons of abundance, the Bureau issued a post-card size fish calendar.

### FISHERY PRODUCTS, IN POUNDS, RECEIVED AT MUNICIPAL FISH WHARF AND MARKET, WASHINGTON, D. C., 1920.

Species.	January.	February.	March.	April.	May.	June.	July.
Bass, black and sea.....	25,657	14,181	34,904	2,200	2,400	3,495	7,228
Bluefish.....	35				800	10,950	550
Butterfish.....	500			1,300	15,700	40,300	59,850
Carp.....	4,270	13,471	14,533	10,295	17,909	9,654	4,954
Catfish.....	1,499	8,989	47,676	26,727	16,083	24,022	8,806
Cod.....	4,400	6,400	5,700	2,900	7,100	9,050	1,900
Croaker.....	480	800	101,100	218,919	89,397	120,712	96,263
Eels.....			355	2,155	998	673	338
Flounders.....	4,802	11,105	15,872	11,807	14,514	10,040	2,700
Gizzard shad.....	29,963	2,864	1,000				
Haddock.....	6,867	43,450	26,200	3,420	2,750	3,100	1,300
Hake.....	2,500						
Halibut.....	28,427	10,700	3,950	200	2,700	6,596	4,960
Herring:							
River.....	72,400	80,200	276,256	539,671	99,221	112	
Sea.....	30,000						
Hickory shad or "jacks".....	736	4,395	9,349	7,347	45		
Kingfish.....	200			400			
Mackerel.....	50,000	1,400	2,012	8,400	17,200	37,635	2,470
Mullet.....	1,519	312	593		150		
Perch.....	2,490	11,602	71,167	25,459	10,363	4,994	3,976
Pigfish.....	200						
Pike or pickerel.....	1,875	3,864	3,362	250	100	15	88
Pollock.....	2,700	1,800	4,100	2,000	600	1,000	900
Redfish or red drum.....		200	400	400			
Salmon.....	6,558		850			200	1,200
Scup or porgy.....						1,000	1,500
Shad.....	1,400	21,842	184,625	685,268	118,602	1,100	
Sheepshead.....	400		400				
Smelt.....	3,175	1,905	300				
Snappers.....							6
Spot.....	300		2,500	2,400	8,465	7,534	18,550
Squeteagues or "sea trout".....	27,785	8,000	15,460	44,687	443,997	199,800	210,207
Striped bass.....	4,100	3,349	12,712	28,478	13,505	19,249	12,841
Sturgeon.....				1,600	1,331		
Tilefish.....				400	1,450	400	
Tullibee.....		1,000	2,000				
Whitefish.....				100			
Whiting.....	48,550	23,000	50,780				
Clams, hard.....	5,632	8,768	6,656	6,376	14,520	9,888	17,387

<sup>1</sup> Includes 100 pounds white bass.

<sup>6</sup> Daily reports of the quantity of fishery products received at this market are received by the Bureau for tabulation through the courtesy of the Health Department of the District of Columbia.

## FISHERY PRODUCTS, IN POUNDS, RECEIVED AT MUNICIPAL FISH WHARF AND MARKET, WASHINGTON, D. C., 1920—Continued.

Species.	January.	February.	March.	April.	May.	June.	July.
Oysters:							
In the shell.....	74,018	56,021	98,819	32,508	3,871	518	194
Opened.....	137,259	91,550	77,958	28,342	3,218		
Scallops.....	80	160	240	400			
Crabs.....				126	3,504	5,930	15,690
Crabs, oyster.....	100						
Crabmeat.....	2,455	2,240	2,620	1,530	4,093	2,960	6,650
Frogs.....				21	43	231	
Lobster.....	2,000						
Shrimp.....	1,945	1,190	400	24,000		250	
Turtles.....	1,245	990		6	177	285	215
Total.....	588,522	435,748	1,074,849	1,720,092	914,806	531,693	480,723

Species.	August.	September.	October.	November.	December.	Total.
Bass, black and sea.....	2,293	280	1,386	16,044	32,001	142,069
Bluefish.....	10,975	11,695	13,875	600	1,500	50,980
Butterfish.....	63,600	66,850	27,100	22,400		297,600
Carp.....	5,694	8,585	8,633	5,235	17,167	120,400
Catfish.....	8,402	10,296	15,082	14,053	10,501	192,136
Cod.....	2,400	4,100	1,400	4,800	10,380	60,530
Croaker.....	69,066	5,537	19,459	16,152	5,530	743,415
Eels.....	79	458	2,111	1,378	509	9,054
Flounders.....	3,175	7,351	13,004	15,686	7,334	117,390
Gizzard shad.....					6,600	40,427
Haddock.....	2,600	7,800	<sup>1</sup> 4,625	5,400	<sup>2</sup> 12,650	120,162
Hake.....				13,500	6,950	22,950
Halibut.....	3,325	5,516	2,400	2,942	4,250	75,966
Herring:						
River.....					800	1,068,660
Sea.....						30,000
Hickory shad or "jacks".....						21,872
Kingfish.....						600
Mackerel.....	5,600	11,500	2,200	10,300	13,450	162,167
Mullet.....	81	119	678	1,875	3,084	8,411
Perch.....	5,764	2,878	4,886	12,571	9,390	165,540
Pigfish.....						200
Pike or pickerel.....	280	850	2,144	2,754	5,094	20,676
Pollock.....	2,400	2,300	1,400	2,700	10,150	32,050
Pompano.....		1,000				1,000
Redfish or red drum.....		675	40	3,100		4,815
Salmon.....	715	5,525	10,580	300		25,928
Scup or porgy.....						2,500
Shad.....		200	785	1,750	20,250	1,035,822
Sheepshead.....						800
Smelt.....					1,450	6,830
Snappers.....		27			85	118
Spot.....	19,863	36,395	32,480	7,200	1,800	137,487
Squeteagues or "sea trout".....	199,518	304,186	307,564	115,600	48,530	1,925,334
Striped bass.....	17,192	25,350	37,413	48,230	5,704	228,123
Sturgeon.....	53		107	200		3,291
Tilefish.....		900	5,300	1,700	900	11,050
Tullibee.....						3,000
Whitefish.....			100			200
Whiting.....				44,300	400	167,030
Clams, hard.....	8,864	5,871	4,526	1,760	1,344	91,592
Oysters:						
In the shell.....	323	3,588	103,898	164,374	147,539	<sup>3</sup> 685,671
Opened.....	413	30,116	52,431	82,436	95,313	<sup>4</sup> 599,036
Scallops.....						880
Crabs.....	15,550	24,213	6,525	375		71,913
Crabs, oyster.....						100
Crabmeat.....	7,290	2,700	135		45	32,718
Frogs.....						295
Lobster.....						2,000
Shrimp.....	50	400	815	437	298	29,785
Turtles.....	300	100	93			3,411
Total.....	455,865	587,361	683,175	620,152	480,998	8,573,984

<sup>1</sup> Includes 250 pounds smoked haddock.<sup>2</sup> Includes 600 pounds smoked haddock.<sup>3</sup> 97,953 bushels. The oysters have been reduced to pounds on the basis of 7 pounds of meat to a bushel and  $\frac{1}{2}$  pounds to a gallon<sup>4</sup> 72,610 gallons.

SHAD FISHERY OF THE HUDSON RIVER.<sup>7</sup>

In 1920 there were 368 persons engaged in this fishery, an increase of 69 persons as compared with 1919. The investment amounted to \$40,351, which includes 185 rowboats, valued at \$10,011; 10 gasoline boats, valued at \$2,050; 200 gill nets, valued at \$23,710; 10 seines, valued at \$1,655; and shore and accessory property, to the value of \$2,925.

The catch numbered 49,315 fish, or 199,844 pounds, valued at \$56,309. Of this quantity the number of shad taken on the New York side of the river was 39,692, or 157,715 pounds, valued at \$43,882, and on the New Jersey side, 9,623 shad, or 42,129 pounds, valued at \$12,427. The catch with gill nets was 47,444 shad, or 96.2 per cent of the total catch. The average number of shad taken per gill net was 237.

Compared with 1919 there was a decrease in the number of shad taken of 40,986, or 45.38 per cent, and of \$27,415, or 32.74 per cent, in the value. Compared with 1918 there was a decrease of 18,088, or 26.83 per cent, in the number of fish and an increase of \$1,131, or 2.34 per cent, in the value.

## SHAD FISHERY OF THE HUDSON RIVER, 1920.

Item.	New York.			New Jersey.			Total.		
	Number.	Pounds.	Value.	Number.	Pounds.	Value.	Number.	Pounds.	Value.
Fishermen.....	352	.....	.....	16	.....	.....	368	.....	.....
Rowboats.....	178	.....	\$9,486	7	.....	\$525	185	.....	\$10,011
Gasoline boats.....	7	.....	1,100	3	.....	950	10	.....	2,050
Gill nets.....	190	.....	21,810	10	.....	1,900	200	.....	23,710
Seines.....	10	.....	1,655	.....	.....	.....	10	.....	1,655
Shore and accessory property.....	.....	.....	1,925	.....	.....	1,000	.....	.....	2,925
Total.....	.....	.....	35,976	.....	.....	4,375	.....	.....	40,351
Shad caught:	.....	.....	.....	.....	.....	.....	.....	.....	.....
With gill nets.....	37,821	150,658	42,089	9,623	42,129	12,427	47,444	192,787	54,516
With seines.....	1,871	7,057	1,793	.....	.....	.....	1,871	7,057	1,793
Total.....	39,692	157,715	43,882	9,623	42,129	12,427	49,315	199,844	56,309

SHAD AND ALEWIFE FISHERY OF THE POTOMAC RIVER.<sup>8</sup>

In 1920 there were 753 persons engaged in this fishery, using 451 boats, valued at \$83,889; 271 pound nets, valued at \$126,455; 211 gill nets and 1 haul seine, valued at \$39,620; and shore and accessory property to the value of \$1,375.

The catch of shad was slightly smaller than in 1919, numbering 529,358, or 1,979,780 pounds, valued at \$334,464. Of this quantity 80,944 shad, or 302,237 pounds, valued at \$55,963, were taken by Maryland fishermen and 448,414 shad, or 1,677,543 pounds, valued at \$278,501, by Virginia fishermen. The catch of river herring by Maryland fishermen numbered 1,077,775, or 538,888 pounds, valued at \$13,940, and by Virginia fishermen 7,681,561, or 3,813,780 pounds, valued at \$41,197, the total catch being 8,759,336, or 4,352,668 pounds, valued at \$55,137. This represents a decrease of 108,566 in number and \$5,879 in the value as compared with 1919.

<sup>7</sup> The canvass of this fishery was made by Rob Leon Greer, Statistical Agent, U. S. Bureau of Fisheries.

<sup>8</sup> The canvass of this fishery was made by G. W. Hoofnagle, apprentice fish-culturist, Edenton, N. C.

## SHAD AND ALEWIFE FISHERY OF THE POTOMAC RIVER, 1920.

Item.	Maryland.			Virginia.			Total.		
	Number.	Pounds.	Value.	Number.	Pounds.	Value.	Number.	Pounds.	Value.
Fishermen.....	204			549			753		
Rowboats.....	87		\$3,225	118		\$4,047	205		\$7,272
Gasoline.....	28		6,620	218		69,997	246		76,617
Pound nets.....	71		10,360	200		116,095	271		126,455
Gill nets and seines <sup>1</sup> .....	66		13,800	146		25,820	212		39,620
Shore and accessory property.....			300			1,075			1,375
Total.....			34,305			217,034			251,339
Shad caught:									
With pound nets and traps.....	7,144	26,487	4,263	356,552	1,326,923	211,039	363,696	1,353,410	215,302
With gill nets and seines <sup>1</sup> .....	73,800	275,750	51,700	91,862	350,620	67,462	165,662	626,370	119,162
Total.....	80,944	302,237	55,963	448,414	1,677,543	278,501	529,358	1,979,780	334,464
Alewives caught:									
With pound nets and traps.....	757,775	378,888	7,540	7,477,561	3,711,780	37,117	8,235,336	4,090,668	44,657
With gill nets and seines <sup>1</sup> .....	320,000	160,000	6,400	204,000	102,000	4,080	524,000	262,000	10,480
Total.....	1,077,775	538,888	13,940	7,681,561	3,813,780	41,197	8,759,336	4,352,668	55,137

<sup>1</sup> Includes 1 haul seine, with the catch, operated in Maryland.

## FISH, FROZEN.

## COLD-STORAGE HOLDINGS DURING 1920.

Beginning with October 15, 1917, the Bureau of Markets of the Department of Agriculture has issued monthly mimeographed reports of the storage holdings of frozen and cured fish and also a bulletin (No. 792) for holdings in 1918, in which the storage holdings are presented in diagrammatic form with discussions and tables. Brief summaries of holdings of frozen fish have appeared in *The Market Reporter*, published weekly by the same bureau. During 1920 the monthly mimeographed memoranda have contained the storage holdings on the fifteenth of the month by species, comparisons of holdings with other months, quantities frozen and quantities delivered since the fifteenth of previous month, comparisons with holdings at fifteenth of previous month, and storage holdings by geographic sections.

Appended is a summary of the holdings by species and by months for 1920, including totals for 1918 and 1919, which have been compiled from the reports of the Bureau of Markets:

COLD-STORAGE HOLDINGS OF FROZEN FISH, BY SPECIES FOR 1920, AND BY TOTALS FOR 1919 AND 1918,<sup>1</sup> GIVEN IN POUNDS.

Species.	Jan. 15.	Feb. 15.	Mar. 15.	Apr. 15.	May 15.	June 15.
Bluefish.....	301,383	232,912	135,296	91,190	108,967	219,124
Butterfish.....	459,374	334,741	253,706	206,915	181,621	200,877
Ciscoes.....	4,302,545	3,284,821	1,868,346	1,173,570	802,401	566,535
Cod, hake, pollock, and had- dock.....	3,923,930	2,904,850	1,724,706	1,480,928	1,405,403	1,856,260
Croaker.....	82,314	37,952	10,528	31,111	33,944	64,023
Halibut.....	7,788,546	5,375,287	3,991,261	3,091,887	4,155,392	5,726,088
Herring.....	9,303,418	6,507,254	3,732,770	2,010,888	2,205,187	3,305,773
Lake trout.....	1,229,998	821,392	315,009	91,298	251,947	441,690
Mackerel.....	2,339,005	2,102,720	1,209,358	735,773	1,056,182	1,758,346
Rockfishes.....	400,880	290,888	234,771	178,661	139,704	162,537
Sablefish.....	1,354,336	765,428	508,469	306,910	253,414	177,546
Salmon.....	5,701,129	4,516,290	2,921,559	1,996,938	1,739,342	1,874,337
Sea bass.....	109,354	81,105	50,417	40,402	50,480	69,959
Shad.....	541,315	309,024	133,079	147,239	177,391	419,393
Shad roe.....	14,252	12,374	5,846	18,446	16,094	46,326
Smelt, eulachon, etc.....	610,700	689,722	387,922	202,832	142,963	110,246
Squeteague.....	439,011	291,179	95,709	57,188	38,462	123,598
Squid.....	422,208	282,791	183,922	95,895	98,745	517,814
Whitefish.....	2,220,140	1,964,965	1,371,491	822,721	381,594	287,471
Whiting.....	9,319,624	6,864,067	3,470,098	2,287,080	1,332,930	2,374,659
Miscellaneous.....	10,635,659	10,292,863	6,775,413	5,501,952	5,717,307	7,428,240
Total, 1920.....	61,499,121	47,962,625	29,379,676	20,569,824	20,284,470	27,730,842
Total, 1919.....	80,844,524	66,675,012	49,889,032	37,110,856	37,068,407	47,370,741
Total, 1918.....	49,562,848	35,907,071	28,457,301	26,548,472	31,403,425	50,298,027

Species.	July 15.	Aug. 15.	Sept. 15.	Oct. 15.	Nov. 15.	Dec. 15.
Bluefish.....	153,286	240,881	283,771	303,195	402,451	411,000
Butterfish.....	283,174	507,992	515,035	933,513	1,353,337	1,199,000
Ciscoes.....	620,704	2,152,253	4,868,638	6,306,065	6,045,595	6,533,000
Cod, hake, pollock, and had- dock.....	1,690,736	2,113,959	2,577,704	3,040,676	3,785,894	3,538,000
Croaker.....	108,777	281,429	108,882	706,404	703,814	577,000
Halibut.....	6,609,561	8,629,889	10,340,381	10,661,832	9,761,076	8,694,000
Herring.....	5,342,182	5,480,143	5,430,419	6,083,108	6,582,737	7,738,000
Lake trout.....	463,036	554,365	554,590	953,691	1,675,026	2,108,000
Mackerel.....	3,064,809	3,014,641	2,677,822	2,620,092	2,788,666	2,405,000
Rockfishes.....	124,330	185,228	199,928	200,548	215,944	143,000
Sablefish.....	283,333	596,683	834,172	1,118,903	1,019,398	919,000
Salmon.....	2,563,384	3,467,706	4,676,452	6,771,546	8,094,984	7,128,000
Sea bass.....	85,493	121,771	109,134	106,504	123,598	130,000
Shad.....	433,773	473,731	502,435	493,734	475,704	340,000
Shad roe.....	62,328	49,416	42,973	41,984	41,772	42,000
Smelt, eulachon, etc.....	88,826	100,968	115,625	162,557	162,197	182,000
Squeteague.....	460,703	449,301	498,421	861,561	1,007,848	812,000
Squid.....	699,532	865,924	2,162,909	2,580,377	2,625,801	2,226,000
Whitefish.....	331,269	623,567	1,015,279	1,100,929	1,089,815	1,985,000
Whiting.....	4,395,069	8,630,018	9,648,503	9,536,391	9,412,377	7,811,000
Miscellaneous.....	7,928,975	8,563,480	8,439,277	9,854,135	10,459,900	10,466,000
Total, 1920.....	35,793,280	47,073,345	55,602,350	64,437,745	67,827,934	65,387,000
Total, 1919.....	59,363,929	64,740,173	69,554,969	76,138,809	78,477,504	73,936,025
Total, 1918.....	64,859,532	82,773,229	89,557,970	94,411,748	99,631,789	96,600,247

<sup>1</sup> The 1918 totals are taken from "Reports of Storage Holdings of Certain Food Products during 1918," by John O. Bell, U. S. Department of Agriculture Bulletin No. 792, and the 1919 and 1920 holdings from the mimeographed memoranda issued monthly by the Bureau of Markets.

## QUANTITIES FROZEN IN 1920.

The quantities of fish frozen between January 15, 1920, and January 15, 1921, based on the monthly memoranda issued by the Bureau of Markets was 85,324,366 pounds. The principal varieties frozen were as follows: Halibut, 10,625,029 pounds; herring, 10,356,305 pounds; whiting, 10,208,755 pounds; salmon, 7,836,620 pounds; ciscoes, 6,968,750 pounds; mackerel, 4,835,173 pounds; cod, haddock, hake, and pollock, 3,940,163 pounds; and squid, 3,252,720 pounds. The item of miscellaneous fishes amounted to



16,454,317 pounds and includes albacore, bonito, burbot, catfish, eels, flounders, German and buffalo carp, horse mackerel, Spanish mackerel, perch, pike, pickerel, pompano, red snapper, sheepshead, swordfish, tilefish, tuna, all kinds of fresh and salt water bass except sea bass, and all other frozen fish including soft crabs and bay scallops. The item of frozen shad of 411,398 pounds includes 31,063 pounds of shad roe. Figure 6 shows the relative amounts of each species frozen.

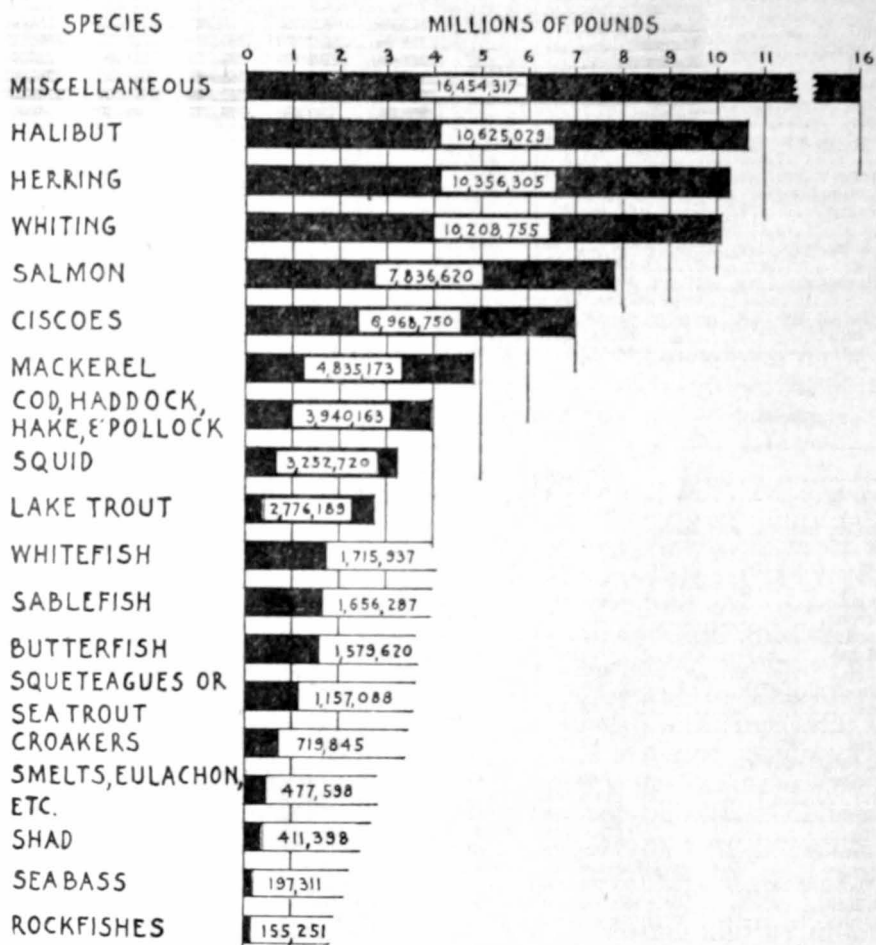


FIG. 6.—Quantities of fish frozen during 1920, shown by species.

#### FISHERIES OF CALIFORNIA IN 1920.

Through the courtesy of the California State Fish and Game Commission the Bureau has received copies of its monthly sheets showing the catch of fish by species and by localities for the calendar year 1920. In the appended table, page 57, these figures have been compiled by months and by species, such an arrangement being of value in ascertaining seasonal variation in catch. There has also been added a table, page 59, of the imports of fresh fish from Mexico to California centers during 1920.

## COMMON AND SCIENTIFIC NAMES OF FISHES.

To provide a clearer understanding of the species to which reference is made in the tables and discussions, the following list of common and scientific names of the fishes of California, as accurately as it has been possible to ascertain them, is appended. As the reports do not in all cases distinguish between albacore and the species of tuna it is impracticable to separate the catch by species. Under flounders have been grouped the "bastard halibut" (*Paralichthys californicus*), the "turbot" (*Hypsosetta guttulata*), sand dabs (*Citharichthys sordidus*), and a number of flounders locally designated as soles. The "hake" (*Merluccius productus*) of the west coast is closely related to the New England whiting, being a member of the same genus, and the adoption of the latter name would avoid confusion. *Menticirrhus undulatus* is designated as surffish, kingfish, and California whiting by the fishermen, and *Genyonemus lineatus*, another species belonging to the family of croakers, is commonly called kingfish. On the Atlantic seaboard the Bureau has recommended the adoption of the name king whiting for species of *Menticirrhus*. The "lingcod" is called cultus-cod on the California coast. Included with the catch of rockfishes are bocaccio (*Sebastes paucispinis*) and chilipepper (*S. goodei* and *jordani*). The young of the white sea bass (*Cynoscion nobilis*) are designated as "sea trout" and the species of sharks as grayfish by the fishermen.

Albacore and tuna.....	{ <i>Germo alalunga</i> . <i>Germo macropterus</i> . <i>Thunnus thynnus</i> .
Anchovies.....	{ <i>Engraulis</i> (species). <i>Anchovia</i> (species).
Barracuda.....	<i>Sphyræna argentea</i> .
Bluefish, California, or squeteague.....	<i>Cynoscion parvipinnis</i> .
Bonito or skipjack.....	<i>Sarda chilensis</i> .
Carp.....	<i>Cyprinus carpio</i> .
Catfish.....	<i>Ameiurus</i> (species).
Eels.....	{ <i>Lycodontis mordax</i> . <i>Muræna</i> (species).
Flounders.....	<i>Pleuronectidæ</i> (species).
Greenfish or rudderfish.....	<i>Girella nigricans</i> .
"Hake".....	<i>Merluccius productus</i> .
Hardhead.....	<i>Orthodon microlepidotus</i> .
Herring.....	<i>Clupea pallasii</i> .
Kingfish.....	<i>Genyonemus lineatus</i> .
"Lingcod".....	<i>Ophiodon elongatus</i> .
Mackerel.....	<i>Scomber japonicus</i> .
Mullet.....	<i>Mugil cephalus</i> .
"Perches," surf.....	<i>Embiotocidæ</i> (species).
Pike, Sacramento.....	<i>Ptychocheilus oregonensis</i> .
Pilchard.....	<i>Sardinia cærulea</i> .
Pompano, California.....	<i>Palometa simillima</i> .
Rockfishes.....	{ <i>Sebastes</i> (species). <i>Sebastichthys</i> (species).
Sablefish.....	<i>Anoplopoma fimbria</i> .
Salmon.....	<i>Oncorhynchus</i> (species).
Sculpin.....	<i>Scorpena guttata</i> .
Sea bass, black.....	<i>Stereolepis gigas</i> .
Sea basses or "rock bass".....	{ <i>Paralabrax clathratus</i> . <i>Paralabrax maculatofasciatus</i> . <i>Paralabrax nebulifer</i> .
Sea bass, white or squeteague.....	<i>Cynoscion nobilis</i> .
Shad.....	<i>Alosa sapidissima</i> .
Sharks.....	All <i>Selachii</i> except <i>Batoidei</i> .

Sheepshead.....	{ <i>Anisotremus davidsonii</i> . <i>Caulolatilus princeps</i> . <i>Pimelometopon pulcher</i> .
Skates.....	{ <i>Raja</i> (species). <i>Platyrhinoides triseriatus</i> . <i>Rhinobatus productus</i> .
"Smelt".....	Atherinidæ (species).
Splittail.....	<i>Pogonichthys macrolepidotus</i> .
Steelhead trout.....	<i>Salmo gairdneri</i> .
Striped bass.....	<i>Roccus lineatus</i> .
Stingarees or stingrays.....	{ <i>Dasyatis dipterura</i> . <i>Pteroplatea marmorata</i> . <i>Urolophus halleri</i> . <i>Myliobatis californicus</i> .
Suckers.....	<i>Catostomus occidentalis</i> .
Surffish.....	<i>Menticirrhus undulatus</i> .
Swordfish.....	<i>Xiphias gladius</i> .
Tomcod.....	<i>Microgadus proximus</i> .
Whitebait.....	Small fry of any fish.
Whitefish.....	<i>Caulolatilus princeps</i> .
Yellowtail.....	<i>Seriola dorsalis</i> .
Crabs.....	<i>Cancer magister</i> .
Shrimps.....	{ <i>Crago franciscorum</i> . <i>Crago nigricauda</i> . <i>Crago nigrimaculata</i> .
Sea crawfish or spiny lobster.....	<i>Panulirus interruptus</i> .
Abalones.....	<i>Haliotis</i> (species).
Clams:	
Hard.....	<i>Tivela stultorum</i> .
Soft.....	<i>Mya arenaria</i> .
Cockles.....	<i>Cardium</i> (species).
Limpets.....	Gastropoda (species).
Mussels.....	{ <i>Mytilus californianus</i> . <i>Mytilus edulis</i> .
Oysters:	
Eastern.....	<i>Ostrea virginica</i> .
Native.....	<i>Ostrea lurida</i> .
Scallops.....	<i>Pecten æquisulcatus</i> .
Snails.....	Gastropoda (species).
Octopus.....	<i>Polypus hongkongensis</i> .
Squid.....	<i>Loligo opalescens</i> .

## PRODUCTS.

The total yield of the fisheries of California in 1920 amounted to 212,635,075 pounds. The principal products were as follows: Pilchards, 118,517,729 pounds; albacore and tuna, 36,144,340 pounds; salmon, 11,077,014 pounds; bonito or skipjack, 8,614,581 pounds; flounders, 7,792,626 pounds; rockfishes, 5,503,187 pounds; and barracuda, 4,584,476 pounds. These products represent a total of 192,233,953 pounds, or 90.40 per cent of the total quantity credited to the State. The catch of shad amounted to 1,408,980 pounds; of sharks, skates, and rays to 1,253,648 pounds; of shrimp to 818,042 pounds; of squid to 507,751 pounds; of sea crawfish or spiny lobster to 247,156 pounds; of oysters to 148,924 pounds or 21,275 bushels; of octopus to 70,740 pounds; and of cockles to 18,054 pounds.

The imports of fresh fish from Mexico in 1920 amounted to 8,121,225 pounds. The principal products imported were as follows: Barracuda, 3,615,947 pounds; flounders, 1,678,264 pounds; sea crawfish or spiny lobster, 942,020 pounds; tuna, 724,281 pounds; white sea bass, or squeteague, 252,462 pounds; yellowtail, 218,400 pounds; and bonito or skipjack, 216,344 pounds.

## PRODUCTS, IN POUNDS, OF THE FISHERIES OF CALIFORNIA, 1920.

Species.	January.	February.	March.	April.	May.	June.	July.
Albacore and tuna....	14,984	1,603	2,237	.....	105	929,837	14,609,950
Anchovies.....	4,572	19,391	225	27,455	53,890	70,380	48,050
Barracuda.....	28,076	97,739	304,845	1,189,488	995,456	703,632	300,687
Bluefish, California, or squeteague.....	9,480	5,049	2,079	.....	.....	.....	.....
Bonito or skipjack....	32,261	25,711	21,133	1,165	5,644	2,457	44,330
Barp.....	15,458	19,772	43,513	21,972	14,685	3,224	7,177
Datfish.....	5,599	7,532	20,880	37,464	19,533	.....	.....
Flounders.....	737,590	847,813	849,875	755,276	1,018,631	641,780	689,247
Greenfish or rudder- fish.....	.....	412	.....	.....	.....	.....	.....
"Hake".....	5,500	2,030	3,170	6,527	13,138	17,860	14,510
Hardhead.....	2,753	3,565	4,688	1,380	.....	.....	.....
Herring.....	76,632	89,707	59,177	810	.....	.....	.....
Kingfish.....	125,104	18,269	46,779	85,637	58,502	16,742	7,774
"Lingcod".....	160,109	45,729	52,324	19,332	37,203	37,149	90,166
Mackerel.....	104,689	176,424	75,667	466,318	242,550	270,228	136,205
Mullet.....	15,912	29	80	.....	.....	55	110
"Perches," surf.....	12,102	13,299	34,658	39,177	5,027	1,531	12,152
Pike, Sacramento.....	1,074	1,488	1,327	1,380	299	22	5
Pilchard.....	23,776,733	21,190,860	10,715,798	3,910,008	2,466,602	2,405,151	2,567,481
Pompano, California..	2,523	2,607	6,435	6,250	1,880	689	594
Rockfishes.....	570,541	931,615	605,478	284,722	408,009	331,287	374,930
Sablefish.....	89,953	124,923	135,689	66,933	32,252	54,433	40,538
Salmon.....	27,048	70,042	238,160	783,721	1,108,955	1,097,138	2,648,203
Sculpin.....	2,387	515	2,866	3,978	7,882	1,076	419
Sea bass, black.....	5,533	6,031	14,565	19,284	3,085	5,418	7,935
Sea basses or "rock bass".....	3,282	4,390	4,240	5,908	7,435	47,245	30,719
Sea bass, white or squeteague.....	15,423	285,230	109,340	364,401	313,808	256,675	200,232
Shad.....	925	3,093	91,529	597,250	713,905	.....	.....
Sharks.....	65,142	141,428	15,105	44,727	141,749	113,439	64,429
Sheepshead.....	4,199	4,336	65	1,088	56	7	370
Skates.....	13,434	5,819	23,907	6,777	3,480	7,262	1,719
"Smelt".....	41,990	62,209	83,963	48,441	50,942	34,363	70,268
Split-tail.....	3,653	3,553	4,869	544	.....	.....	.....
Steelhead trout.....	.....	.....	.....	10	.....	.....	740
Striped bass.....	57,834	85,668	90,722	153,677	140,957	1,804	.....
Stingarees or sting- rays.....	.....	.....	.....	70,760	125,857	94,670	53,646
Suckers.....	695	444	429	563	30	.....	.....
Surfscum.....	.....	.....	.....	.....	10	.....	.....
Swordfish.....	24	.....	.....	.....	.....	163	673
Tomcod.....	5,582	9,493	5,430	15	2,245	6,522	2,286
Whitebait.....	.....	31	37	10	89	29	.....
Whitefish.....	1,092	1,738	571	6	.....	.....	.....
Yellowtail.....	55,943	20,497	189,208	231,788	216,719	173,808	48,404
Other fish.....	18,623	37,977	26,295	6,997	16,700	9,148	14,151
Crabs.....	307,780	146,542	104,038	73,018	161,106	55,132	6,292
Shrimps.....	68,204	52,545	62,147	117,711	90,569	42,729	86,696
Sea crawfish or spiny lobster.....	44,685	43,166	.....	.....	.....	.....	.....
Abalones.....	13,088	.....	30,362	53,535	75,145	96,588	150,285
Clams.....	41,226	39,725	40,677	49,035	43,999	51,675	59,951
Cockles.....	2,218	2,708	4,385	2,240	1,913	1,601	320
Limpets.....	.....	55	480	1,200	1,400	7,900	3,900
Mussels.....	1,082	1,352	3,747	2,066	3,413	10,505	6,847
Oysters: Eastern.....	9,999	9,344	6,040	7,974	6,205	4,629	4,200
Native.....	5,230	4,325	5,075	6,460	11,742	8,178	10,150
Scallops.....	50	246	217	212	34	.....	.....
Snails.....	273	280	.....	.....	.....	.....	.....
Octopus.....	11,706	14,432	6,640	8,599	5,784	5,778	5,122
Squid.....	67,524	195,039	119,920	.....	6,824	86,882	9,795
Total.....	26,687,519	24,827,820	14,271,086	9,583,289	8,635,444	7,706,821	22,431,658

## PRODUCTS, IN POUNDS, OF THE FISHERIES OF CALIFORNIA, 1920—Continued.

Species.	August.	September.	October.	November.	December.	Total.
Albacore and tuna.....	14,819,308	3,801,885	1,954,324	8,948	1,159	36,144,340
Anchovies.....	16,485	199,577	87,561	28,405	14,695	570,686
Barracuda.....	219,553	308,899	285,362	53,022	97,717	4,584,476
Bluefish, California, or squeteague.....	54		6,724	6,045	2,798	32,229
Bonito or skipjack.....	3,058,975	3,784,239	1,474,619	112,557	51,490	18,614,533
Carp.....	340	150	302	1,614	6,213	134,420
Catfish.....	1,367	2,173	3,014	9,931	4,872	112,365
Eels.....			180			180
Flounders.....	563,746	515,164	371,617	389,434	412,453	7,792,626
Greenfish or rudderfish.....						412
"Hake".....	7,110	14,079	16,207	29,925	11,925	141,981
Hardhead.....	470				467	13,323
Herring.....			130	303	47,605	274,364
Kingfish.....	3,442	8,728	23,477	30,989	35,968	461,411
"Lingcod".....	72,105	47,725	50,019	45,847	30,246	687,954
Mackorel.....	306,088	383,946	306,474	188,653	340,066	2,997,308
Mullet.....	980	347				17,513
"Perches," surf.....	2,121	2,590	17,105	14,784	26,585	181,131
Pike, Sacramento.....	62	12		899	1,570	8,138
Pilchard.....	13,130,386	14,163,753	11,102,753	8,990,053	4,098,151	118,517,729
Pompano, California.....	75	858	6,436	1,060	719	30,126
Rockfishes.....	298,448	285,248	321,742	421,234	669,933	5,503,187
Sablefish.....	45,386	9,233	67,814	86,772	27,106	781,032
Salmon.....	2,862,287	1,879,429	152,691	172,114	37,226	11,077,014
Sculpin.....	22	1,610	7,451	2,367	5,101	35,674
Sea bass, black.....	4,215	4,784	6,552	7,026	5,441	89,869
Sea basses or "rock bass".....	28,742	27,715	23,665	12,059	11,675	207,075
Sea bass, white or squeteague.....	443,558	263,553	42,526	45,651	35,896	2,376,293
Shad.....	1,169	188		639	282	1,408,980
Sharks.....	45,319	39,153	30,414	41,154	56,662	798,721
Sheepshead.....	280	107	877	1,027	1,990	14,402
Skates.....	437	6,774	1,020	6,650	11,652	88,931
"Smelt".....	59,727	76,895	77,129	82,057	42,491	730,475
Split-tail.....		23		288	1,154	14,084
Steelhead trout.....	5,160			425	664	6,999
Striped bass.....	39,701	48,080		37,204	66,084	671,731
Stingarees or stingrays.....	14,195	5,383	665		820	365,996
Suckers.....			264	287		2,712
Surfsculpin.....						10
Swordfish.....	2,600	5,812	2,598	370		12,240
Tomcod.....	606	128		1,884	3,046	37,237
Whitebait.....			8	147	387	738
Whitefish.....	90		20	1,517	2,385	7,419
Yellowtail.....	108,582	250,128	632,753	463,334	84,119	2,475,283
Other fish.....	18,921	6,082	28,988	54,002	19,054	19,054
Crabs.....				96,074	165,880	2,115,862
Shrimps.....	82,015	141,048	32,955	24,148	17,275	818,042
Sea crawfish or spiny lobster.....			40,509	68,861	49,935	247,156
Abalones.....	105,061	59,365	55,859	95,430	71,998	806,716
Clams.....	42,245	58,659	51,662	45,370	44,181	568,405
Cockles.....	550	167	75	76	1,801	18,054
Limpets.....	3,900					18,835
Mussels.....	3,070	139	140	224	125	32,710
Oysters:						
Eastern.....	5,229	6,751	8,976	8,997	10,839	89,183
Native.....	4,594	2,082	1,575	330		59,741
Scallops.....						759
Snails.....			175	60		788
Octopus.....	4,102	375	2,199	3,207	2,796	70,740
Squid.....	21,292			322	53	507,751
Total.....	36,454,270	26,413,036	17,297,606	11,693,776	6,632,750	212,635,075

<sup>1</sup> This item may include some striped tuna.<sup>2</sup> 50,721 in number.<sup>3</sup> 5,096,182 in number.

## MEXICAN FISHERY PRODUCTS, IN POUNDS, IMPORTED INTO CALIFORNIA, 1920.

Species.	January.	February.	March.	April.	May.	June.	July.
Barracuda.....	651,055	480,903	608,706	21,604			1,615
Bonito or skipjack.....	106,050	31,085	1,955	10,844			
Flounders.....	104,988	160,078	87,377	61,529	48,180	12,980	100,674
Mackerel.....	28,056	3,450	745	515			
"Perches," surf.....	40	250					
Pilchard.....			3,185				
Pompano, California.....	80	89	62				
Rockfishes.....	2,210	80,099	1,620			170	
Sea basses or "rock bass".....	125	190	315			210	
Sea bass, black.....	8,063	9,757	9,398	550			2,412
Sea bass, white, or squeteague.....	23,900	23,343	5,478	3,505	1,560	4,780	26,497
Sharks.....			12,628				
"Smelt".....	39						
Stingarees or stingrays.....			24,885				
Swordfish.....						273	
Tuna.....				122,316	375,647		
Whitefish.....		2,137	2,280				
Yellowtail.....	24,517	14,793	29,528	15,845		5,045	915
Other fish.....	630						
Sea crawfish or spiny lobster.....	77,440	103,508	136,008	131,030	118,408	71,305	
Abalones.....	20,200		9,750	1,509			16,642
Clams.....	12,900	5,600		4,827		2,230	
Turtles.....			2,180			38,899	34,039
<b>Total.....</b>	<b>1,060,243</b>	<b>915,282</b>	<b>936,100</b>	<b>374,074</b>	<b>543,795</b>	<b>135,392</b>	<b>182,794</b>

Species.	August.	September.	October.	November.	December.	Total.
Barracuda.....	147,511	173,622	531,107	543,124	456,700	3,615,947
Bonito or skipjack.....		11,028	18,539	20,038	16,007	216,344
Flounders.....	229,603	297,907	432,770	106,278	35,950	1,678,264
Kingfish.....			48			48
Mackerel.....	1,912	5,230	8,895	390	1,539	50,732
Mullet.....	90					90
"Perches," surf.....			50	670	4,230	5,240
Pilchard.....						3,185
Pompano, California.....						231
Rockfishes.....	1,745	885	1,733	9,009	190	97,661
Sea basses or "rock bass".....		485	75	1,090	815	3,305
Sea bass, black.....	1,858	2,018	6,923	4,397	12,792	58,168
Sea bass, white, or squeteague.....	90,245	41,414	20,360	9,174	2,206	252,462
Sharks.....						12,628
Sheepshead.....		165				165
"Smelt".....	500	171	966	6,396	5,640	13,712
Stingarees or stingrays.....						24,885
Swordfish.....						273
Tuna.....		200,415	16,278		9,625	724,281
Whitefish.....				435		4,852
Yellowtail.....	3,952	26,870	48,535	43,140	5,260	218,400
Other fish.....						630
Sea crawfish or spiny lobster.....		22,443	90,590	105,330	85,958	942,020
Abalones.....	11,287	7,367	19,317	6,651	2,387	95,110
Clams.....						25,557
Turtles.....		2,300				76,918
<b>Total.....</b>	<b>489,501</b>	<b>792,500</b>	<b>1,196,123</b>	<b>856,122</b>	<b>639,299</b>	<b>8,121,225</b>

## FISHERIES OF THE SOUTH ATLANTIC STATES IN 1918.

The statistics of the fisheries contained in this report apply to the commercial coast fisheries of North Carolina, South Carolina, Georgia, and the eastern coast of Florida for the calendar year, 1918.<sup>9</sup> The results of a similar canvass of the fisheries of the Gulf States in 1918, including the western coast of Florida, are included in "Fishery Industries of the United States. Report of the Division of Statistics and Methods of the Fisheries for 1919," pages 129 to 191.

<sup>9</sup> The data were collected by Winthrop A. Roberts and Rob Leon Greer, assisted in North Carolina by Arthur Orr, E. M. Haynes, and G. W. Hoofnagle.

## EARLIER PUBLICATIONS.

Some of the earlier publications relating to the fisheries of the South Atlantic States and published in Washington, D. C., follow:

1887. North Carolina and Its Fisheries. By R. Edward Earll. *In* The Fisheries and Fishery Industries of the United States, by G. Brown Goode et al., Sec. II, Pt. XII, p. 475-497.  
The Fisheries of South Carolina and Georgia. By R. Edward Earll. *Ibid.*, Sec. II, Pt. XIII, p. 499-518.  
Eastern Florida and Its Fisheries. By R. Edward Earll. *Ibid.*, Sec. II, Pt. XIV, p. 519-531.  
History and Methods of the Fisheries. *Ibid.*, Sec. V, Vol. I (xi+808 p.), Vol. II (xx+881 p.), and atlas of 275 pls.
1892. V. The Fisheries of the South Atlantic States [1887 and 1888]. *In* Statistical Review of the Coast Fisheries of the United States, prepared under the direction of J. W. Collins. Report, U. S. Commission of Fish and Fisheries, 1888 (1892), p. 351-361.
1893. Report on the Fisheries of the South Atlantic States. By Hugh M. Smith. Bulletin, U. S. Fish Commission, Vol. XI, 1891 (1893), p. 269-356, Pl. XLIII-LXXIV.
1897. Report on the Fisheries of Indian River, Florida. By John J. Brice et al. Report, U. S. Commission of Fish and Fisheries, 1896 (1898), p. 223-262, pl. 23-59.
1898. Report on the Fish and Fisheries of the Coastal Waters of Florida. By John J. Brice. Report, U. S. Commission of Fish and Fisheries, 1896 (1898), p. 263-342.
1899. Notes on the Extent and Condition of the Alewife Fisheries of the United States in 1896. By Hugh M. Smith. Report, U. S. Commission of Fish and Fisheries, 1898 (1899), p. 31-43.  
The Shad Fisheries of the Atlantic Coast of the United States. By Charles H. Stevenson. *Ibid.*, p. 101-176.
1900. Statistics of the Fisheries of the South Atlantic States [1897]. Report, U. S. Commission of Fish and Fisheries, 1899 (1900), p. 171-227.
1905. Statistics of the South Atlantic States, 1902. Report, U. S. Commission of Fish and Fisheries, 1903 (1905), p. 343-410.
1911. Fisheries of the United States, 1908. Special Reports, Bureau of the Census, 1911.

## COMMON AND SCIENTIFIC NAMES OF FISHES.

In the appended list are given the common and scientific names of the species of fishes of the South Atlantic States listed in the statistical tables, as accurately as it has been practicable to determine them, for the guidance of the reader.

Alewives.....	{ <i>Pomolobus aestivalis</i> . <i>Pomolobus pseudoharengus</i> .
Amberfish.....	<i>Seriola</i> (species).
Angelfish.....	<i>Chaetodipterus faber</i> .
Barracuda.....	<i>Sphyræna</i> (species).
Black bass.....	{ <i>Micropterus dolomieu</i> . <i>Micropterus salmoides</i> .
Bluefish.....	<i>Pomatomus saltatrix</i> .
Blue runner or hardtail.....	<i>Caranx crysos</i> .
Bonito.....	<i>Sarda sarda</i> .
Bowfin.....	<i>Amiatus calvus</i> .
Butterfish.....	<i>Poronotus triacanthus</i> .
Carp.....	<i>Cyprinus carpio</i> .
Catfish.....	Siluridæ (species).
Cero and kingfish.....	{ <i>Scomberomorus cavalla</i> . <i>Scomberomorus regalis</i> .
Cowfish and "shellfish".....	<i>Ostraciidæ</i> (species).
Crappie.....	<i>Pomoxis sparoides</i> .
Crevalle.....	<i>Caranx</i> (species).
Croaker.....	<i>Micropogon undulatus</i> .

Drum, red and black.....	{ <i>Sciaenops ocellatus</i> .
	{ <i>Pogonias cromis</i> .
Eels.....	{ <i>Anguilla rostrata</i> .
	{ Other Apodes.
Flounders.....	Pleuronectidæ (species).
Gizzard shad.....	<i>Dorosoma cepedianum</i> .
	{ <i>Epinephelus</i> (species).
Groupers.....	{ <i>Mycteroperca</i> (species).
	{ <i>Garrupa nigrita</i> .
Grunts.....	Hæmulidæ (species).
Hickory shad.....	<i>Pomolobus mediocris</i> .
Hogfish.....	<i>Lachnolaimus maximus</i> .
Jewfish.....	<i>Promicrops guttatus</i> .
King whiting.....	<i>Menticirrhus</i> (species).
Ladyfish.....	<i>Albula vulpes</i> .
Leather jacket or "turbot".....	<i>Balistes carolinensis</i> .
Menhaden.....	<i>Brevoortia tyrannus</i> .
Moonfish.....	<i>Vomer setipinnis</i> .
	{ <i>Mugil cephalus</i> .
Mullet.....	{ <i>Mugil curema</i> .
Parrotfish.....	Scaridæ (species).
Perch, white.....	<i>Morone americana</i> .
Perch, yellow.....	<i>Perca flavescens</i> .
Permit.....	<i>Trachinotus goodei</i> .
Pigfish.....	<i>Orthopristis chrysopterus</i> .
Pike or pickerel.....	<i>Esox</i> (species).
	{ <i>Lagodon rhomboides</i> .
Pinfish or sailor's choice.....	{ Other species.
	{ <i>Trachinotus carolinus</i> .
Pompano.....	{ <i>Trachinotus</i> (other species).
	{ (See also Permit.)
Porgies (Gulf).....	{ <i>Calamus</i> (species).
	{ <i>Pagrus</i> (species).
Porkfish.....	<i>Anisotremus virginicus</i> .
Scup.....	<i>Stenotomus</i> (species).
Sea bass.....	<i>Centropristes striatus</i> .
	{ <i>Tylosurus</i> (species).
Sea gar or needlefish.....	{ <i>Ablennes</i> (species).
Sergeantfish or snook.....	<i>Centropomus undecimalis</i> .
Shad.....	<i>Alosa sapidissima</i> .
Sharks.....	All Selachii except Batoidei.
Sheepshead.....	<i>Archosargus probatocephalus</i> .
Skates.....	Batoidei (species).
Snapper, mangrove.....	<i>Lutianus griseus</i> .
Snapper, mutton.....	<i>Lutianus analis</i> .
Snapper, red.....	<i>Lutianus blackfordi</i> .
Spanish mackerel.....	<i>Scomberomorus maculatus</i> .
Spot.....	<i>Leiostomus xanthurus</i> .
	{ <i>Cynoscion regalis</i> .
Squeteagues or "sea trout".....	{ <i>Cynoscion nothus</i> .
	{ <i>Cynoscion nebulosus</i> .
Striped bass.....	<i>Roccus lineatus</i> .
Sturgeon.....	<i>Acipenser sturio</i> .
Suckers.....	Castostomidæ (species).
Sunfish.....	Centrarchidæ (species).
Tautog.....	<i>Tautoga onitis</i> .
Tilefish.....	<i>Lopholatilus chamaeleonticeps</i> .
Yellowtail or "silver perch".....	<i>Bairdiella chrysura</i> .

## GENERAL STATISTICS

The number of persons engaged in the fisheries of the South Atlantic States in 1918 was 15,046, of whom 1,964 were on vessels fishing, 91 on vessels transporting fishery products, 8,604 in shore fisheries, and 4,387 shoremen in the wholesale fishery trade, oyster canneries, fertilizer factories, and other industries connected with



the fisheries. Of the total, 8,036 are credited to North Carolina, 2,000 to South Carolina, 1,680 to Georgia, and 3,330 to the east coast of Florida.

Compared with the returns for 1902, there has been a decrease in the number of persons employed in North Carolina of 6,719, or 45.54 per cent; in South Carolina, a decrease of 1,713, or 46.14 per cent; in Georgia, a decrease of 606, or 26.51 per cent, and in Florida, an increase of 632 persons, or 23.42 per cent. The total decrease for the entire region amounts to 8,406, or 35.84 per cent.

The capital invested in the fisheries of this region amounted to \$7,423,971, distributed as follows: North Carolina, \$4,222,043; South Carolina, \$221,251; Georgia, \$769,998; and the east coast of Florida, \$2,210,679. The investment included 261 fishing and transporting vessels, valued at \$1,855,588 and having a net tonnage of 5,597 tons and outfits valued at \$565,858; 5,632 boats, valued at \$910,218; fishing apparatus used by vessels and boats, valued at \$957,239; shore and accessory property to the value of \$2,731,918; and cash capital to the amount of \$403,150.

Compared with 1902, there has been an increase in the investment in North Carolina amounting to \$2,248,602, or 113.94 per cent; in South Carolina, a decrease of \$99,472, or 31.01 per cent; in Georgia, an increase of \$427,848, or 125.04 per cent, and on the east coast of Florida, an increase of \$1,855,844, or 523.01 per cent, representing a total increase for the region of \$4,432,822, or 148.19 per cent.

The principal forms of fishing apparatus arranged in order of their value were: 3,779 pound nets, valued at \$355,439; 15,399 gill nets, valued at \$233,883; 91 purse seines, valued at \$219,027; 582 haul seines, valued at \$102,193; and 371 otter trawls, valued at \$22,055. Other apparatus employed included fyke nets, dredges, lines, cast nets, stop nets, eel pots, tongs, grabs, rakes, spears, etc., to the value of \$24,642. The use of the otter trawl introduced in the shrimp fishery at Fernandina, Fla., about 1915, represents the most important change in fishing apparatus since 1902.

The products of the fisheries amounted to 332,614,123 pounds, having a value to the fishermen of \$5,348,616. The yield of the various States was as follows: North Carolina, 210,501,750 pounds, valued at \$2,978,708; South Carolina, 3,746,932 pounds, valued at \$207,690; Georgia, 37,153,953 pounds, valued at \$416,043; and east coast of Florida, 81,211,488 pounds, valued at \$1,746,175.

The more important species taken in these States were: Alewives, fresh and salted, taken mostly in North Carolina, 15,185,585 pounds, valued at \$412,067; black bass, credited to North Carolina, 551,125 pounds, valued at \$63,137; bluefish, 892,045 pounds, valued at \$85,567; cero and kingfish, taken mostly in Florida, 2,483,647 pounds, valued at \$161,562; menhaden, 257,757,799 pounds, valued at \$1,605,117; mullet, fresh and salted, 11,757,318 pounds, valued at \$508,044; sea bass, 577,596 pounds, valued at \$50,592; shad, 2,888,644 pounds, valued at \$568,585; Spanish mackerel, credited mostly to Florida, 3,211,405 pounds, valued at \$232,355; spot, 1,692,775 pounds, valued at \$72,795; squeteagues or "sea trout," 5,105,249 pounds, valued at \$360,527; shrimp, 15,656,903 pounds, valued at \$470,346; and oysters, 5,871,376 pounds, or 838,768 bushels, valued at \$260,863.

Compared with the Bureau's returns for 1902, there has been an increase in the products of the fisheries of 226,168,051 pounds, or 212.47 per cent, in quantity and of \$2,508,983, or 88.35 per cent, in value. Compared with the census returns for 1908, the increase

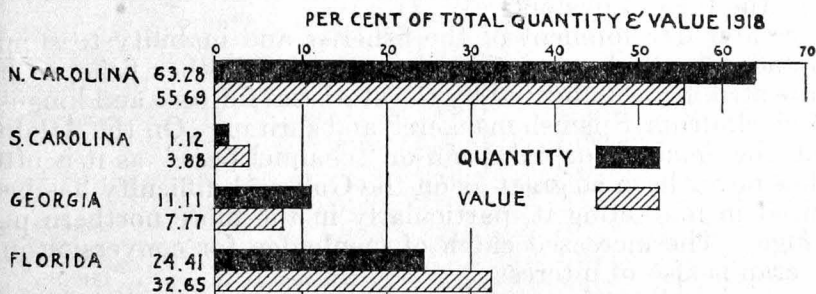
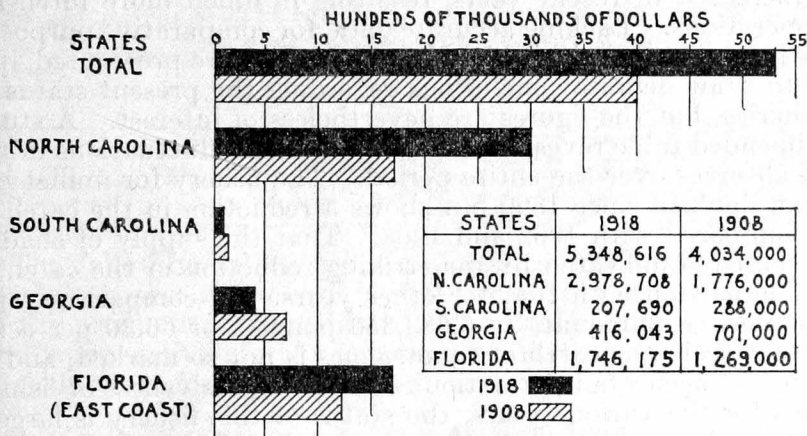
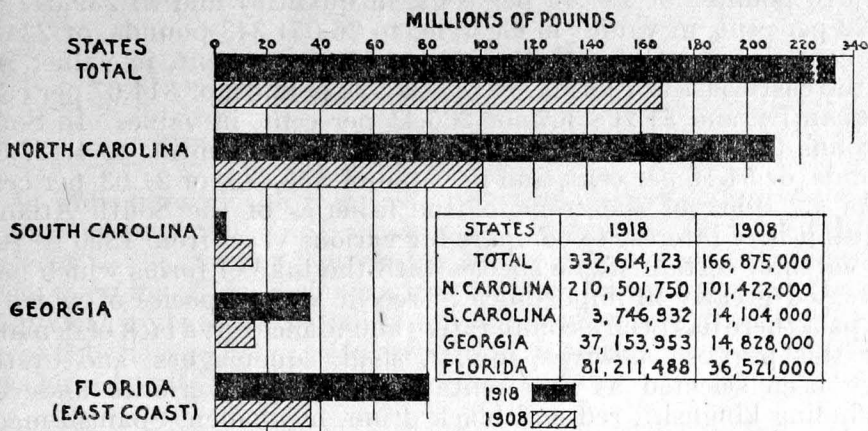


Fig. 7.—Top: Quantities of fish taken in the commercial fisheries of the South Atlantic States in 1918 compared with 1908. Center: Values of fish taken in the commercial fisheries of the South Atlantic States in 1918 compared with 1908. Bottom: Percentages of total quantity and value of fishery products for each of the South Atlantic States in 1918.

amounts to 165,739,123 pounds, or 99.31 per cent, in quantity and \$1,314,616, or 32.58 per cent, in value. The large increase in the catch for 1918 over that of previous years is due to the increase in the catch of menhaden, the 1902 catch amounting to 18,862,000 pounds, valued at \$31,420. The catch of other species in 1902

amounted to 87,584,072 pounds, valued at \$2,808,213, and in 1918 to 74,856,324 pounds, valued at \$3,743,499, a decrease of 14.53 per cent in quantity and an increase of 33.30 per cent in value. Compared with 1902 the increase in North Carolina amounted to 142,917,016 pounds, or 211.46 per cent, in quantity and \$1,239,047, or 71.22 per cent, in value; in Georgia, to 26,051,343 pounds, or 234.64 per cent, in quantity and \$56,962, or 15.86 per cent, in value; and on the east coast of Florida, to 61,627,223 pounds, or 314.67 per cent in quantity and \$1,268,307, or 265.41 per cent, in value. In South Carolina there was a decrease in the quantity amounting to 4,427,531 pounds, or 54.16 per cent, and in value of \$55,333, or 21.03 per cent.

As an index of the trend of the fisheries of the South Atlantic States it is of interest to compare for various years from 1890 to 1918 the catch of certain staple species with the take of forms which have increased greatly in importance in recent years, species of which in the past there has been a comparative abundance but a lack of demand. For this purpose alewives, mullet, shad, squeteagues, and oysters have been selected as representative of staple varieties and cero (including kingfish), red and black drum, menhaden, Spanish mackerel, and shrimp, representing species for which the demand has greatly increased in recent years, resulting in much more intensive fishing operations. Lacking accurate data, for comparative purposes as to the intensiveness with which these fisheries were prosecuted, it is difficult to draw definite conclusions regarding the present status of these fisheries, but the figures are nevertheless of interest. A study of the appended table reveals comparatively small fluctuations in the catch of alewives over the entire period. The fishery for mullet has more than doubled since 1890 but shows a reduction in the catch in 1918 as compared with 1902 and 1908. That the supply of shad is being depleted is indicated by the striking reduction in the catch in 1918 in comparison with that for other years. In comparison with 1908, the decrease amounts to 5,683,356 pounds, or 66.30 per cent. The fluctuation in the catch of squeteagues is not so marked, and in the absence of accurate information as to the intensiveness of fishing operations for the various years, the status of this fishery is largely conjectural. As on other parts of the coast, there has been a striking decline in the take of oysters.

With greater development of the fisheries and inability to supply the demand for staple varieties, the growth of other fisheries has been quite striking as indicated by the statistics for cero and kingfish, red and black drum, Spanish mackerel, and shrimp. On the Atlantic seaboard, the demand for red drum or "channel bass," as it is often called, has never been as great as on the Gulf and difficulty has been experienced in marketing it, particularly in the more northern part of its range. The increased catch of menhaden for conversion into oil and scrap is also of interest.

PRODUCTS, IN POUNDS, OF CERTAIN FISHERIES OF THE SOUTH ATLANTIC STATES: VARIOUS YEARS, 1890 TO 1918.

Year.	Alewives.	Mullet.	Shad.	Squeteague or sea trout.	Oysters.
1890.....	16, 543, 783	5, 573, 623	9, 385, 354	2, 368, 067	8, 344, 8
1897.....	15, 856, 350	5, 934, 942	11, 268, 343	3, 741, 274	11, 285, 2
1902.....	11, 601, 172	14, 310, 808	9, 849, 338	4, 848, 269	22, 719, 0
1908.....	12, 180, 000	14, 501, 800	8, 572, 000	8, 615, 000	30, 549, 0
1918.....	15, 185, 585	11, 757, 318	2, 888, 644	5, 105, 249	5, 871, 3

PRODUCTS, IN POUNDS, OF CERTAIN FISHERIES OF THE SOUTH ATLANTIC STATES,  
VARIOUS YEARS, 1890 TO 1918—Continued.

Year.	Cero and kingfish.	Drum, red and black.	Menhaden.	Spanish mackerel.	Shrimp.
1890.....		692,003	12,410,400		744,025
1897.....	358,070	772,032	11,310,000	362,390	627,221
1902.....	77,170	583,394	18,862,000	1,013,172	3,810,641
1908.....		1,421,000	57,412,000	1,685,000	5,697,000
1918.....	2,483,647	1,007,311	257,757,799	3,211,405	15,656,903

As indicative of the trend of important fisheries common to the South Atlantic and Gulf coasts the following table is of interest. In view of the present high degree of development of the fisheries in these sections, it is becoming increasingly important that frequent statistical inventories be made to supply information as to whether these fisheries are being endangered and as to the needs for restrictive measures to safeguard the harvests of the future.

PRODUCTS, IN POUNDS, OF CERTAIN FISHERIES OF THE SOUTH ATLANTIC AND GULF STATES, VARIOUS YEARS, 1890 TO 1918.

Year.	Mullet.	Spanish mackerel.	Squeteague or sea trout.	Shrimp.	Oysters.
1890.....	20,758,740	700,459	5,327,500	8,195,375	28,931,903
1897.....	21,286,828	1,089,066	6,835,377	7,418,246	27,942,406
1902.....	41,544,130	2,597,063	9,637,316	16,177,551	56,835,009
1908.....	33,354,800	3,171,000	12,705,000	18,258,001	74,952,000
1918.....	40,398,682	6,706,250	10,065,987	42,799,902	29,625,841

The following tables contain statistics of the number of persons employed, the amount of capital invested, the quantity and value of the products of the fisheries of the South Atlantic States in 1918, and comparative statistics of persons, investment, and products for various years from 1880 to 1918.

FISHERIES OF THE SOUTH ATLANTIC STATES, 1918.

Item.	North Carolina.		South Carolina.	
	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>				
On vessels fishing.....	1,295		103	
On vessels transporting.....	54		20	
In shore fisheries.....	4,903		1,121	
Shoresmen.....	1,784		756	
Total.....	8,036		2,000	
<b>INVESTMENT.</b>				
Vessels fishing:				
Steam.....	15	\$807,315		
Tonnage.....	1,791			
Outfit.....		246,685		
Gasoline.....	55	413,710	3	\$7,005
Tonnage.....	1,258		74	
Outfit.....		166,360		2,075
Sail.....	48	28,700	33	20,995
Tonnage.....	388		357	
Outfit.....		9,745		4,415
Vessels transporting:				
Gasoline.....	25	24,600	7	11,000
Tonnage.....	197		74	
Outfit.....		13,775		1,350
Sail.....	12	9,700		
Tonnage.....	92			
Outfit.....		4,450		

## FISHERIES OF THE SOUTH ATLANTIC STATES, 1918—Continued.

Item.	North Carolina.		South Carolina.	
	<i>Number.</i>	<i>Value.</i>	<i>Number.</i>	<i>Value.</i>
INVESTMENT—continued.				
Boats:				
Sail, row, etc.	1,727	\$38,053	639	\$15,810
Power	1,357	269,720	51	20,600
Apparatus, vessel fisheries:				
Purse seines	57	156,727		
Gill nets	13	800		
Lines		50		100
Otter trawls	2	100		
Dredges	86	2,655		
Tongs and grabs	22	100	165	527
Apparatus, shore fisheries:				
Purse seines	3	1,600		
Haul seines	440	41,533	25	2,550
Gill nets	14,299	108,878	233	16,525
Pound nets	3,779	355,439		
Fyke nets	591	6,230		
Cast nets			71	155
Stop nets	6	90	2	130
Lines		333		515
Otter trawls	27	960	2	90
Eel pots	1,585	1,329		
Dredges	550	2,648		
Tongs, grabs, and rakes	1,008	2,046	549	1,482
Spears or gigs	80	78	36	27
Crab traps and drags	113	565		
Other apparatus		375		25
Shore and accessory property		1,347,644		95,775
Cash capital		159,050		20,100
Total		4,222,043		221,251
PRODUCTS.				
Alewives:	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Fresh	8,739,944	\$238,624	9,500	\$475
Salted	5,743,876	162,595		
Angelfish	8,975	340		
Black bass	551,125	63,137		
Bluefish	322,744	29,677	3,000	275
Bonito	3,015	107		
Bowfin	34,372	319		
Butterfish	731,257	24,785	600	45
Carp	153,169	5,619		
Catfish	304,509	9,783	2,900	108
Cero and Kingfish	211,781	13,947		
Crappie	5,340	568		
Crevaille	204	11	300	65
Croaker	386,807	11,912	16,000	1,062
Drum, red and black	99,546	3,246	6,000	285
Eels	174,541	13,333		
Flounders	91,121	7,022	16,200	1,061
Gizzard shad	44,525	1,154		
Grunts	15,000	1,150	100	6
Hickory shad	158,443	13,388	20,500	2,000
King whiting			40,125	4,707
Menhaden	179,910,599	1,306,489		
Mullet:				
Fresh	812,679	52,734	58,050	4,223
Salted	315,350	38,341	142,700	14,906
Perch:				
White	617,088	31,150		
Yellow	223,813	10,147		
Pigfish:				
Fresh	264,272	12,675		
Salted	3,125	63		
Pike	20,552	1,898		
Pinfish or sailor's choice	50,179	1,225	2,300	148
Pompano	8,685	994		
Porgies			2,000	130
Sea bass	111,650	10,928	132,000	13,200
Shad	1,657,036	376,696	167,462	29,085
Sharks			20,000	175
Sheepshead	26,223	1,839	2,100	210
Skates			2,000	15
Spanish mackerel	149,440	14,270		
Spot:				
Fresh	1,193,270	52,531	37,000	2,354
Salted	42,825	3,768	25,550	2,084
Squeteagues or "sea trout":				
Fresh	3,361,246	209,483	59,150	4,840
Salted	80	10		
Striped bass	286,528	46,030		
Sturgeon	6,916	974	117,225	21,130
Sturgeon caviar	671	1,497	665	888

FISHERIES OF THE SOUTH ATLANTIC STATES, 1918—Continued.

Item.	North Carolina.		South Carolina.	
	Pounds.	Value.	Pounds.	Value.
PRODUCTS—continued.				
Suckers.....	16,464	\$680		
Sunfish.....	123,980	1,202	3,000	\$180
Tautog.....	150	9		
Yellowtail or "silver perch".....	31,278	1,379	900	37
Shrimp.....	940,120	23,485	55,400	6,220
Crabs:				
Hard.....	145,605	1,983	18,000	400
Soft.....	233,705	23,821	300	75
Clams, hard.....	197,576	46,598	800	200
Oysters, market:				
Public.....	1,500,534	67,380	2,631,755	83,892
Private.....	18,200	2,900	152,075	12,650
Scallops.....	422,832	31,618		
Terrapin.....	210	92	1,275	545
Turtles.....	8,400	77		
Shark hides.....	19,125	2,868		
Other aquatic hides.....	1,050	157		
Total.....	210,501,750	2,978,708	3,746,932	207,690

Item.	Georgia.		Florida (east coast).		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
PERSONS ENGAGED.						
On vessels fishing.....	186		380		1,964	
On vessels transporting.....	2		15		91	
In shore fisheries.....	476		2,104		8,604	
Shoresmen.....	1,016		831		4,387	
Total.....	1,680		3,330		15,046	
INVESTMENT.						
Vessels fishing:						
Steam.....					15	\$807,315
Tonnage.....					1,791	
Outfit.....						246,085
Gasoline.....	27	\$119,848	23	\$377,600	108	918,163
Tonnage.....	499		725		2,556	
Outfit.....		41,416		71,287		281,138
Sail.....	5	2,315			86	52,010
Tonnage.....	44				789	
Outfit.....		325				14,485
Vessels transporting:						
Gasoline.....	1	500	7	32,300	40	68,400
Tonnage.....	9		89		369	
Outfit.....		125		3,850		19,100
Sail.....					12	9,700
Tonnage.....					92	
Outfit.....						4,450
Boats:						
Sail, row, etc.....	313	8,805	607	20,180	3,286	82,848
Power.....	99	77,400	839	459,650	2,346	827,370
Apparatus, vessel fisheries:						
Purse seines.....	4	4,800	25	52,900	86	214,427
Gill nets.....					13	800
Lines.....		105				255
Otter trawls.....	12	705			14	805
Dredges.....	6	330			92	2,955
Tongs and grabs.....	42	160			229	787
Apparatus, shore fisheries:						
Purse seines.....			2	3,000	5	4,600
Haul seines.....	2	80	115	58,030	582	102,193
Gill nets.....	139	5,955	715	101,725	15,386	233,083
Pound nets.....					3,779	355,439
Fyke nets.....					591	6,230
Cast nets.....	1	3	16	80	88	238
Stop nets.....					8	220
Lines.....		13		2,965		3,826
Otter trawls.....	73	3,700	255	16,500	357	21,250
Eel pots.....					1,585	1,329
Dredges.....					550	2,648
Tongs, grabs, and rakes.....	400	1,264	37	224	1,994	5,016
Spears or gigs.....			12	12		117
Crab traps and drags.....			20	50		615
Other apparatus.....				6		406
Shore and accessory property.....		429,779		858,720		2,731,918
Cash capital.....		72,400		151,600		403,150
Total.....		769,998		2,210,679		7,423,971

## FISHERIES OF THE SOUTH ATLANTIC STATES—Continued.

Item.	Georgia.		Florida (east coast).		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>PRODUCTS.</b>						
Alewives:						
Fresh.....			692,265	\$10,373	9,441,709	\$249,4
Salted.....					5,743,876	162,5
Amberfish.....			11,686	390	11,686	3
Angelfish.....			2,915	91	11,890	4
Barracuda.....			2,915	97	2,915	
Black bass.....					551,125	63,1
Bluefish.....	5,000	\$900	561,301	54,715	892,045	85,5
Blue runner or hardtail.....			50,750	1,542	50,750	1,5
Bonito.....			8,141	258	11,156	3
Bowfin.....					34,372	3
Butterfish.....			4,200	170	736,057	25,0
Carp.....					153,169	5,6
Catfish.....	2,675	265	13,900	278	323,984	10,4
Cero and Kingfish.....	74	7	2,271,792	147,608	2,483,647	161,5
Cowfish and "shellfish".....			50	2	50	
Crappie.....					5,340	5
Crevalle.....			321,030	9,833	321,534	9,9
Croaker.....	5,900	255	124,278	3,447	532,985	16,6
Drum, red and black.....	1,674	112	900,091	24,638	1,007,311	28,2
Eels.....					174,541	13,3
Flounders.....	10,800	650	13,490	737	131,611	9,4
Gizzard shad.....					44,525	1,1
Groupers.....	27,758	1,019	74,783	3,622	102,541	4,6
Grunts.....	512	26	113,679	3,629	129,291	4,8
Hickory shad.....	13,007	2,035			191,950	17,4
Hogfish.....			250	11	250	
Jewfish.....			12,487	365	12,487	3
King whiting.....	27,230	1,468	297,008	15,604	364,363	21,7
Ladyfish.....			1,280	13	1,280	
Leatherjacket or "turbot".....			370	13	370	
Menhaden.....	29,484,600	88,453	48,362,600	210,175	257,757,799	1,605,1
Moonfish.....			7,970	245	7,970	2
Mullet:						
Fresh.....	10,650	693	10,417,889	397,147	11,299,268	454,7
Salted.....					458,050	53,2
Parrotfish.....			3,500	70	3,500	
Perch:						
White.....					617,088	31,1
Yellow.....					223,813	10,1
Permit.....			7,290	244	7,290	2
Pigfish:						
Fresh.....			14,762	451	279,034	13,1
Salted.....					3,125	
Pike.....					20,552	1,8
Pinfish or sailor's choice.....			442,535	13,033	495,014	14,4
Pompano.....			133,419	19,889	142,104	20,8
Porgies.....			5,950	328	7,950	4
Porkfish.....			1,710	57	1,710	
Scup.....	12,000	900			12,000	9
Sea bass.....	292,615	23,765	41,331	2,699	577,596	50,5
Sea gar or needlefish.....			100	5	100	
Sergeantfish or snook.....			314,774	8,629	314,774	8,6
Shad.....	100,540	26,960	963,606	135,844	2,888,644	568,5
Sharks.....	1,289	30	63,775	526	85,064	7
Sheepshead.....	400	25	104,303	4,115	133,026	6,1
Skates.....					2,000	
Snapper:						
Mangrove.....			23,186	975	23,186	
Mutton.....			241,078	7,399	241,078	7,3
Red.....	112,349	7,810	20,200	2,000	132,549	9,8
Spanish mackerel.....			3,061,965	218,085	3,211,405	232,8
Spot:						
Fresh.....	1,100	59	393,030	11,998	1,624,400	66,9
Salted.....					68,375	5,3
Squeteagues or "sea trout":						
Fresh.....	39,550	4,097	1,645,223	142,091	5,105,169	360,1
Salted.....					80	
Striped bass.....	125	10			286,653	46,0
Sturgeon.....	39,150	4,700			163,291	26,1
Sturgeon caviar.....					1,336	2,1
Suckers.....					16,464	1,1
Sunfish.....					126,980	1,1
Tautog.....					150	
Tilefish.....	35,000	2,400			35,000	2,4
Yellowtail or "silver perch".....	2,000	100	43,970	1,279	78,148	2,1
Shrimp.....	5,793,465	173,990	8,867,918	266,651	15,656,903	470,1
Crabs:						
Hard.....	8,455	504	52,000	1,800	<sup>1</sup> 224,060	4,1
Soft.....					<sup>2</sup> 234,005	23,1
Sea crawfish or spiny lobster.....			23,503	1,174	23,503	1,1

<sup>1</sup> 672,180 in number.<sup>2</sup> 702,015 in number.

FISHERIES OF THE SOUTH ATLANTIC STATES—Continued.

Item.	Georgia.		Florida (east coast).		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS—continued.						
Clams, hard.....	120	\$75	2,400	\$600	<sup>1</sup> 200,896	\$47,473
Conch meat.....			7,000	700	7,000	
Oysters, market:						
Public.....	481,530	30,884	313,425	15,134	<sup>2</sup> 4,927,244	197,290
Private.....	628,292	43,029	145,565	4,994	<sup>3</sup> 944,132	63,573
Scallops.....					<sup>4</sup> 422,832	31,618
Octopus.....	2,731	268			2,731	268
Cerapin.....	2,112	454			3,597	1,091
Turtles.....	11,250	100	6,850	402	26,500	579
Shark hides.....					19,125	2,868
Other aquatic hides.....					1,050	157
Total.....	37,153,953	416,043	81,211,488	1,746,175	332,614,123	5,348,616

<sup>1</sup> 25,112 bushels.

<sup>2</sup> 703,892 bushels.

<sup>3</sup> 134,876 bushels.

<sup>4</sup> 70,472 bushels.

EXTENT OF FISHERIES OF SOUTH ATLANTIC STATES, VARIOUS YEARS, 1880 TO 1918.<sup>1</sup>

State.	1880	1887	1888	1889
PERSONS ENGAGED.				
North Carolina.....	5,274	7,352	7,704	8,655
South Carolina.....	1,005	1,280	1,346	2,642
Georgia.....	899	627	638	1,497
Florida (east coast).....	368	( <sup>2</sup> )	851	1,244
Total.....	7,546	( <sup>2</sup> )	10,539	14,038
INVESTMENT.				
North Carolina.....	\$506,561	\$766,881	\$801,474	\$968,600
South Carolina.....	66,275	92,930	97,189	107,205
Georgia.....	78,770	61,806	65,556	120,975
Florida (east coast).....	43,554	( <sup>2</sup> )	109,670	128,434
Total.....	695,160	( <sup>2</sup> )	1,073,889	1,325,214
PRODUCTS.				
Pounds:				
North Carolina.....	32,249,488	45,124,956	43,022,855	45,545,643
South Carolina.....	6,143,250	4,075,537	4,180,847	4,879,125
Georgia.....	2,272,500	1,882,790	1,957,749	2,643,533
Florida (east coast).....	2,286,750	( <sup>2</sup> )	( <sup>2</sup> )	5,982,375
Total.....	42,951,988	( <sup>2</sup> )	( <sup>2</sup> )	59,050,676
Value:				
North Carolina.....	\$845,695	\$772,957	\$776,439	\$950,427
South Carolina.....	212,482	157,688	163,657	200,381
Georgia.....	119,993	80,745	82,910	105,727
Florida (east coast).....	78,408	( <sup>2</sup> )	173,886	199,043
Total.....	1,256,578	( <sup>2</sup> )	1,196,892	1,455,578

<sup>1</sup> Statistics for 1908 are from data published by the Bureau of the Census.

<sup>2</sup> Statistics not available.



EXTENT OF FISHERIES OF SOUTH ATLANTIC STATES, VARIOUS YEARS, 1880 TO 1918—  
Continued.

State.	1880	1897	1902	1908	1918
<b>PERSONS ENGAGED.</b>					
North Carolina.....	10,274	12,045	14,755	9,681	8,036
South Carolina.....	2,701	2,139	3,713	2,559	2,079
Georgia.....	1,622	1,869	2,286	2,525	1,688
Florida (east coast).....	1,404	1,132	2,698	3,196	3,330
Total.....	16,001	17,185	23,452	17,961	15,040
<b>INVESTMENT.</b>					
North Carolina.....	\$1,243,988	\$1,218,459	\$1,973,441	\$1,270,000	\$4,222,043
South Carolina.....	127,762	174,354	320,723	114,000	221,257
Georgia.....	174,431	284,894	342,150	409,000	709,999
Florida (east coast).....	142,105	151,155	354,835	531,000	2,210,679
Total.....	1,688,286	1,828,832	2,991,149	2,324,000	7,423,979
<b>PRODUCTS.</b>					
Pounds:					
North Carolina.....	51,799,142	64,234,257	67,584,734	101,422,000	210,501,750
South Carolina.....	4,944,840	5,280,446	8,174,463	14,104,000	3,746,933
Georgia.....	2,994,117	4,993,100	11,102,610	14,828,000	37,153,953
Florida (east coast).....	7,463,531	5,882,662	19,584,265	36,521,000	81,211,488
Total.....	67,201,630	80,390,465	106,446,072	166,875,000	332,614,124
Value:					
North Carolina.....	\$1,027,669	\$1,316,017	\$1,739,661	\$1,776,000	\$2,978,708
South Carolina.....	202,602	210,456	263,023	288,000	207,690
Georgia.....	123,563	170,605	359,081	701,000	416,043
Florida (east coast).....	219,870	136,077	477,868	1,269,000	1,746,174
Total.....	1,573,704	1,833,155	2,839,633	4,034,000	5,348,615

<sup>1</sup> Exclusive of persons and investment in canneries, packing houses, and other establishments.

## OYSTER INDUSTRY OF SOUTH ATLANTIC STATES, VARIOUS YEARS, 1880 TO 1918.

Year.	North Carolina.		South Carolina.		Georgia.		Florida (east coast).		Total.	
	Bushels.	Value.	Bushels.	Value.	Bushels.	Value.	Bushels.	Value.	Bushels.	Value.
1880....	170,000	\$60,000	50,000	\$20,000	70,000	\$35,000	20,000	\$5,000	310,000	\$120,000
1887....	212,980	48,353	37,725	18,581	110,085	26,950	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
1888....	204,703	46,129	40,242	19,146	120,600	29,370	57,750	12,950	423,295	107,590
1889....	1,001,620	194,272	43,620	19,890	163,200	26,684	62,356	11,123	1,270,796	251,960
1890....	807,260	175,567	63,150	23,204	224,355	40,520	97,350	14,850	1,192,115	254,140
1895....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	99,434	15,415	( <sup>2</sup> )	( <sup>2</sup> )
1897....	858,818	241,099	214,900	45,360	486,634	86,709	51,829	11,766	1,612,181	384,970
1902....	1,022,813	268,363	689,700	118,460	1,224,000	220,467	309,069	37,188	3,245,582	644,470
1908....	812,500	236,100	1,563,000	137,000	1,459,000	338,600	529,000	108,600	4,363,500	820,300
1910....	332,257	63,405	710,124	94,677	505,157	170,812	153,460	35,290	1,700,998	364,180
1918....	216,962	70,280	397,690	96,542	158,516	73,913	65,570	20,128	838,738	260,860

<sup>1</sup> Statistics for 1908 are from data published by the Bureau of the Census.

<sup>2</sup> Statistics not available.

## FISHERIES OF NORTH CAROLINA.

The fisheries of North Carolina were more extensive than those of South Carolina, Georgia, and eastern coast of Florida combined in persons engaged, investment, and quantity and value of the products. In 1918 the number of persons employed in the coastal fisheries of this State was 8,036, of whom 1,295 were on vessels fishing, 54 on transporting vessels, 4,903 in the shore or boat fisheries, and 1,780 on shore in the wholesale establishments, canneries, and other fishery industries.

The investment in the fisheries of \$4,222,043 includes 118 fishing vessels, valued at \$1,249,725, with a net tonnage of 3,437 tons and outfits valued at \$422,790; 37 transporting vessels, valued at \$34,300, with a net tonnage of 289 tons and outfits valued at \$18,225; 3,084 power, sail, row, and other boats valued at \$307,773; fishing apparatus employed on vessels to the value of \$160,432; fishing apparatus employed in shore or boat fisheries to the value of \$522,104; shore and accessory property valued at \$1,347,644; and cash capital amounting to \$159,050.

The products amounted to 210,501,750 pounds, valued at \$2,978,-708. The species of chief importance arranged in order of their value were: Menhaden, 179,910,599 pounds, valued at \$1,306,489; alewives, 14,483,820 pounds, valued at \$401,219, of which 5,743,876 pounds, valued at \$162,595, were salted; shad, 1,657,036 pounds, valued at \$376,696; squeteague or "sea trout," 3,361,326 pounds, valued at \$209,493; mullet, 1,128,029 pounds, valued at \$91,075, of which 315,350 pounds, valued at \$38,341, were salted; oysters, 1,518,734 pounds, or 216,962 bushels, valued at \$70,280; black bass, 551,125 pounds, valued at \$63,137; spot, 1,236,095 pounds, valued at \$56,299, of which 42,825 pounds, valued at \$3,768, were salted; hard clams, 197,576 pounds, or 24,697 bushels, valued at \$46,598; and striped bass, 286,528 pounds, valued at \$46,030.

Menhaden represents 85.46 per cent of the total quantity and 43.86 per cent of the total value of the products of the State in 1918. The products of the fisheries exclusive of menhaden for various years follow: 39,388,742 pounds, valued at \$1,011,498, in 1890; 52,924,257 pounds, valued at \$1,296,317, in 1897; 48,722,734 pounds, valued at \$1,708,241, in 1902; 44,010,000 pounds, valued at \$1,706,000, in 1908, and 30,591,151 pounds, valued at \$1,672,219, in 1918. From the foregoing it will be evident that the trend of production of food fishes is downward and should be a matter of some concern to the State. As indicative of the trend of certain of the important fisheries of the State, the following table gives the comparative production figures for various years:

PRODUCTS OF CERTAIN FISHERIES OF NORTH CAROLINA, VARIOUS YEARS, 1890 TO 1918.

Species.	1890	1897	1902	1908	1918
	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
Alewives.....	16,481,063	15,790,437	11,172,975	10,928,000	14,483,820
Bluefish.....	1,345,194	1,696,175	977,142	1,256,000	322,744
Mullet.....	3,585,981	3,409,585	6,705,492	5,070,800	1,128,029
Shad.....	5,768,413	8,963,488	6,566,724	3,942,000	1,657,036
Squeteagues or "sea trout".....	1,885,677	3,090,254	3,781,456	4,635,000	3,361,326
Striped bass.....	568,341	845,123	1,175,400	510,000	286,528
	<i>Bushels.</i>	<i>Bushels.</i>	<i>Bushels.</i>	<i>Bushels.</i>	<i>Bushels.</i>
Clams.....	28,269	117,226	146,897	91,000	24,697
Oysters.....	807,260	858,818	1,022,813	812,500	216,962

An examination of this table reveals a very marked decline in the catch of bluefish, mullet, shad, striped bass, clams, and oysters, while the fisheries for alewives and squeteagues have fluctuated comparatively little. In 1918 the catch of bluefish amounted to only 25.69 per cent of that in 1908; of mullet, to only 22.25 per cent of the 1908 catch; of shad, to only 42.04 per cent of the catch in 1908, and 25.23 per cent of the catch in 1902; of striped bass, to

only 56.18 per cent of the 1908 catch and 24.38 per cent of the 1902 catch; of clams, to only 27.14 per cent of the 1908 catch and 16.81 per cent of the 1902 catch; and of oysters, to only 26.70 per cent of the 1908 catch and 21.21 per cent of the 1902 catch.

The principal factors affecting the abundance of shad in our Atlantic coast waters appear to be unsatisfactory spawning areas, due to pollution and artificial barriers restricting the movements of the fish in the rivers, and interference with the fish in their migrations to the spawning areas and while on these areas. It is conceivable that, unless these conditions are rectified, the consumer may have to depend on the Pacific coast for these fish at some not far distant date. In North Carolina, while pollution is believed to have been a less significant factor than in some of the other States, interference with the free movement of a sufficient body of the fish to the spawning areas and during the spawning period is considered to be an important factor affecting the supply of fish in the waters, which fish-cultural operations have been unable to wholly counteract. A study of the production figures for striped bass would indicate that the supply of this fish is being depleted. Difficulties in propagation, such as inability to procure ripe fish of both sexes at same time, handicap operations in this field. The decline in the catch of oysters would indicate how important it is for the State to give more serious consideration to the encouragement of oyster farming. In this connection the results of former investigations of the Bureau should prove of interest, notably a document by Dr. Caswell Grave.<sup>10</sup>

#### FISHERIES BY COUNTIES.

The statistics as to the number of persons employed, investment, and products of the fisheries of North Carolina in 1918 are given by counties in the appended table. It will be noted that of the catch of sea bass of 111,650 pounds, valued at \$10,928, 59,650 pounds, valued at \$5,763, are credited to Carteret County. The increase in the catch for this county is directly attributable in large part to the Bureau for its work in locating the small fishing grounds along this section of the coast and for encouragement given to the establishment of an important fishery. Difficulties in marketing the catch at satisfactory prices are reported to have retarded the fullest development of this fishery.

As a result of the Bureau's efforts to develop fisheries for sharks and other unutilized aquatic animals and to encourage the saving of the hides for tanning into leather and the extraction of the liver oil of sharks, etc., 20,175 pounds of the hides of sharks, porpoise, etc., valued at \$3,025, and 720 gallons of shark oil, valued at \$540, were saved in 1918.

<sup>10</sup> Grave, Caswell: Investigations for the Promotion of the Oyster Industry of North America. Report U. S. Commission of Fish and Fisheries, 1903 (1905), p. 247-341, X pl.

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF NORTH CAROLINA IN 1918, BY COUNTIES.

Item.	Beaufort.		Bertie.		Bladen.		Brunswick.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>								
On vessels fishing.....	12						59	
On vessels transporting.....	18							
In shore fisheries.....	236		22		45		301	
Shoresmen.....	167		13				147	
<b>Total</b> .....	<b>433</b>		<b>35</b>		<b>45</b>		<b>507</b>	
<b>INVESTMENT.</b>								
<b>Vessels fishing:</b>								
Gasoline.....							5	\$39,620
Tonnage.....							160	
Outfit.....								17,510
Sail.....	4	\$2,750						
Tonnage.....	30							
Outfit.....		950						
<b>Vessels transporting:</b>								
Gasoline.....	2	7,500						
Tonnage.....	15							
Outfit.....		5,000						
Sail.....	7	7,000						
Tonnage.....	50							
Outfit.....		3,500						
<b>Boats:</b>								
Sail, row, etc.....	74	6,195	1	\$5	23	\$270	151	2,210
Power.....	25	6,400	7	1,600			17	8,450
<b>Apparatus, vessel fisheries:</b>								
Purse seines.....							3	9,000
Otter trawls.....							2	100
Dredges.....	8	160						
<b>Apparatus, shore fisheries:</b>								
Haul seines.....	15	6,700					21	1,800
Gill nets.....	490	903			22	350	100	2,475
Pound nets.....	137	10,210	73	9,585				
Lines.....								1
Otter trawls.....							14	570
Dredges.....	24	549						
Tongs and rakes.....	2	6					160	268
Eel pots.....	250	325						
Other apparatus.....					1	12	6	90
<b>Shore and accessory property:</b>								
		39,975		1,950				65,685
Cash capital.....		34,000						5,800
<b>Total</b> .....		<b>132,123</b>		<b>13,140</b>		<b>632</b>		<b>153,579</b>
<b>PRODUCTS.</b>								
<b>Alewives:</b>								
Fresh.....	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Salted.....	326,865	\$6,760	211,845	\$4,209				
			216,039	5,906				
Black bass.....	10,111	1,343						
Butterfish.....	70,009	4,128						
Catfish.....	44,008	1,113	982	20				
Cero and king fish.....							3,250	\$178
Croaker.....							1,500	43
Drum, red and black.....							1,500	73
Eels.....	39,164	1,076						
Flounders.....	5,800	348					8,800	433
Hickory shad.....	16,760	1,515	628	31				
Menhaden.....							9,300,000	33,325
<b>Mullet:</b>								
Fresh.....							28,700	2,180
Salted.....							213,900	25,450
<b>Perch:</b>								
White.....	6,630	613	2,261	121				
Yellow.....	40,485	2,778						
Pigfish, fresh.....							150	9
Pike.....	11,013	1,032						
Pompano.....	750	60						
Sea bass.....							1,000	70
Shad.....	80,057	14,270	5,366	1,182	4,077	\$1,165	2,050	425
Sheepshead.....							1,800	106
<b>Spot:</b>								
Fresh.....	5,148	255					11,250	587
Salted.....							36,700	3,370
<b>Squeteagues, or "sea trout," fresh.....</b>								
	314,892	10,734					8,600	604

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF NORTH CAROLINA IN 1918, BY COUNTIES—Continued.

Item.	Beaufort.		Bertie.		Bladen.		Brunswick.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
PRODUCTS—continued.								
Striped bass.....	24,701	\$3,426	333	\$50			1,000	\$100
Suckers.....	4,890	124	131	8			150	9
Tautog.....							370,000	11,100
Shrimp.....								
Crabs:								
Hard.....							650	20
Soft.....							40	10
Turtles.....							500	13
Clams, hard.....							44,000	8,350
Oysters, market, public..	65,415	4,565					4,725	500
Total.....	1,066,698	54,140	437,585	11,527	4,077	\$1,165	10,040,265	86,955

Item.	Camden.		Carteret.		Chowan.		Columbus.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
PERSONS ENGAGED.								
On vessels fishing.....			656					
On vessels transporting.....			35					
In shore fisheries.....	8		1,251		285		30	
Shoresmen.....			766		167			
Total.....	8		2,708		452		30	
INVESTMENT.								
Vessels fishing:								
Gasoline.....			49	\$356,150				
Tonnage.....			1,026					
Outfit.....				142,350				
Sail.....			26	17,500				
Tonnage.....			232					
Outfit.....				5,145				
Vessels transporting:								
Gasoline.....			22	16,600				
Tonnage.....			177					
Outfit.....				8,025				
Sail.....			4	2,450				
Tonnage.....			36					
Outfit.....				925				
Boats:								
Sail, row, etc.....	3	\$45	414	9,755	29	\$1,100	15	\$160
Power.....	5	835	461	112,875	101	26,410		
Apparatus, vessel fisheries:								
Purse seines.....			38	102,600				
Gill nets.....			13	800				
Lines.....				50				
Dredges.....			42	1,530				
Tongs.....			16	82				
Apparatus, shore fisheries:								
Haul seines.....			123	3,185				
Purse seines.....			1	1,000				
Gill nets.....	82	972	1,877	49,305	234	6,288	15	150
Pound nets.....			268	24,750	967	103,936		
Fyke nets.....	40	400						
Lines.....				230				
Otter trawls.....			13	390				
Dredges.....			492	1,525				
Tongs and rakes.....			182	432				
Eel pots.....			25	35				
Other apparatus.....			370	659				
Shore and accessory prop- erty.....				543,480		63,405		
Cash capital.....				74,000				
Total.....		2,252		1,475,828		201,089		310
PRODUCTS.								
Alewives:								
Fresh.....			75,636	\$3,774	4,747,518	\$98,415		
Salted.....					3,230,025	87,768		
Angel fish.....			3,800	155				
Bluefish.....			261,055	23,545				
Bonito.....			3,015	107				
Butterfish.....			71,999	4,379				
Catfish.....	2,400	\$120			62,727	2,218		

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF NORTH CAROLINA IN 1918, BY COUNTIES—Continued.

Item.	Camden.		Carteret.		Chowan.		Columbus.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS—continued.								
Cero and king fish.....			151, 871	\$10, 615				
Crevalle.....			204	11				
Croaker.....			323, 226	9, 863				
Drum, red and black.....			32, 165	1, 332				
Eels.....			1, 500	150	6, 860	\$549		
Flounders.....			8, 175	543				
Gizzard shad.....					34, 629	1, 036		
Hickory shad.....			23, 611	1, 449	58, 283	5, 832		
Menhaden.....			90, 232, 799	480, 212				
Mullet:								
Fresh.....			405, 855	19, 804				
Salted.....			22, 500	4, 000				
Perch, white.....	2, 300	\$230			72, 890	6, 333		
Pigfish, fresh.....			152, 669	4, 859				
Pike.....					294	28		
Pinfish, or sailor's choice.....			18, 380	238				
Pompano.....			2, 768	332				
Sea bass.....			59, 650	5, 763				
Shad.....	17, 800	4, 450	53, 994	13, 753	173, 472	34, 736	1, 575	\$450
Sheepshead.....			17, 039	988				
Spanish mackerel.....			115, 330	11, 372				
Spot, fresh.....			792, 565	30, 603				
Squeteagues, or "sea trout," fresh.....			1, 584, 096	122, 323				
Striped bass.....			995	133	17, 878	3, 577		
Sturgeon.....			540	27				
Suckers.....					8, 693	383		
Yellowtail.....			8, 108	229				
Shrimp.....			450, 120	9, 385				
Crabs:								
Hard.....			2, 000	150				
Soft.....			233, 665	23, 811				
Terrapin.....			60	57				
Turtles.....			7, 500	44				
Clams, hard.....			47, 176	8, 103				
Oysters, market, public.....			\$79, 977	31, 925				
Scallops.....			415, 572	30, 768				
Shark hides.....			19, 125	2, 868				
Other aquatic hides.....			1, 050	157				
Total.....	22, 500	4, 800	96, 479, 790	857, 827	8, 413, 269	240, 875	1, 575	450

Item.	Craven.		Currituck.		Dare.		Gates.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
PERSONS ENGAGED.								
On vessels fishing.....					7			
In shore fisheries.....	66		427		762		30	
Shoresmen.....	4		20		13			
Total.....	70		447		782		30	
INVESTMENT.								
Vessels fishing:								
Sail.....					3	\$1, 300		
Tonnage.....					20			
Outfit.....						450		
Boats:								
Sail, row, etc.....	47	\$585	57	\$700	86	3, 430	22	\$265
Power.....	20	3, 075	167	15, 530	287	41, 600	4	250
Apparatus, vessel fisheries:								
Dredges.....					6	30		
Tongs.....					6	18		
Apparatus, shore fisheries:								
Haul seines.....	8	850	183	16, 353	34	4, 525		
Purse seines.....					2	600		
Gill nets.....	463	1, 705	296	1, 879	7, 814	16, 131	74	248
Pound nets.....	25	750	56	10, 035	1, 581	143, 891	10	390
Fyke nets.....			455	4, 550			15	125
Lines.....						30		
Tongs and rakes.....					49	188		
Eel pots.....	20	25	1, 240	879				
Shore and accessory property.....		6, 265		4, 040		31, 488		
Cash capital.....				2, 750		2, 000		
Total.....		13, 255		56, 716		245, 681		1, 278

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF NORTH CAROLINA IN 1918, BY COUNTIES—Continued.

Item.	Craven.		Currituck.		Dare.		Gates.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>PRODUCTS.</b>								
Alweives:								
Fresh	22,800	\$725	142,668	\$4,252	777,636	\$36,700	73,688	\$1,179
Salted			133,083	2,140	128,355	4,547		
Angel fish	50	2						
Black bass			504,164	57,372	36,850	4,422		
Bluefish	700	42			46,944	4,674		
Bowfin			34,372	319				
Butterfish	30,000	1,200			437,473	12,945		
Carp			150,741	5,449				
Catfish	1,200	24	116,012	2,379	33,981	1,645	312	25
Cero and king fish			10,960	548	17,815	720		
Crappie							340	68
Croaker	3,050	77	13,600	354	16,538	726		
Drum, red and black					35,566	795		
Eels	500	40	112,581	10,268	8,000	680		
Flounders	600	35	4,948	330	19,567	977		
Gizzard shad			9,371	97				
Hickory shad	16,940	990			7,467	684		
Hullet, fresh	17,400	1,396						
Perch:								
White	3,100	282	412,040	16,296	71,659	2,874		
Yellow			156,555	6,187	23,886	958	312	25
Pigfish:								
Fresh					37,428	1,661		
Salted	200	5			3,125	63		
Pike			9,245	838				
Pinfish, or sailor's choice	3,000	50			22,799	337		
Pompano	75	8			1,012	57		
Shad	14,013	3,633	51,096	9,339	881,270	219,272	600	120
Sheepshead					834	60		
Spanish mackerel	250	300			27,973	2,091		
Spot:								
Fresh	19,300	989			49,082	2,232		
Salted					3,125	63		
Squeteagues, or "sea trout,"								
fresh	36,910	2,043	25,400	1,854	901,238	47,700		
striped bass	6,375	565	51,367	7,149	148,740	23,136		
Sturgeon					2,876	527		
Sturgeon caviar					661	1,487		
Sunfish			123,980	1,202				
Crabs, hard					142,290	1,778		
Clams, hard					6,400	1,200		
Oysters, market, public					60,900	4,350		
Total	176,463	12,305	2,062,183	126,373	3,951,490	378,761	75,252	1,417

Item.	Halifax.		Hertford.		Hyde.		Martin.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>								
On vessels fishing					2			
In shore fisheries	39		29		145		18	
Shoresmen			2					
Total	39		31		147		18	
<b>INVESTMENT.</b>								
Vessels fishing:								
Sail					1	\$400		
Tonnage					7			
Outfit						150		
Boats:								
Sail, row, etc.	4	\$50	11	\$114	26	1,245	3	\$75
Power	19	1,170	4	975	55	11,295		
Apparatus, vessel fisheries,								
dredges					2	60		
Apparatus, shore fisheries:								
Haul seines			1	200	1	75	3	500
Gill nets			50	253	1,684	3,028		
Pound nets			37	2,450	233	22,425		
Dredges					2	40		
Tongs and rakes					78	310		
Other apparatus	47	275						
Shore and accessory property				125		1,665		
Total		1,495		4,117		40,693		575

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF NORTH CAROLINA IN 1918, BY COUNTIES—Continued.

Item.	Halifax.		Hertford.		Hyde.		Martin.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS.								
Alwifes:								
Fresh			216,875	\$5,205	87,706	\$3,054	30,000	\$1,500
Salted							25,000	1,200
Angel fish					5,125	183		
Bluefish					7,495	848		
Butterfish					39,626	978		
Catfish					2,560	64	630	38
Cero and kingfish					3,335	119		
Croaker					1,993	43		
Drum, red and black					1,350	14		
Eels					333	10		
Flounders					10,781	394		
Hickory shad					15,112	730		
Mullet, salted					650	169		
Pereh:								
White			1,584	96	3,078	277	1,000	80
Yellow					700	49		
Pigfish, fresh					3,125	95		
Pompano					1,280	92		
Shad			250	50	109,827	18,396		
Spanish mackerel					2,987	242		
Spot, fresh					3,325	150		
Squeteagues, or "sea trout," fresh					149,964	4,987		
Striped bass	6,635	\$2,770			10,829	1,509		
Oysters, market, public					38,500	2,200		
Total	6,635	2,770	218,709	5,351	499,681	34,603	56,630	2,812

Item.	New Hanover.		Onslow.		Pamlico.		Pasquotank and Petqui- mans.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
PERSONS ENGAGED.								
On vessels fishing	513				46			
On vessels transporting					1			
In shore fisheries	238		318		97		47	
Shoresmen	322		35		64		11	
Total	1,073		353		208		58	
INVESTMENT.								
Vessels fishing:								
Steam	15	\$807,315						
Tonnage	1,791							
Outfit		246,685						
Gasoline	1	17,940						
Tonnage	72							
Outfit		6,500						
Sail					14	\$6,750		
Tonnage					99			
Outfit						3,050		
Vessels transporting:								
Gasoline					1	500		
Tonnage					5			
Outfit						750		
Sail			1	\$250				
Tonnage			6					
Outfit				25				
Boats:								
Sail, row, etc.	157	2,600	298	4,935	55	1,665	13	\$23.
Power	15	3,900	40	13,775	39	7,200	15	3,220
Apparatus, vessel fisheries:								
Purse seines	16	45,127						
Dredges					28	875		
Apparatus, shore fisheries:								
Haul seines	22	1,180	18	1,780				
Gill nets	77	3,045	411	9,850	35	1,100	206	4,060
Pound nets					70	3,375	81	3,610
Fyke nets							3	20
Lines		50		2				
Dredges			14	84	18	450		
Tongs and rakes	175	100	117	411	35	205		
Eel pots			50	65				
Other apparatus	25	23	14	14				
Shore and accessory property		560,336		6,505		6,410		13,000
Cash capital		25,000		2,000		2,500		11,000
Total		1,719,801		39,696		34,830		35,145





PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF NORTH CAROLINA IN 1918, BY COUNTIES—Continued.

Item.	Pender.		Tyrrell.		Washington.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
<b>INVESTMENT—continued.</b>								
<b>Boats:</b>								
Sail, row, etc.	182	\$1,350	14	\$237	42	\$827	1,727	38,053
Power	3	600	37	4,915	36	5,645	1,357	269,720
<b>Apparatus, vessel fisheries:</b>								
Purse seines							57	156,727
Gill nets							13	800
Lines								50
Otter trawls							2	100
Dredges							86	2,655
Tongs							22	100
<b>Apparatus, shore fisheries:</b>								
Haul seines	8	985			3	3,400	440	41,533
Purse seines							3	1,600
Gill nets	34	830	164	1,680	174	4,676	14,299	108,878
Pound nets			116	9,527	125	10,505	3,779	355,439
Fyke nets			70	1,005	8	130	591	6,230
Lines		20						333
Otter trawls							27	960
Dredges							550	2,648
Tongs and rakes	210	126					1,008	2,046
Eel pots							1,585	1,329
Other apparatus	30	30			3	5	496	1,108
<b>Shore and accessory property</b>		2,100		1,215				1,347,644
<b>Cash capital</b>								159,050
<b>Total</b>		6,041		18,579		25,188		4,222,043
<b>PRODUCTS.</b>								
<b>Alewives:</b>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Fresh			762,350	\$10,417	918,100	\$51,859	8,739,944	\$238,624
Salted			1,151,383	27,623	820,991	33,021	5,743,876	162,595
Angel fish							8,975	340
Black bass							551,125	63,137
Bluefish	650	\$51					322,744	29,677
Bonito							3,015	107
Bowfin							34,372	319
Butterfish							731,257	24,785
Carp					2,428	170	153,169	5,619
Catfish	1,000	30	6,350	381	14,347	736	304,509	9,783
Cero and king fish	300	23					211,781	13,947
Crappie			4,700	470			5,340	568
Creville							204	11
Croaker	7,300	304					386,807	11,912
Drum, red and black	6,300	420					99,546	3,246
Eels					2,310	231	174,541	13,333
Flounders	17,200	2,030			650	52	91,121	7,022
Gizzard shad					525	21	44,525	1,154
Grunts							15,000	1,150
Hickory shad					14,642	1,757	158,443	13,388
Menhaden							179,910,599	1,306,489
<b>Mullet:</b>								
Fresh	131,700	11,250					812,679	52,734
Salted	25,500	2,690					315,350	38,341
<b>Perch:</b>								
White			8,896	838	31,650	3,110	617,088	31,150
Yellow							223,813	10,147
<b>Pigfish:</b>								
Fresh	10,700	821					264,272	12,675
Salted							3,125	63
Pike							20,552	1,898
Pinfish, or sailor's choice							50,179	1,225
Pompano							8,685	994
Sea bass	800	70					111,650	10,928
Shad	1,000	275	1,750	350	65,389	12,885	1,657,036	376,696
Sheepshead							26,223	1,839
Spanish mackerel							149,440	14,270
<b>Spot:</b>								
Fresh	203,300	11,450					1,193,270	52,531
Salted	3,000	335					42,825	3,768
<b>Squeteagues, or "sea trout":</b>								
Fresh	23,800	2,770					3,361,246	209,483
Salted							80	10
Striped bass			1,975	475	6,450	1,290	286,528	46,030
Sturgeon							6,916	974
Sturgeon caviar							671	1,497
Suckers					2,750	165	16,464	680
Sunfish							123,980	1,202

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF NORTH CAROLINA IN 1918, BY COUNTIES—Continued.

Item.	Pender.		Tyrrell.		Washington.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
PRODUCTS—continued.								
Tautog.....							150	\$9
Yellowtail.....	20,000	\$965					31,278	1,379
Shrimp.....							940,120	23,485
Crabs:								
Hard.....							<sup>1</sup> 145,605	1,983
Soft.....							<sup>2</sup> 233,705	23,821
Terrapin.....							210	92
Turtles.....							8,400	77
Clams, hard.....	35,200	9,800					<sup>3</sup> 197,576	46,598
Oysters, market:								
Public.....	14,000	1,000					<sup>4</sup> 1,500,534	67,380
Private.....							<sup>5</sup> 18,200	2,900
Scallops.....							<sup>6</sup> 422,832	31,618
Shark hides.....							19,125	2,868
Other aquatic hides.....							1,050	157
Total.....	501,750	44,284	1,937,404	\$40,554	1,880,232	\$105,297	210,501,750	2,978,708

<sup>1</sup> 436,815 in number.  
<sup>2</sup> 701,115 in number.

<sup>3</sup> 24,697 bushels.  
<sup>4</sup> 214,362 bushels.

<sup>5</sup> 2,600 bushels.  
<sup>6</sup> 70,472 bushels.

## FISHERIES BY APPARATUS.

In the vessel fisheries of North Carolina, in which seven counties are represented, the forms of apparatus in use included purse seines, gill nets, lines, otter trawls, oyster dredges, and oyster tongs. The total yield from all forms of apparatus used on vessels was 179,072,191 pounds, valued at \$1,355,684. The catch with purse seines amounted to 178,101,814 pounds, valued at \$1,305,057, of which 177,868,599 pounds, valued at \$1,297,582, were menhaden. Other of the more important species taken in purse seines included mullet, 71,165 pounds, valued at \$2,630; croakers, 57,000 pounds, valued at \$1,765; and spots, 69,300 pounds, valued at \$1,385. Gill-net fishing yielded 83,300 pounds of fish, chiefly squeteague, croaker, kingfish, and bluefish, valued at \$6,265, and was prosecuted only from vessels operating in Carteret County. The catch of sea bass with lines was 47,500 pounds, valued at \$4,725. Shrimp were taken with otter trawls to the amount of 10,000 pounds, valued at \$300; oysters with dredges, 725,218 pounds, or 103,603 bushels, valued at \$34,912; and oysters with tongs, 104,359 pounds, or 14,908 bushels, valued at \$4,425.

In the shore or boat fisheries pound nets were the most productive form of apparatus, the catch amounting to 16,233,529 pounds, valued at \$683,292. The catch of alewives in pound nets amounted to 12,254,728 pounds, valued at \$301,577, or 75 per cent in quantity and 44 per cent in value of the total take by this form of gear. Other species of importance were squeteagues, shad, and butterfish. The catch with seines in the shore fisheries amounted to 6,028,340 pounds, valued at \$340,795, of which 5,605,300 pounds, valued at \$332,938, were taken in haul seines, the remainder being credited to purse seines. Among the more important species taken in haul seines were alewives, 1,589,037 pounds, valued at \$66,825; black bass, 533,364 pounds, valued at \$60,977; and mullet, 667,065 pounds, valued at \$53,559. The yield by gill nets, which was slightly less in quantity and exceeded in value that of seines, amounted to 5,995,917

pounds, valued at \$386,224. The principal varieties in the order of their value were shad, squeteague, mullet, and spot. The take with tongs, rakes, and hands totaled 767,262 pounds, valued at \$72,455, and with the exception of an incidental catch of scallops and terrapin was made up of oysters and clams. Various species were taken with scoop, dip, and bow nets, amounting to 364,383 pounds, valued at \$34,046; with lines, amounting to 386,010 pounds, valued at \$23,258; with fyke nets, amounting to 283,629 pounds, valued at \$11,375; and by stop nets, amounting to 10,840 pounds, valued at \$605. The catch with otter trawls, confined almost entirely to shrimp, was 592,580 pounds, valued at \$15,149; of scallops and oysters with dredges, 542,363 pounds, valued at \$36,761; of eels with pots, 161,046 pounds, valued at \$12,309; of soft crabs with drags, 38,660 pounds, valued at \$3,725, and of flounders with gigs, 25,000 pounds, valued at \$3,030. The total yield from all forms of apparatus used in the shore or boat fisheries was 31,429,559 pounds, valued at \$1,623,024. The products of the vessel and shore fisheries are shown separately by counties in the appended tables.

YIELD OF VESSEL FISHERIES OF NORTH CAROLINA IN 1918, BY COUNTIES, APPARATUS, AND SPECIES.

Apparatus and species.	Beaufort.		Brunswick.		Carteret.		Dare.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>Purse seines:</b>								
Bluefish.....					4,100	\$240		
Butterfish.....					1,750	70		
Croaker.....					57,000	1,765		
Drum.....					650	25		
Kingfish.....					250	10		
Menhaden.....			9,300,000	\$33,325	88,190,799	471,305		
Mullet.....					71,165	2,630		
Spanish mackerel.....					500	50		
Spots.....					69,300	1,385		
Squeteague.....					28,500	1,300		
<b>Total.....</b>			9,300,000	33,325	88,424,014	478,780		
<b>Gill nets:</b>								
Bluefish.....					4,800	415		
Butterfish.....					1,200	60		
Croaker.....					13,000	420		
Kingfish.....					8,700	502		
Pigfish.....					2,600	83		
Spots.....					1,000	30		
Squeteague.....					52,000	4,755		
<b>Total.....</b>					83,300	6,265		
<b>Lines: Sea bass.....</b>					47,500	4,725		
<b>Otter trawls: Shrimp.....</b>			10,000	300				
<b>Dredges: Oysters, market, public.....</b>	43,610	\$3,300			420,175	18,702	10,000	\$750
<b>Tongs: Oysters, market, public.....</b>					93,359	3,675	11,000	750
<b>Grand total.....</b>	43,610	3,300	9,310,000	33,625	89,068,348	512,147	21,000	1,500

## YIELD OF VESSEL FISHERIES OF NORTH CAROLINA IN 1918, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

Apparatus and species.	Hyde.		New Hanover.		Pamlico.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Purse seines:								
Bluefish.....							4,100	\$240
Butterfish.....							1,750	70
Croaker.....							57,000	1,765
Drum.....							650	25
Kingfish.....							250	10
Menhaden.....			80,377,800	\$792,952			177,868,599	1,297,582
Mullet.....							71,165	2,630
Spanish mackerel.....							500	50
Spots.....							69,300	1,385
Squeteague.....							28,500	1,300
Total.....			80,377,800	792,952			178,101,814	1,305,057
Gill nets:								
Bluefish.....							4,800	415
Butterfish.....							1,200	60
Croaker.....							13,000	420
Kingfish.....							8,700	502
Pigfish.....							2,600	83
Spots.....							1,000	30
Squeteague.....							52,000	4,755
Total.....							83,300	6,265
Lines: Sea bass.....							47,500	4,725
Otter trawls: Shrimp.....							10,000	300
Dredges: Oysters, market, public.....	7,000	\$500			244,433	\$11,660	725,218	34,912
Tongs: Oysters, market, public.....							104,359	4,425
Grand total.....	7,000	500	80,377,800	792,952	244,433	11,660	179,072,191	1,355,684

## YIELD OF SHORE FISHERIES OF NORTH CAROLINA IN 1918, BY APPARATUS, COUNTIES, AND SPECIES.

## BY SEINES.

Apparatus and species.	Beaufort.		Brunswick.		Carteret.		Currituck.		Craven.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Purse seines:										
Menhaden.....					300,000	\$1,500				
Shrimp.....					105,040	1,857				
Total.....					405,040	3,357				
Haul seines:										
Alewives—										
Fresh.....	137,365	\$2,970					86,653	\$1,835	22,600	\$715
Salted.....							121,000	1,694		
Black bass.....	10,111	1,343					490,089	55,654		
Bluefish.....					7,400	\$632			700	42
Bowfin.....							25,979	242		
Butterfish.....					2,850	117				
Carp.....							123,472	4,631		
Catfish.....	37,608	953					72,661	1,476		
Croaker.....					36,325	1,093	13,600	354	2,700	60
Drum.....					19,265	950				
Eels.....	1,512	45								
Flounders.....					825	57	1,600	80	250	16
Gizzard shad.....							9,371	97		
Hickory shad.....	14,060	1,272							5,000	250
Kingfish.....					38,700	2,767	10,960	548		
Mullet—										
Fresh.....			21,200	\$1,700	267,465	13,009				
Salted.....			163,900	19,450						
Perch, white.....	3,845	356					303,514	11,927	1,400	112
Perch, yellow.....	38,728	2,655					101,753	3,986		
Pigfish.....					13,419	333			200	5
Pike.....	11,013	1,032					4,467	409		
Pinfish.....					5,000	88			3,000	50
Pompano.....					790	95			50	6
Shad.....	26,600	4,787					24,000	4,000	2,060	535
Sheepshead.....					6,325	355				

YIELD OF SHORE FISHERIES OF NORTH CAROLINA IN 1918, BY APPARATUS, COUNTIES,  
AND SPECIES—Continued.

## BY SEINES—Continued.

Apparatus and species.	Beaufort.		Brunswick.		Carteret.		Currituck.		Craven.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Haul seines—Con.										
Spanish mackerel.....					4,405	\$445				
Spot—										
Fresh.....	5,148	\$255	4,600	\$360	181,870	6,835			14,500	\$780
Salted.....			21,700	2,170						
Squeteague.....	164,283	5,822	100	10	52,250	3,427	25,400	\$1,854	16,000	1,160
Striped bass.....	5,894	793					15,111	1,533	5,500	440
Suckers.....	4,890	124								
Sunfish.....							104,422	1,026		
Yellowtail.....					1,500	42				
Crabs, soft.....					90,009	9,020				
Shrimp.....					117,000	3,254				
Turtles.....					2,000	11				
Total.....	461,057	22,407	211,500	23,690	847,398	42,530	1,534,052	91,346	73,960	4,171
Total, by seines.....	461,057	22,407	211,500	23,690	1,252,438	45,887	1,534,052	91,346	73,960	4,171

Apparatus and species.	Dare.		Hertford.		Hyde.		Martin.		Onslow.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Purse seines: Striped bass.....	18,000	\$4,500								
Haul seines:										
Alewives—										
Fresh.....			54,219	\$1,301			30,000	\$1,500		
Salted.....							25,000	1,200		
Black bass.....	33,164	\$3,980								
Bluefish.....	31,944	3,474			835	\$100			2,000	\$175
Butterfish.....									1,000	100
Catfish.....	900	14					630	38		
Croaker.....	11,151	540							4,300	122
Drum.....	19,066	585							3,000	22
Flounders.....									300	25
Kingfish.....	6,000	300							4,000	275
Mullet—										
Fresh.....									36,000	2,490
Salted.....									35,500	3,970
Perch, white.....	41,958	1,679	792	48			1,000	80		
Perch, yellow.....	13,986	559								
Pigfish.....	22,428	1,061			375	15			3,000	75
Pinfish.....	22,049	322								
Pompano.....	808	45							500	100
Shad.....			125	25						
Sheepshead.....	120	10							400	20
Spanish mackerel.....										
Fresh.....	5,100	280							300	30
Spot—Fresh.....	33,453	1,620			375	15			21,800	605
Squeteague.....	315,620	26,645			2,300	225			9,400	660
Striped bass.....	5,168	469								
Total.....	562,915	41,583	55,136	1,374	3,885	355	56,630	2,818	121,500	8,669
Total, by seines.....	580,915	46,083	55,136	1,374	3,885	355	56,630	2,818	121,500	8,669

YIELD OF SHORE FISHERIES OF NORTH CAROLINA IN 1918, BY APPARATUS, COUNTIES,  
AND SPECIES—Continued.

BY SEINES—Continued.

Apparatus and species.	New Hanover.		Pender.		Washington.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Purse seines:								
Menhaden.....							300,000	\$1,500
Striped bass.....							18,000	4,500
Shrimp.....							105,040	1,857
Total.....							423,040	7,857
Haul seines:								
Alewives—								
Fresh.....					600,000	\$30,000	930,837	38,321
Salted.....					512,200	25,610	658,200	28,504
Black bass.....							533,364	60,977
Bluefish.....	500	\$62	150	\$13			43,529	4,498
Bowfin.....							25,979	242
Butterfish.....							3,850	217
Carp.....							123,472	4,631
Catfish.....	500	15	1,000	30	1,267	76	114,566	2,602
Croaker.....			6,100	244			74,176	2,413
Drum.....			5,500	380			46,831	1,937
Eels.....							1,512	45
Flounders.....	200	30	4,200	290			7,375	498
Gizzard shad.....							9,371	97
Hickory shad.....							19,060	1,522
Kingfish.....	1,500	187					61,160	4,077
Mullet—								
Fresh.....	20,000	1,750	102,500	9,000			447,165	27,949
Salted.....			20,500	2,190			219,900	25,610
Perch, white.....					2,000	160	354,509	14,362
Perch, yellow.....							154,467	7,200
Pigfish.....			8,150	633			47,572	2,122
Pike.....							15,480	1,441
Pinfish.....							30,049	460
Pompano.....	2,300	345					4,448	591
Shad.....					20,800	4,160	73,585	13,507
Sheepshead.....							6,845	385
Spanish mackerel.....							9,805	755
Spot—								
Fresh.....	19,000	1,450	178,200	9,940			458,946	21,860
Salted.....			3,000	335			24,700	2,505
Squeteague.....	3,500	465	21,200	2,485			610,053	42,753
Striped bass.....							31,673	3,235
Suckers.....							4,890	124
Sunfish.....							104,422	1,026
Yellowtail.....	3,000	180	20,000	965			24,500	1,187
Crabs, soft.....							90,009	9,020
Shrimp.....	120,000	3,000					237,000	6,254
Turtles.....							2,000	11
Total.....	170,500	7,484	370,500	26,505	1,136,267	60,006	5,605,300	332,938
Total, by seines.....	170,500	7,484	370,500	26,505	1,136,267	60,006	6,028,340	340,795

## BY GILL NETS.

Species.	Beaufort.		Bladen.		Brunswick.		Camden.		Carteret.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives: Fresh.....									45,000	\$2,380
Bluefish.....									242,455	22,068
Bonito.....									1,015	27
Butterfish.....									8,975	452
Cero.....									1,758	95
Croaker.....					300	\$9			167,201	5,120
Drum.....									10,250	320
Flounders.....					2,300	108			1,475	83
Hickory shad.....									16,908	1,169
Kingfish.....					1,100	110			100,213	7,106
Menhaden.....									1,740,000	7,395
Mullet:										
Fresh.....					6,000	400			67,225	4,165
Salted.....					50,000	6,000			22,500	4,000
Pigfish: Fresh.....									128,550	4,250
Pinfish.....									13,380	150
Pompano.....									1,353	147
Shad.....	10,440	\$1,740	3,990	\$1,140	2,050	425	17,800	\$4,450	16,124	4,792
Sheepshead.....					300	18			9,264	538
Spanish mackerel.....									98,575	9,757
Spot:										
Fresh.....					3,500	130			538,395	22,293
Salted.....					15,000	1,200				
Squeteague: Fresh.....					6,000	500			1,121,527	95,152
Striped bass.....					1,000	100			25	3
Yellowtail.....									6,608	187
Shark hides.....									19,125	2,868
Other aquatic hides.....									11,050	2,157
Shrimp.....									5,500	220
Turtles.....					500	13			2,000	13
Total.....	10,440	1,740	3,990	1,140	88,050	9,013	17,800	4,450	4,386,451	194,907

YIELD OF SHORE FISHERIES OF NORTH CAROLINA IN 1918, BY APPARATUS, COUNTIES,  
AND SPECIES—Continued.

BY GILL NETS—Continued.

Species.	Chowan.		Columbus.		Craven.		Currituck.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives:								
Fresh.....	4,750	\$120						
Salted.....	1,900	48						
Catfish.....					1,100	\$22		
Croaker.....					350	17		
Flounders.....					250	15		
Hickory shad.....	15,010	1,900			10,940	690		
Mullet: Fresh.....					17,400	1,395		
Perch: White.....					1,400	140		
Shad.....	79,792	17,404	1,575	\$450	9,288	2,433	13,284	\$2,214
Spot: Fresh.....					4,500	194		
Squeteague: Fresh.....					910	83		
Striped bass.....	7,980	1,596			500	50	250	50
Total.....	109,432	21,068	1,575	450	46,638	5,039	13,534	2,264

Species.	Dare.		Gates.		Hertford.		Hyde.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives: Fresh.....			21,688	\$347				
Bluefish.....	15,000	\$1,200					6,600	\$748
Drum.....	16,500	210					250	3
Flounders.....							225	11
Kingfish.....							835	50
Mullet: Salted.....							650	169
Pigfish:								
Fresh.....	15,000	600					500	25
Salted.....	3,125	63						
Pinfish.....	750	15						
Shad.....	151,634	43,512			125	\$25	38,961	6,202
Sheepshead.....	714	50						
Spanish mackerel.....	1,000	50					85	10
Spot:								
Fresh.....	15,000	600					2,500	125
Salted.....	3,125	63						
Squeteague: Fresh.....	6,667	500					14,500	1,114
Sturgeon.....	1,337	328						
Sturgeon caviar.....	311	697						
Total.....	230,163	47,888	21,688	347	125	25	65,166	8,457

Species.	New Hanover.		Onslow.		Pamlico.		Pender.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives: Fresh.....	15,000	\$1,200	177,507	\$6,250				
Bluefish.....			3,400	280				
Butterfish.....					250	\$10		
Croaker.....			9,050	230	1,250	50	400	\$30
Drum.....					5,000	60		
Eels.....			1,645	164				
Flounders.....	100	15						
Hickory shad.....	5,000	400						
Kingfish.....	200	25	18,250	1,220			300	23
Mullet:								
Fresh.....	12,000	1,000	157,024	12,465	4,000	400	29,200	2,250
Salted.....			11,500	1,262	5,800	800	5,000	500
Pigfish: Fresh.....	3,000	300	9,000	350			50	3
Shad.....	38,600	11,275					1,000	275
Sheepshead.....			300	15	850	50		
Spanish mackerel.....	1,500	225			100	10		
Spot: Fresh.....	12,000	900	55,250	3,260	1,250	50	25,100	1,510
Squeteague:								
Fresh.....			94,451	8,593	21,850	1,315	600	45
Salted.....					80	10		
Sturgeon.....	3,500	420						
Sturgeon caviar.....	10	10						
Yellowtail.....					170	5		
Terrapin.....			150	35				
Total.....	90,910	15,770	537,527	34,124	40,600	2,760	61,650	4,636



YIELD OF SHORE FISHERIES OF NORTH CAROLINA IN 1918, BY APPARATUS, COUNTIES,  
AND SPECIES—Continued.

## BY GILL NETS—Continued.

Species.	Perquimans.		Tyrrell.		Washington.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives:								
Fresh.....	68,000	\$1,360			36,500	\$815	368,445	\$12,472
Salted.....	13,000	130					14,900	178
Bluefish.....							267,515	24,296
Bonito.....							1,015	27
Butterfish.....							9,225	462
Carp.....					71	5	71	5
Catfish.....					300	15	1,400	37
Cero.....							1,758	95
Croaker.....							178,551	5,456
Drum.....							32,000	593
Eels.....							1,645	164
Flounders.....							4,350	232
Hickory shad.....					6,125	735	53,983	4,894
Kingfish.....							120,898	8,534
Menhaden.....							1,740,000	7,395
Mullet:								
Fresh.....							292,849	22,075
Salted.....							95,450	12,731
Perch:								
White.....							1,400	140
Yellow.....	625	50					625	50
Pigfish:								
Fresh.....							156,100	5,528
Salted.....							3,125	63
Pinfish.....							14,130	165
Pompano.....							1,353	147
Shad.....	109,600	21,920	875	\$175	26,844	5,253	521,982	123,685
Sheepshead.....							11,428	671
Spanish mackerel.....							101,290	10,052
Spot:								
Fresh.....							657,495	29,062
Salted.....							18,125	1,263
Squeteague:								
Fresh.....							1,266,505	107,302
Salted.....							80	10
Striped bass.....	7,250	1,450	988	238			17,993	3,487
Sturgeon.....							4,837	748
Sturgeon caviar.....							321	707
Yellowtail.....							6,778	192
Shark hides.....							19,125	2,868
Other aquatic hides.....							1,050	157
Shrimp.....							5,500	220
Terrapin.....							150	35
Turtles.....							2,500	26
Total.....	198,475	24,910	1,863	413	69,840	6,823	5,995,917	386,224

## BY POUND NETS.

Species.	Beaufort.		Bertie.		Carteret.		Chowan.		Currituck.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives:										
Fresh.....	189,500	\$3,790	211,845	\$4,209	30,636	\$1,394	4,742,768	\$98,295	49,305	\$2,250
Salted.....			216,039	5,906			3,228,125	87,720		446
Angelfish.....					3,800	155				
Bluefish.....					1,000	90				
Bonito.....					2,000	80				
Butterfish.....	70,099	4,128			57,224	3,680				
Catfish.....	6,400	160	982	20			62,727	2,218	8,125	375
Cero.....					500	50				
Crevalle.....					204	11				
Croaker.....					45,500	1,355				
Drum.....					2,000	37				
Eels.....	835	25					6,860	549		
Flounders.....	5,800	348			2,550	148			3,348	250
Gizzard shad.....							34,629	1,036		
Hickory shad.....	2,700	243	628	31	6,703	280	43,273	3,932		
Kingfish.....					1,750	85				
Menhaden.....					2,000	12				
Perch:										
White.....	2,785	257	2,261	121			72,890	6,333	7,249	319
Yellow.....	1,757	123							2,416	106
Pigfish.....					600	18				
Pike.....							294	28		
Pompano.....	750	60			625	90				
Shad.....	43,017	7,743	5,366	1,182	37,870	8,961	93,680	17,332	13,812	3,125
Sheepshead.....					1,000	60				
Spanish mackerel.....					6,850	620				
Spot.....					2,000	60				
Squeteague.....	150,609	4,912			288,019	14,314				
Striped bass.....	18,807	2,633	333	50	970	130	9,898	1,981	34,063	5,313
Sturgeon.....					540	27				
Suckers.....			131	8			8,693	383		
Turtles.....					3,500	20				
Total.....	492,969	24,422	437,585	11,527	497,841	31,677	8,303,837	219,807	130,401	12,181

YIELD OF SHORE FISHERIES OF NORTH CAROLINA IN 1918, BY APPARATUS, COUNTIES,  
AND SPECIES—Continued.

BY POUND NETS—Continued.

Species.	Craven.		Dare.		Gates.		Hertford.		Hyde.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives:										
Fresh	200	\$10	777,636	\$36,700	52,000	\$832	162,656	\$3,904	87,706	\$3,054
Salted			128,355	4,547						
Angelfish	50	2							5,125	183
Black bass			3,686	442						
Butterfish	30,000	1,200	437,473	12,345					39,626	978
Catfish	100	2	33,081	1,631					2,560	64
Caviar			350	790						
Croaker			5,387	186						
Drum									1,993	43
Eels									1,100	11
Flounders	100	4	19,567	977					10,556	383
Hickory shad	1,000	50	7,467	684					15,112	730
Kingfish			11,815	420					2,500	69
Perch:										
White	300	30	29,701	1,195			792	48	3,078	277
Yellow			9,900	399					700	49
Pigfish									2,250	55
Pompano	25	2	204	12					1,280	92
Shad	2,665	665	729,636	175,760	600	120			70,866	12,194
Spanish mackerel	250	200	21,873	1,761					2,902	232
Spot	300	15	629	12					450	10
Squeteague	20,000	800	578,951	20,555					133,164	3,648
Striped bass	375	75	125,572	18,167					10,829	1,509
Sturgeon			1,539	199						
Total	55,365	3,055	2,922,822	276,782	52,600	952	163,448	3,952	392,130	23,591

Species.	Pamlico.		Perquimans.		Tyrrell.		Washington.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives:										
Fresh	3,750	\$125	82,000	\$1,640	762,350	\$10,417	31,600	\$1,044	7,183,952	\$167,664
Salted			26,000	260	1,151,383	27,623	308,791	7,411	5,070,776	133,913
Angelfish									8,975	340
Black bass									3,686	442
Bluefish									1,000	90
Bonito									2,000	80
Butterfish	80,900	1,645							715,232	23,976
Carp							2,357	165	2,357	165
Catfish					6,350	381	12,180	609	132,505	5,460
Caviar									350	790
Cero									500	50
Crevalle									204	11
Croaker	5,000	100							57,880	1,684
Drum	6,665	50							9,765	98
Eels							2,310	231	10,338	815
Flounders							650	52	42,571	2,162
Gizzard shad							525	21	35,154	1,057
Hickory shad							8,517	1,022	85,400	6,972
Kingfish									16,065	574
Menhaden									2,000	12
Perch:										
White					8,896	838	28,900	2,890	156,852	12,308
Yellow			1,250	100					16,023	777
Pigfish									2,850	73
Pike									294	28
Pompano									2,884	256
Shad	20,250	3,750	25,000	5,000	875	175	17,745	3,472	1,061,382	239,479
Sheepshead									1,000	60
Spanish mackerel	1,000	100							32,875	2,913
Spot									3,379	97
Squeteague	177,100	4,130							1,347,843	48,359
Striped bass			2,000	400	987	237	6,450	1,290	210,284	31,785
Sturgeon									2,079	226
Suckers							2,750	165	11,574	556
Turtles									3,500	20
Total	294,665	9,900	136,250	7,400	1,930,841	39,671	422,775	18,372	16,233,529	683,292

YIELD OF SHORE FISHERIES OF NORTH CAROLINA IN 1918, BY APPARATUS, COUNTIES,  
AND SPECIES—Continued.

## BY FYKE NETS.

Species.	Camden.		Currituck.		Gates.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives.....			6,710	\$167		
Black bass.....			14,075	1,718		
Bowfin.....			8,393	77		
Carp.....			27,269	818		
Catfish.....	2,400	\$120	35,226	528	312	\$25
Crappie.....					340	68
Perch:						
White.....	2,300	230	101,277	4,050		
Yellow.....			52,386	2,095	312	25
Pike.....			4,778	429		
Striped bass.....			1,943	253		
Sunfish.....			19,558	176		
Total.....	4,700	350	271,615	10,311	964	118

Species.	Perquimans.		Tyrrell.		Washington.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives.....							6,710	\$167
Black bass.....							14,075	1,718
Bowfin.....							8,393	77
Carp.....							27,269	818
Catfish.....					600	\$36	38,538	709
Crappie.....	300	\$30	4,700	\$470			5,340	568
Perch:								
White.....					750	60	104,327	4,340
Yellow.....							52,698	2,120
Pike.....							4,778	429
Striped bass.....							1,943	253
Sunfish.....							19,558	176
Total.....	300	30	4,700	470	1,350	96	283,629	11,375

## BY STOP NETS.

Species.	Brunswick.		Total.		Species.	Brunswick.		Total.	
	Pounds.	Value.	Pounds.	Value.		Pounds.	Value.	Pounds.	Value.
Croaker.....	200	\$9	200	\$9	Squeteague.....	500	\$34	500	\$34
Drum.....	1,500	73	1,500	73	Tautog.....	150	9	150	9
Flounders.....	4,500	265	4,500	265	Crabs:				
Kingfish.....	150	8	150	8	Hard.....	650	20	650	20
Mullet.....	1,500	80	1,500	80	Soft.....	40	10	40	10
Pigfish.....	150	9	150	9	Total.....	10,840	605	10,840	605
Sheepshead.....	1,500	88	1,500	88					

## BY LINES.

Apparatus and species.	Brunswick.		Carteret.		Dare.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Hand lines:						
Bluefish.....			1,300	\$100		
Croaker.....			4,200	110		
Flounders.....				325		
Pigfish.....				7,500		
Sea bass.....				12,150		
Sheepshead.....				450		
Spanish mackerel.....				5,000		
Spot.....						
Squeteague.....				41,800		
Total.....	1,150	77	72,725	5,358		
Trot lines: Crabs, hard.....					142,290	\$1,778
Total, by lines.....	1,150	77	72,725	5,358	142,290	1,778

YIELD OF SHORE FISHERIES OF NORTH CAROLINA IN 1918, BY APPARATUS, COUNTIES,  
AND SPECIES—Continued.

## BY LINES—Continued.

Apparatus and species.	New Hanover.		Onslow.		Pender.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Hand lines:								
Bluefish.....					500	\$38	1,800	\$138
Croaker.....					800	30	5,000	140
Drum.....	8,000	\$480			800	40	8,800	520
Flounders.....	5,000	750					5,325	775
Grunt.....	15,000	1,150					15,000	1,150
Kingfish.....	300	37					300	37
Pigfish.....	45,000	4,500			2,500	185	55,000	4,860
Sailor's choice.....	6,000	600					6,000	600
Sea bass.....	50,000	5,000	200	\$25	800	70	64,150	6,203
Sheepshead.....	5,000	600					5,450	635
Spanish mackerel.....							5,000	500
Spot.....							150	7
Squeteague.....	10,000	1,360	45	5	2,000	240	53,845	4,920
Turtles.....	400	20					400	20
Total.....	144,700	14,437	245	30	7,400	603	226,220	20,505
Set lines: Catfish.....	17,500	975					17,500	975
Trot lines: Crabs, hard.....							142,290	1,778
Total, by lines..	162,200	15,412	245	30	7,400	603	386,010	23,258

## BY OTTER TRAWLS.

Species.	Brunswick.		Carteret.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Croaker.....	1,000	\$25			1,000	\$25
Flounders.....	2,000	60			2,000	60
Kingfish.....	2,000	60			2,000	60
Spots.....	3,000	90			3,000	90
Squeteague.....	2,000	60			2,000	60
Shrimp.....	360,000	10,800	222,580	\$4,054	582,580	14,854
Total.....	370,000	11,095	222,580	4,054	592,580	15,149

## BY DREDGES AND CRAB DRAGS.

Apparatus and species.	Beaufort.		Carteret.		Hyde.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Oyster dredges: Oysters, market, public..	20,405	\$1,165			7,000	\$400
Scallop dredges: Scallops.....			404,448	\$29,726		
Total.....	20,405	1,165	404,448	29,726	7,000	400
Crab drags: Crabs, soft.....			38,660	3,725		

Apparatus and species.	Onslow.		Pamlico.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Oyster dredges: Oysters, market, public...			103,250	\$4,620	130,655	\$6,185
Scallop dredges: Scallops.....	7,260	\$850			411,708	30,576
Total.....	7,260	850	103,250	4,620	542,363	36,761
Crab drags: Crabs, soft.....					38,660	3,725

## YIELD OF SHORE FISHERIES OF NORTH CAROLINA IN 1918, BY APPARATUS, COUNTIES, AND SPECIES—Continued.

## BY TONGS, RAKES, AND HAND.

Apparatus and species.	Beaufort.		Brunswick.		Carteret.		Dare.		Hyde.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Tongs:										
Clams, hard.....			4,000	\$750	3,000	\$845				
Oysters, market, public.....	1,400	\$100			275,884	7,368	39,900	\$2,850	24,500	\$1,300
Total.....	1,400	100	4,000	750	278,884	8,213	39,900	2,850	24,500	1,300
Rakes:										
Clams, hard.....			40,000	7,600	43,576	7,127	6,400	1,200		
Scallops.....					900	105				
Total.....			40,000	7,600	44,476	7,232	6,400	1,200		
Hand:										
Clams, hard.....					600	131				
Oysters, market, public.....			4,725	500	90,559	2,180				
Scallops.....					10,224	937				
Terrapin.....					60	57				
Total.....			4,725	500	101,443	3,305				

Apparatus and species.	New Hanover.		Onslow.		Pamlico.		Pender.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Tongs:										
Clams, hard.....			2,000	\$485					9,000	\$2,080
Oysters, market—										
Public.....			18,025	3,050	54,684	\$2,210			414,393	16,878
Private.....			14,700	2,500	3,500	400			18,200	2,900
Total.....			34,725	6,035	58,184	2,610			441,593	21,858
Rakes:										
Clams, hard....	48,000	\$14,500	3,600	1,010			35,200	\$9,800	176,776	41,237
Oysters, market, public.....							7,000	500	7,000	500
Scallops.....									900	105
Total.....	48,000	14,500	3,600	1,010			42,200	10,300	184,676	41,842
Hand:										
Clams, hard.....			11,200	3,150					11,800	3,281
Oysters, market, public....	10,500	600	6,125	700			7,000	500	118,909	4,480
Scallops.....									10,224	937
Terrapin.....									60	57
Total.....	10,500	600	17,325	3,850			7,000	500	140,993	8,755

## BY POTS AND GIGS.

Apparatus and species.	Beaufort.		Carteret.		Craven.		Currituck.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Pots: Eels.....	36,817	\$1,006	1,500	\$150	500	\$40	112,581	\$10,268
Gigs: Flounders.....			3,000	230				

Apparatus and species.	Dare.		New Hanover.		Onslow.		Pender.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Pots: Eels.....	8,000	\$680			1,648	\$165			161,046	\$12,309
Gigs: Flounders.....			5,000	\$750	4,000	310	13,000	\$1,710	25,000	3,030

YIELD OF SHORE FISHERIES OF NORTH CAROLINA IN 1918, BY APPARATUS, COUNTIES,  
AND SPECIES—Continued.

## BY SCOOP, DIP, AND BOW NETS.

Apparatus and species.	Bladen.		Carteret.		Halifax.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Scoop and dip nets:						
Shad.....	87	\$25				
Crabs—						
Hard.....			2,000	\$150		
Soft.....			104,996	11,066		
Total.....	87	25	106,996	11,216		
Bow nets: Striped bass.....					6,635	\$2,770

Apparatus and species.	New Hanover.		Washington.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Scoop and dip nets:						
Alewives.....			250,000	\$20,000	250,000	\$20,000
Shad.....					87	25
Crabs—						
Hard.....	665	\$35			2,665	185
Soft.....					104,996	11,066
Total.....	665	35	250,000	20,000	357,748	31,276
Bow nets: Striped bass.....					6,635	2,770

## INDUSTRIES.

*Menhaden industry.*—In 1918 there were 21 factories in operation as compared with 9 in 1902 and 6 in 1897. These 21 factories were valued at \$905,436, employing cash capital to the amount of \$66,800, and gave employment to 599 persons, to whom \$260,037 were paid in wages. These plants handled 179,910,599 pounds of menhaden, valued at \$1,306,489. Manufactured products included 979,068 gallons of oil, valued at \$761,588, of which 720 gallons, valued at \$540, was shark oil; and 23,088 tons of dried and acidulated scrap, valued at \$1,290,614. Other by-products of the fisheries of the State included 3,100 tons of ground oyster shells, valued at \$18,600, and 20,175 pounds of shark and other aquatic hides, valued at \$3,025, the total value of by-products being \$2,073,827.

*Wholesale trade.*—In 1918 there were 46 wholesale fishery establishments in the coastal region of North Carolina handling fresh and salt fish, oysters, clams, and other fishery products, valued at \$158,950, with a cash capital amounting to \$61,750, and engaging 208 persons to whom \$85,475 were paid in wages.

*Canning industry.*—There were 8 establishments, valued at \$130,715, engaged in canning fishery products and the crushing of oyster shells, employing working capital to the amount of \$30,500, and engaging 500 persons to whom \$49,100 were paid in wages. The products included canned oysters to the value of \$112,334; canned shrimp to the value of \$39,576; canned alewife or river herring roe to the value of \$4,070; canned redfish or red drum to the value of \$450; 392,667 pounds of salted alewives or river herring to the value of \$7,068; and 3,100 tons of crushed oyster shells to the value of \$18,600. The important features of each of the above shore industries are shown in the appended tables.

## INDUSTRIES OF NORTH CAROLINA IN 1918.

## MENHADEN INDUSTRY.

Item.	Number.	Value.	Item.	Number.	Value.
Establishments.....	21	\$905,436	PRODUCTS.		
Cash capital.....		66,800			
Persons engaged.....	599				
Wages paid.....		260,037			
			Oil.....gallons..	<sup>1</sup> 979,068	\$761,588
			Dry scrap.....tons..	9,488	674,850
			Acidulated scrap....do....	13,600	615,764

## WHOLESALE TRADE IN FRESH AND SALTED FISH, OYSTERS, CLAMS, SCALLOPS, AND CRABS.

Establishments.....	46	\$158,950	Persons engaged.....	208	
Cash capital.....		61,750	Wages paid.....		\$85,475

## PREPARED FISHERY PRODUCTS AND CERTAIN BY-PRODUCTS.

Establishments.....	8	\$130,715	Shrimp, canned:		
Cash capital.....		30,500	No. 1 cans.....cases..	<sup>3</sup> 9,200	\$38,256
Persons engaged.....	500		No. 1½ cans.....do....	<sup>1</sup> 550	1,320
Wages paid.....		49,100	Total.....		39,576
PRODUCTS.					
Oysters, canned:			Alewife roe, canned: No. 2		
4-ounce cans.....cases..	<sup>2</sup> 724	1,665	cans.....cases..	<sup>2</sup> 1,100	4,070
Do.....do.....	<sup>3</sup> 1,700	8,500	Redfish, canned: No. 2		
5-ounce cans.....do.....	<sup>2</sup> 23,389	45,034	cans.....cases..	<sup>2</sup> 200	450
Do.....do.....	<sup>3</sup> 5,000	26,500	Alewives, salted.....pounds..	392,667	7,068
8-ounce cans.....do.....	<sup>2</sup> 526	2,420	Oyster shells, crushed (ag-		
10-ounce cans.....do.....	<sup>2</sup> 5,643	28,215	ricultural lime)..pounds..	6,200,000	18,600
Total.....		112,334			

<sup>1</sup> Includes 720 gallons of shark oil, valued at \$540.<sup>3</sup> Four dozen cans per case.<sup>2</sup> Two dozen cans per case.

## FISHERIES OF SOUTH CAROLINA.

The coastal fisheries of South Carolina are less extensive than those of the other South Atlantic States, the products representing only 1.13 per cent of the total quantity and 3.88 per cent of the total value for the region. In 1918 the number of persons employed in the fisheries of this State was 2,000, of whom 103 were on fishing vessels, 20 on vessels transporting fishery products, 1,121 in the shore and boat fisheries, and 756 shoresmen in the wholesale fish establishments and other fishery industries. Compared with 1902, there has been a decrease of 1,713 persons, or 46.14 per cent.

The total investment of the fisheries of the State was \$221,251. This included 43 fishing and transporting vessels, valued at \$39,000, of a net tonnage of 505 tons, and with outfits valued at \$7,840; 690 boats, valued at \$36,410; fishing apparatus used on vessels and boats to the value of \$22,126; shore and accessory property worth \$95,775, and working cash capital to the value of \$20,100.

The total yield of the fisheries in 1918 was 3,746,932 pounds, valued at \$207,690, representing a decrease as compared with 1902 of 4,427,531 pounds, or 54.16 per cent in quantity, and \$55,333, or 21.03 per cent in value. The five most important species arranged in order of value were as follows: Oysters, 2,783,830 pounds, or 397,690 bushels, valued at \$96,542; shad, 167,462 pounds, valued at \$29,085;

sturgeon, including sturgeon caviar, 117,890 pounds, valued at \$22,025; mullet, fresh and salted, 200,750 pounds, valued at \$19,129; and sea bass, 132,000 pounds, valued at \$13,200. Compared with 1902, there has been a decrease in the take of oysters of 292,010 bushels; of shad, of 266,671 pounds; an increase in the catch of sturgeon of 33,275 pounds, but a decrease of 9,535 pounds in the production of caviar; an increase in the catch of mullet of 62,150 pounds; and a decrease in the catch of sea bass amounting to 577,545 pounds. For years there has been a small fishery for sharks for food, the catch in 1918 amounting to 20,000 pounds, a decrease of 70,000 pounds as compared with 1902.

## FISHERIES BY COUNTIES.

The following table gives, by counties, the number of persons employed, investment, and products of the fisheries of South Carolina in 1918.

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF SOUTH CAROLINA IN 1918, BY COUNTIES.

Item.	Beaufort.		Charleston.		Colleton.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing.....	81		6			
On vessels transporting.....			20			
In shore fisheries.....	277		358		80	
Shoresmen.....	444		299			
<b>Total.....</b>	<b>802</b>		<b>683</b>		<b>80</b>	
<b>INVESTMENT.</b>						
Vessels fishing:						
Gasoline.....			2	\$3,005		
Tonnage.....			24			
Outfit.....				275		
Sail.....	33	\$20,995				
Tonnage.....	357					
Outfit.....		4,415				
Vessels transporting: Gasoline.....			7	11,000		
Tonnage.....			74			
Outfit.....				1,350		
Boats:						
Sail and row.....	286	8,760	238	4,025	40	\$1,000
Power.....			24	10,900	2	800
Apparatus, vessel fisheries:						
Tongs.....	81	443				
Grabs.....	78	78	6	6		
Apparatus, shore fisheries:						
Haul seines.....			4	60		
Gill nets.....	14	800	25	2,800	41	1,570
Cast nets.....			71	155		
Lines.....		10		505		
Otter trawls.....			1	50		
Tongs and rakes.....	196	1,095	8	36		
Grabs.....	243	242	102	109		
Shore and accessory property.....		55,915		33,045		1,200
Cash capital.....		8,100		10,500		
<b>Total.....</b>		<b>100,853</b>		<b>77,821</b>		<b>4,570</b>
<b>PRODUCTS.</b>						
	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Black drum.....			5,000	\$225		
Bluefish.....			1,500	140		
Catfish.....			2,500	100		
Crevalle.....			300	65		
Croaker.....	3,500	\$275	8,800	585		
Flounders.....			1,000	130		
Grunts.....			100	6		
King whiting.....	2,525	300	35,650	4,250		
Mullet, fresh.....			3,300	125		
Pinfish or sailor's choice.....			2,000	130		
Porgies.....			2,000	130		



PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF SOUTH CAROLINA IN 1918, BY COUNTIES—Continued.

Item.	Beaufort.		Charleston.		Colleton.	
	Number.	Value.	Number.	Value.	Number.	Value.
PERSONS ENGAGED.						
Redfish or red drum.....			1,000	\$60		
Sea bass.....			72,000	7,200		
Shad.....	8,762	\$1,400	20,700	3,260	32,600	\$5,110
Sharks.....			20,000	175		
Sheepshead.....			1,500	150		
Skates.....			2,000	15		
Spot, fresh.....	1,000	75	1,200	75		
Squeteague or "sea trout".....	5,000	600	46,500	3,640		
Sturgeon.....	4,101	735	324	97	2,800	504
Sturgeon caviar.....	75	56			70	50
Shrimp.....			55,400	6,220		
Crabs:						
Hard.....			18,000	400		
Soft.....			300	75		
Clams, hard.....			800	200		
Terrapin.....			1,275	545		
Oysters, market:						
Public.....	1,562,085	49,023	1,069,670	34,869		
Private.....	133,000	9,300	19,075	3,350		
Total.....	1,720,048	61,764	1,391,894	66,217	35,470	5,664

Item.	Georgetown.		Horry.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
PERSONS ENGAGED.						
On vessels fishing.....	16				103	
On vessels transporting.....					20	
In shore fisheries.....	192		214		1,121	
Shoresmen.....	8		5		756	
Total.....	216		219		2,000	
INVESTMENT.						
Vessels fishing:						
Gasoline.....	1	\$4,000			3	\$7,005
Tonnage.....	50				74	
Outfit.....		1,800				2,075
Sail.....					33	20,995
Tonnage.....					357	
Outfit.....						4,415
Vessels transporting: Gasoline.....					7	11,000
Tonnage.....					74	
Outfit.....						1,350
Boats:						
Sail and row.....	46	1,030	29	\$995	639	15,810
Power.....	24	8,750	1	150	51	20,600
Apparatus, vessel fisheries:						
Lines.....		100				100
Tongs.....					81	443
Grabs.....					84	84
Apparatus, shore fisheries:						
Haul seines.....	5	390	16	2,100	25	2,550
Gill nets.....	153	11,355			233	16,525
Stop nets.....			2	130	2	130
Bow nets.....	5	25			5	25
Cast nets.....					71	155
Gigs or spears.....	26	20	10	7	36	27
Lines.....						515
Otter trawls.....	1	40			2	90
Tongs and rakes.....					204	1,131
Grabs.....					345	351
Shore and accessory property.....		4,165		1,450		95,775
Cash capital.....		1,500				20,100
Total.....		33,175		4,832		221,251

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF SOUTH CAROLINA IN 1918, BY COUNTIES—Continued.

Item.	Georgetown.		Horry.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS.						
Alewives.....	9,500	\$175			9,500	\$175
Black drum.....					5,000	225
Bluefish.....			1,500	\$135	3,000	275
Butterfish.....			600	45	600	45
Catfish.....	400	8			2,900	108
Crevalle.....					300	65
Croaker.....	1,300	88	2,400	114	16,000	1,062
Flounders.....	14,500	875	700	56	16,200	1,061
Grunts.....					100	6
Hickory shad.....	20,500	2,000			20,500	2,000
King whiting.....	250	17	1,700	140	40,125	4,707
Mullet:						
Fresh.....	35,600	2,495	19,150	1,603	58,050	4,223
Salted.....	3,400	370	139,300	14,536	142,700	14,906
Pinfish or sailor's choice.....			300	18	2,300	148
Porgies.....					2,000	130
Redfish or red drum.....					1,000	60
Sea bass.....	60,000	6,000			132,000	13,200
Shad.....	105,400	19,315			167,462	29,085
Sharks.....					20,000	175
Sheepshead.....			600	60	2,100	210
Skates.....					2,000	15
Spot:						
Fresh.....	20,000	1,060	14,800	1,144	37,000	2,354
Salted.....			25,550	2,085	25,550	2,085
Squeteague or "sea trout".....	3,550	246	4,100	360	59,150	4,846
Sturgeon.....	110,000	19,800			117,225	21,136
Sturgeon caviar.....	520	783			665	889
Sunfish.....			3,000	180	3,000	180
Yellowtail or "silver perch".....	400	12	500	25	900	37
Shrimp.....					55,400	6,220
Crabs:						
Hard.....					18,000	400
Soft.....					300	75
Clams, hard.....					800	200
Terrapin.....					1,275	545
Oysters, market:						
Public.....					<sup>4</sup> 2,631,755	83,892
Private.....					<sup>6</sup> 152,075	12,650
Total.....	385,320	53,544	214,200	20,501	3,746,932	207,690

<sup>1</sup> 54,000 in number.<sup>2</sup> 900 in number.<sup>3</sup> 100 bushels.<sup>4</sup> 375,965 bushels.<sup>6</sup> 21,725 bushels.

## FISHERIES BY APPARATUS.

The combined yield of the vessel and shore fisheries of South Carolina in 1918 with all forms of apparatus amounted to 3,746,932 pounds, valued at \$207,690. Grabs were the most productive form of gear used, taking 283,288 bushels of oysters, valued at \$67,139. The catch with gill nets, consisting chiefly of shad and sturgeon, amounted to 350,902 pounds, valued at \$55,827. The catch of oysters with tongs amounted to 114,402 bushels, valued at \$29,403. Sea bass, king whiting, and squeteague were the principal species taken with lines, the total catch with this form of apparatus being 291,575 pounds, valued at \$24,751. The catch with seines was 237,375 pounds, valued at \$22,439, of which 176,350 pounds, valued at \$17,531, were mullet.

The two leading forms of apparatus used in the shore fisheries were gill nets and grabs. Other kinds of gear used in the shore fisheries were seines, cast nets, otter trawls, gigs, stop nets, bow nets, and rakes.

Only three forms of fishing apparatus were employed in the vessel fisheries, namely, grabs, tongs, and lines.

The products of the vessel and shore or boat fisheries are shown in the following tables:

YIELD OF VESSEL FISHERIES OF SOUTH CAROLINA IN 1918, BY COUNTIES, APPARATUS, AND SPECIES.

Apparatus and species.	Beaufort.		Charleston.		Georgetown.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Lines: Sea bass.....					60,000	\$6,000	60,000	\$6,000
Tongs: Oysters, market, public.....	440,048	\$12,216					440,048	12,216
Grabs: Oysters, market, public.....	435,148	12,076	66,500	\$13,976			501,648	26,052
Total.....	875,196	24,292	66,500	13,976	60,000	6,000	1,001,696	44,268

YIELD OF SHORE FISHERIES OF SOUTH CAROLINA IN 1918, BY APPARATUS, COUNTIES, AND SPECIES.

BY GILL NETS.

Species.	Beaufort.		Charleston.		Georgetown.		Colleton.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives.....					9,500	\$475			9,500	\$475
Catfish.....					400	8			400	8
Croaker.....					700	47			700	47
Flounders.....					500	25			500	25
Hickory shad.....					19,250	1,900			19,250	1,900
King whiting.....					200	14			200	14
Mullet:										
Fresh.....					19,500	1,300			19,500	1,300
Salted.....					1,000	125			1,000	125
Shad.....	8,762	\$1,400	20,700	\$3,260	105,400	19,315	32,600	\$5,110	167,462	29,085
Spots.....					13,000	720			13,000	720
Squeteague.....					1,500	103			1,500	103
Sturgeon.....	4,101	735	324	97	110,000	19,800	2,800	504	117,225	21,136
Sturgeon caviar.....	75	56			520	783	70	50	665	889
Total.....	12,938	2,191	21,024	3,357	281,470	44,615	35,470	5,664	350,902	55,827

BY ALL OTHER APPARATUS.

Apparatus and species.	Beaufort.		Charleston.		Georgetown.		Horry.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Seines:										
Bluefish.....							1,500	\$135	1,500	\$135
Butterfish.....							600	45	600	45
Croaker.....					600	\$41	2,400	114	3,000	155
Flounders.....					2,000	100	600	48	2,600	148
King whiting.....					50	3	1,700	140	1,750	143
Mullet—										
Fresh.....					16,100	1,195	18,550	1,555	34,650	2,750
Salted.....					2,400	245	139,300	14,536	141,700	14,781
Sailor's choice.....							300	18	300	18
Sheepshead.....							600	60	600	60
Spots—										
Fresh.....					7,000	340	13,800	1,064	20,800	1,404
Salted.....							18,550	1,535	18,550	1,535
Squeteague.....					2,050	143	4,100	360	6,150	503
Sunfish.....							3,000	180	3,000	180
Yellowtail.....					400	12	500	25	900	37
Terrapin.....			1,275	\$545					1,275	545
Total.....			1,275	545	30,600	2,079	205,500	19,815	237,375	22,439
Otter trawls:										
Shrimp.....			30,000	1,200					30,000	1,200
Bow nets: hickory shad.....					1,250	100			1,250	100

## YIELD OF SHORE FISHERIES OF SOUTH CAROLINA IN 1918, BY APPARATUS, COUNTIES, AND SPECIES—Continued.

BY ALL OTHER APPARATUS—Continued.

Apparatus and species.	Beaufort.		Charleston.		Georgetown.		Horry.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Cast nets:										
Catfish.....			1,000	\$25					1,000	\$25
Croaker.....			800	25					800	25
Mullet.....			3,300	125					3,300	125
Shrimp.....			25,400	5,020					25,400	5,020
Total.....			30,500	5,195					30,500	5,195
Stop nets:										
Flounders.....							100	\$8	100	8
Mullet.....							600	48	600	48
Spots—										
Fresh.....							1,000	80	1,000	80
Salted.....							7,000	550	7,000	550
Total.....							8,700	686	8,700	686
Gigs or spears:										
Flounders.....					12,000	\$750			12,000	750
Lines:										
Black drum.....			5,000	225					5,000	225
Bluefish.....			1,500	140					1,500	140
Catfish.....			1,500	75					1,500	75
Channel bass.....			1,000	60					1,000	60
Crevalle.....			300	65					300	65
Croaker.....	3,500	\$275	8,000	560					11,500	835
Flounders.....			1,000	130					1,000	130
Grunts.....			100	6					100	6
King whiting.....	2,525	300	35,650	4,250					38,175	4,550
Porgy.....			2,000	130					2,000	130
Sailor's choice.....			2,000	130					2,000	130
Sea bass.....			72,000	7,200					72,000	7,200
Sheepshead.....			1,500	150					1,500	150
Spots.....	1,000	75	1,200	75					2,200	150
Squeteague.....	5,000	600	46,500	3,640					51,500	4,240
Sharks.....			20,000	175					20,000	175
Skates.....			2,000	15					2,000	15
Crabs—										
Hard.....			18,000	400					18,000	400
Soft <sup>1</sup> .....			300	75					300	75
Total.....	12,025	1,250	219,550	17,501					231,575	18,751
Tongs: Oysters, market—										
Public.....	304,941	11,987	1,750	250					306,691	12,237
Private.....	45,500	3,450	8,575	1,500					54,075	4,950
Total.....	350,441	15,437	10,325	1,750					360,766	17,187
Grabs: Oysters, market—										
Public.....	381,948	12,744	1,001,420	20,643					1,383,368	33,387
Private.....	87,500	5,850	10,500	1,850					98,000	7,700
Total.....	469,448	18,594	1,011,920	22,493					1,481,368	41,087
Rakes: Clams, hard.....			800	200					800	200

<sup>1</sup> Taken with the hands.

## INDUSTRIES.

*Wholesale trade.*—In 1918 there were 6 wholesale establishments, valued at \$51,820, with cash capital amounting to \$8,100, employing 59 persons, to whom \$40,678 were paid in wages.

*Oyster-canning industry.*—In addition to those given above, there were 9 establishments engaged in the canning of oysters and utilization of shells, valued at \$121,925, using cash capital to the amount of

\$12,000, employing 592 persons, to whom \$60,985 were paid in wages during the year. The pack amounted to 2,769,168 cans of various sizes, valued at \$338,843.

The following table contains statistics of the canning industry for South Carolina in 1918:

OYSTER-CANNING INDUSTRY IN SOUTH CAROLINA IN 1918.

Item.	Number.	Value.	Item.	Number.	Value.
Establishments.....	9	\$121,925	PRODUCTS—continued.		
Cash capital.....		12,000	Oysters canned—Continued.		
Persons engaged.....	592		5-ounce cans.....cases..	2 50,495	\$154,028
Wages paid.....		60,985	Do.....do.....	2 23,705	117,235
PRODUCTS. <sup>1</sup>			6-ounce cans.....do.....	2 100	800
Oysters canned:			8-ounce cans.....do.....	2 1,826	7,690
3-ounce cans.....cases..	2 401	1,746	10-ounce cans.....do.....	2 9,190	45,700
4-ounce cans.....do.....	2 880	1,822	Total.....		338,843
Do.....do.....	2 2,289	9,822			

<sup>1</sup> The by-products are included with the statistics for Georgia.

<sup>2</sup> Two dozen cans per case.

<sup>3</sup> Four dozen cans per case.

FISHERIES OF GEORGIA.

In 1918 the fisheries of Georgia gave employment to 1,680 persons, of whom 188 were on fishing and transporting vessels, 476 in the shore fisheries, and 1,016 shoresmen in the wholesale fishery trade and oyster and shrimp canning industry.

The investment amounted to \$769,998, which includes 33 fishing and transporting vessels, valued at \$122,663, with a net tonnage of 552 tons and outfits valued at \$41,866; 412 power and other boats, valued at \$86,205; fishing apparatus employed on vessels and boats, valued at \$17,085; shore and accessory property, valued at \$429,779; and cash capital amounting to \$72,400.

The products amounted to 37,153,953 pounds, valued at \$416,043, and represent an increase of 26,051,343 pounds in quantity and \$56,962 in value as compared with 1902. The 5 most important products, arranged in the order of their value, are as follows: Shrimp, 5,793,465 pounds, valued at \$173,990; menhaden, 29,484,600 pounds, valued at \$88,453; oysters, 1,109,822 pounds, or 158,546 bushels, valued at \$73,913; shad, 100,540 pounds, valued at \$26,960; and sea bass, 292,615 pounds, valued at \$23,765. Compared with 1902, there has been an increase in the catch of shrimp of 5,449,338 pounds in quantity and \$165,582 in value, and an increase in the catch of sea bass amounting to 216,115 pounds in quantity and \$17,683 in value; a decrease in the take of oysters amounting to 7,458,178 pounds, or 1,065,454 bushels, in quantity, and \$146,554 in value; a decrease of 928,510 pounds in quantity of shad and \$48,229 in value; a decrease in the catch of mullet amounting to 115,150 pounds in quantity and \$1,883 in the value; and a decrease in the catch of terrapin amounting to 31,196 pounds in quantity and \$10,682 in value. In 1902 there was no fishery for menhaden in the State.

## FISHERIES BY COUNTIES.

The following table shows, by counties, the number of persons employed, number and value of vessels, boats and apparatus used, amount of capital invested, and the quantity and value of the products of the fisheries in 1918.

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF GEORGIA IN 1918, BY COUNTIES.

Item.	Bryan.		Camden.		Chatham.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing.....			102		54	
In shore fisheries.....	21		68		183	
Shoreshmen.....			191		316	
<b>Total.....</b>	<b>21</b>		<b>361</b>		<b>553</b>	
<b>INVESTMENT.</b>						
Vessels fishing:						
Gasoline.....			7	\$56,900	7	\$37,040
Tonnage.....			215		176	
Outfit.....				28,233		9,308
Sail.....					5	2,315
Tonnage.....					44	
Outfit.....						325
Boats:						
Sail, row, etc.....	21	\$315	22	1,115	186	5,850
Power.....			25	24,400	10	2,225
Apparatus, vessel fisheries:						
Purse seines.....			4	4,800		
Lines.....						105
Otter trawls.....			3	160		
Dredges.....					6	300
Tongs.....					13	76
Grabs.....					13	12
Apparatus, shore fisheries:						
Gill nets.....	21	735	16	1,050	38	1,260
Lines.....				2		
Otter trawls.....			23	1,200		
Tongs.....					160	835
Grabs.....					160	162
Shore and accessory property.....		25		77,145		194,130
Cash capital.....				14,000		36,600
<b>Total.....</b>		<b>1,075</b>		<b>299,005</b>		<b>290,543</b>
<b>PRODUCTS.</b>						
	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Bluefish.....					5,000	\$900
Cero, or kingfish.....					74	7
Flounders.....					500	55
Groupers.....					27,758	1,019
Grunts.....					512	26
King whiting.....					100	12
Menhaden.....			29,484,600	\$88,453		
Mullet.....					3,000	240
Redfish, or red drum.....					24	4
Red snapper.....					111,749	7,740
Scup.....					12,000	900
Sea bass.....			125	10	291,490	23,655
Shad.....	13,500	\$3,262	61,250	18,000	14,502	3,505
Sharks.....					1,289	30
Sheepshead.....			175	10		
Squeteague, or "sea trout".....			850	50	3,700	385
Striped bass.....			125	10		
Tilefish.....					35,000	2,400
Shrimp.....			1,290,818	39,046		
Oysters, market:						
Public.....			37,800	1,400	412,930	28,364
Private.....					261,079	24,288
Octopus.....					2,731	268
Terrapin.....					2,030	419
<b>Total.....</b>	<b>13,500</b>	<b>3,262</b>	<b>33,875,743</b>	<b>146,979</b>	<b>1,185,468</b>	<b>94,217</b>

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF GEORGIA  
IN 1918, BY COUNTIES—Continued.

Item.	Effingham.		Glynn.		Liberty.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing.....			30			
On vessels transporting.....			2			
In shore fisheries.....	3		116		16	
Shoresmen.....			382		37	
Total.....	3		530		53	
<b>INVESTMENT.</b>						
Vessels fishing:						
Gasoline.....			13	\$25,908		
Tonnage.....			108			
Outfit.....				3,875		
Vessels transporting, gasoline.....			1	500		
Tonnage.....			9			
Outfit.....				125		
Boats:						
Sail, row, etc.....	3	\$45	23	320	14	\$195
Power.....			52	46,725	1	600
Apparatus, vessel fisheries:						
Otter trawls.....			9	545		
Tongs.....			8	60		
Grabs.....			8	12		
Apparatus, shore fisheries:						
Haul seines.....			2	80		
Gill nets.....	3	100	6	15	4	45
Lines.....				6		
Otter trawls.....			48	2,400		
Tongs.....			10	75	12	70
Grabs.....			10	15	12	12
Shore and accessory property.....		5		127,764		13,500
Cash capital.....				18,000		800
Total.....		150		226,425		15,222
<b>PRODUCTS.</b>						
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Croaker.....			5,600	\$235		
Flounders.....			10,000	575		
Hickory shad.....					195	\$25
King whiting.....			26,200	1,397		
Mullet.....			2,500	100		
Redfish, or red drum.....			100	6		
Red snapper.....			600	70		
Sea bass.....			1,000	100		
Shad.....	4,998	\$483			605	111
Spot.....			1,100	59		
Squeteague, or "sea trout".....			27,700	2,962		
Yellowtail, or "silver perch".....			2,000	100		
Crabs, hard.....			8,455	504		
Shrimp.....			4,412,647	132,350		
Clams, hard.....			120	75		
Oysters, market:						
Public.....			5,600	400		
Private.....			115,332	2,141	154,021	6,600
Terrapin.....			82	35		
Turtles.....			11,250	100		
Total.....	1,998	483	4,630,286	141,209	154,821	6,736

Item.	McIntosh.		Wayne.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing.....					186	
On vessels transporting.....					2	
In shore fisheries.....	49		20		476	
Shoresmen.....	90				1,016	
Total.....	139		20		1,680	

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF GEORGIA  
IN 1918, BY COUNTIES—Continued.

Item.	McIntosh.		Wayne.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>INVESTMENT.</b>						
Vessels fishing:						
Gasoline.....					27	\$119,848
Tonnage.....					499	
Outfit.....						41,416
Sail.....					5	2,315
Tonnage.....					44	
Outfit.....						325
Vessels transporting, gasoline.....					1	500
Tonnage.....					9	
Outfit.....						125
Boats:						
Sail, row, etc.....	34	\$860	10	\$105	313	8,805
Power.....	11	3,430			99	77,400
Apparatus, vessel fisheries:						
Purse seines.....					4	4,800
Lines.....						105
Otter trawls.....					12	705
Dredges.....					6	300
Tongs.....					21	136
Grabs.....					21	24
Apparatus, shore fisheries:						
Haul seines.....					2	80
Gill nets.....	18	2,425	33	325	139	5,955
Cast nets.....	1	3			1	3
Lines.....		5				13
Otter trawls.....	2	100			73	3,700
Tongs.....	8	60			190	1,040
Grabs.....	28	35			210	224
Shore and accessory property.....		17,200		10		429,779
Cash capital.....		3,000				72,400
Total.....		27,138		440		769,998
<b>PRODUCTS.</b>						
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Bluefish.....					5,600	\$900
Catfish.....	2,675	\$265			2,675	265
Cero, or kingfish.....					74	7
Croaker.....	300	20			5,900	255
Flounders.....	300	20			10,800	650
Groupers.....					27,758	1,019
Grunts.....					512	26
Hickory shad.....	7,887	1,350	4,925	\$660	13,007	2,035
King whiting.....	930	59			27,230	1,468
Menhaden.....					29,484,600	88,453
Mullet.....	5,150	353			10,650	693
Redfish, or red drum.....	1,550	102			1,674	112
Red snapper.....					112,349	7,810
Scup.....					12,000	900
Sea bass.....					292,615	23,765
Shad.....	2,485	519	6,200	1,080	100,540	26,960
Sharks.....					1,289	30
Sheepshead.....	225	15			400	25
Spot.....					1,100	59
Squeteague, or "sea trout".....	7,300	700			39,550	4,097
Striped bass.....					125	10
Sturgeon.....	33,150	4,700			39,150	4,700
Tilefish.....					35,000	2,400
Yellowtail, or "silver perch".....					2,000	100
Crabs, hard.....					<sup>1</sup> 8,455	504
Shrimp.....	90,000	2,594			5,793,465	173,990
Clams, hard.....					<sup>2</sup> 120	75
Oysters, market:						
Public.....	25,200	720			<sup>3</sup> 481,530	30,884
Private.....	97,860	10,000			<sup>4</sup> 628,292	43,029
Octopus.....					2,731	268
Terrapin.....					2,112	454
Turtles.....					11,250	100
Total.....	281,012	21,417	11,125	1,740	37,153,953	416,043

<sup>1</sup> 25,365 in number.<sup>2</sup> 15 bushels.<sup>3</sup> 68,790 bushels.<sup>4</sup> 89,726 bushels.



## FISHERIES BY APPARATUS.

The yield of all forms of apparatus in Georgia in 1918 amounted to 37,153,953 pounds, valued at \$416,043. In the value of their product, otter trawls, employed chiefly in the taking of shrimp, ranked first, with a catch of 5,838,115 pounds, valued at \$175,705. Exceeding all other forms of apparatus in quantity, but ranking second in the value of their catch, purse seines took 29,484,600 pounds of menhaden, valued at \$88,453. The yield of the gill-net fishery amounted to 203,332 pounds, valued at \$38,705, of which 100,540 pounds, valued at \$26,960, were shad. The catch with lines was 505,712 pounds, valued at \$38,224, the principal species taken by this apparatus in the order of their value being: Sea bass, red snapper, tilefish, and groupers. Oysters were taken with tongs to the amount of 486,444 pounds, or 69,492 bushels, valued at \$32,029, and with grabs to the amount of 468,678 pounds, or 66,954 bushels, valued at \$31,384. The combined take of oysters with these two forms of gear amounted to 136,446 bushels, valued at \$63,413.

Aside from purse seines, lines, and otter trawls used in the vessel fisheries, the only other forms of apparatus employed were dredges, tongs, and grabs, all of which were engaged in taking oysters.

The bulk of the catch in the shore fisheries was made with otter trawls, gill nets, tongs, and grabs, the remainder being taken by hand and with lines, seines, and cast nets.

The products of the vessel and shore or boat fisheries are shown in the appended tables.

YIELD OF VESSEL FISHERIES OF GEORGIA IN 1918, BY COUNTIES, APPARATUS, AND SPECIES.

Apparatus and species.	Camden.		Chatham.		Glynn.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Purse seines: Menhaden....	29,484,600	\$88,453					29,484,600	\$88,453
Lines:								
Bluefish.....			5,000	\$500			5,000	900
Cero, or kingfish.....			74	7			74	7
Flounders.....			500	55			500	55
Groupers.....			27,778	1,019			27,758	1,019
Grunts.....			512	26			512	26
Redfish, or red drum.....			24	4			24	4
Red snapper.....			111,749	7,740			111,749	7,740
Scup.....			12,000	900			12,000	900
Sea bass.....			291,490	23,655			291,490	23,655
Sharks.....			1,289	30			1,289	30
Squeteague, or "sea trout".....			2,500	185			2,500	185
Tilefish.....			35,000	2,400			35,000	2,400
Octopus.....			2,731	268			2,731	268
Total.....			490,627	37,189			490,627	37,189
Otter trawls: Shrimp.....	155,655	4,600			410,665	\$11,800	566,320	16,400
Dredges: Oysters, market, private.....			116,900	9,100			116,900	9,100
Tongs: Oysters, market—								
Public.....			39,900	2,100			39,900	2,100
Private.....			3,500	300	43,120	800	46,620	1,100
Total.....			43,400	2,400	43,120	800	86,520	3,200
Grabs: Oysters, market—								
Public.....			37,275	1,875			37,275	1,875
Private.....			3,500	300	43,078	800	46,578	1,100
Total.....			40,775	2,175	43,078	800	83,853	2,975
Grand total.....	29,640,255	93,053	691,702	50,864	496,863	13,400	30,828,820	157,317

## YIELD OF SHORE FISHERIES OF GEORGIA IN 1918, BY APPARATUS, COUNTIES, AND SPECIES.

## BY GILL NETS.

Species.	Bryan.		Camden.		Chatham.		Effingham.		Glynn.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Flounders.....									5,000	\$325
King whiting.....					100	\$12			5,000	325
Mullet.....					3,000	240				
Red snapper.....									600	70
Sea bass.....									1,000	100
Shad.....	13,500	\$3,262	61,250	\$18,000	14,502	3,505	1,998	\$483		
Spot.....									500	24
Squeteague, or "sea trout".....					1,200	200			25,000	2,800
Terrapin.....					2,030	419				
Total.....	13,500	3,262	61,250	18,000	20,832	4,376	1,998	483	37,100	3,644

Species.	Liberty.		McIntosh.		Wayne.		Total.		
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	
Flounders.....			150	\$10			5,150	\$335	
Hickory shad.....	195	\$25	7,887	1,350	4,925	\$660	13,007	2,035	
King whiting.....			30	2			5,130	339	
Mullet.....			4,400	303			7,400	513	
Redfish, or red drum.....			650	45			650	45	
Red snapper.....							600	70	
Sea bass.....							1,000	100	
Shad.....	605	111	2,485	519	6,200	1,080	100,540	26,960	
Sheepshead.....			75	5			75	5	
Spot.....							500	24	
Squeteague, or "sea trout".....			1,900	130			28,100	3,130	
Sturgeon.....			39,150	4,700			39,150	4,700	
Terrapin.....							2,030	419	
Total.....		800	136	56,727	7,064	11,125	1,740	203,332	38,705

## BY SEINES, OTTER TRAWLS, CAST NETS, LINES, AND HAND.

Apparatus and species.	Camden.		Glynn.		McIntosh.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>Seines:</b>								
Croakers.....			600	\$35			600	\$35
King whiting.....			1,200	72	300	\$17	1,500	89
Mullet.....			2,500	100			2,500	100
Redfish, or red drum.....			100	6	300	17	400	23
Spot.....			600	35			600	35
Squeteague, or "sea trout".....			1,200	72	4,400	500	5,600	572
Crabs, hard.....			120	4			120	4
Shrimp.....			100	25			100	25
Total.....			6,420	349	5,000	534	11,420	883
<b>Otter trawls:</b>								
Croakers.....			5,000	200			5,000	200
Flounders.....			5,000	250			5,000	250
King whiting.....			20,000	1,000			20,000	1,000
Squeteague, or "sea trout".....			1,500	90			1,500	90
Yellowtail, or "silver perch".....			2,000	100			2,000	100
Shrimp.....	1,135,163	\$34,446	4,001,882	120,525	90,000	2,594	5,227,045	157,565
Turtles.....			11,250	100			11,250	100
Total.....	1,135,163	34,446	4,046,632	122,265	90,000	2,594	5,271,795	159,305
Cast nets: Mullet.....					750	50	750	50
<b>Lines:</b>								
<b>Hand lines—</b>								
Croakers.....					300	20	300	20
Flounders.....					150	10	150	10
King whiting.....					600	40	600	40
Redfish, or red drum.....					600	40	600	40
Sea bass.....	125	10					125	10
Sheepshead.....	175	10			150	10	325	20
Squeteague, or "sea trout".....	850	50			1,000	70	1,850	120
Striped bass.....	125	10					125	10
Total.....	1,275	80			2,800	190	4,075	270
Set lines—catfish.....					2,675	265	2,675	265
Trot lines—crabs, hard.....			8,335	500			8,335	500
Total, by lines.....	1,275	80	8,335	500	5,475	455	15,085	1,035
<b>Hand:</b>								
Terrapin.....			82	35			82	35
Clams, hard.....			120	75			120	75
Oyster, market, public.....	37,800	1,400					37,800	1,400
Total.....	37,800	1,400	202	110			38,002	1,510

## YIELD OF SHORE FISHERIES OF GEORGIA IN 1918, BY APPARATUS, COUNTIES, AND SPECIES—Continued.

## BY TONGS AND GRABS.

Apparatus and species.	Chatham.		Glynn.		Liberty.		McIntosh.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Tongs: Oysters, market:										
Public.....	167,881	\$12,195	2,800	\$200	84,021	\$3,600	12,600	\$360	183,281	\$12,755
Private.....	67,536	7,174	16,156	300	84,021	\$3,600	48,930	5,000	216,643	16,074
Total.....	235,417	19,369	18,956	500	84,021	3,600	61,530	5,360	399,924	28,829
Grabs: Oysters, market:										
Public.....	167,874	12,194	2,800	200	70,000	3,000	12,600	360	183,274	12,754
Private.....	69,643	7,414	12,978	241	70,000	3,000	48,930	5,000	201,551	15,655
Total.....	237,517	19,608	15,778	441	70,000	3,000	61,530	5,360	384,825	28,409

## INDUSTRIES.

*Wholesale trade.*—In 1918 there were 18 establishments, valued at \$237,575, in operation. These used working cash capital to the amount of \$33,000 and gave employment to 223 persons, to whom \$66,900 were paid in wages.

*Canning industry.*—There were 10 establishments, valued at \$265,444, engaged in canning oysters, shrimp, etc., in preparing cooked shrimp for market, and in crushing oyster shells. These used cash capital to the amount of \$30,300 and gave employment to 634 persons, to whom \$129,075 were paid in wages. The products included canned oysters to the value of \$93,208; canned shrimp to the value of \$355,548; 40 cases of canned flounders, valued at \$200; 464,983 pounds of cooked shrimp, valued at \$103,889; poultry grit from ground oyster shells, 127 tons, valued at \$1,525; and lime from oyster shells, 18 tons, valued at \$99.

## PREPARED FISHERY PRODUCTS AND BY-PRODUCTS OF GEORGIA IN 1918.

Item.	Number.	Value.	Item.	Number.	Value.
Establishments.....	10	\$265,444	PRODUCTS—continued.		
Cash capital.....		30,300	Shrimp, canned:		
Persons engaged.....	634		No. 1 cans.....cases..	<sup>2</sup> 55,706	\$295,567
Wages paid.....		129,075	No. 1½ cans.....do....	<sup>1</sup> 10,740	59,981
PRODUCTS.			Total.....		355,548
Oysters, canned:			Flounders, canned: 10-ounce		
4-ounce cans.....cases..	1 500	1,300	cans.....cases..	<sup>2</sup> 40	200
5-ounce cans.....do....	<sup>1</sup> 14,799	41,837	Shrimp, cooked:		
Do.....do....	<sup>2</sup> 6,329	35,576	Meat.....pounds..	214,684	64,865
6-ounce cans.....do....	<sup>2</sup> 50	400	Headless, cooked...do....	198,945	33,582
10-ounce cans.....do....	<sup>1</sup> 2,364	13,645	Whole, cooked.....do....	51,354	5,442
12-ounce cans.....do....	<sup>1</sup> 50	400	Oyster shells:		
Total.....		93,208	Crushed, poultry grit,		
			pounds.....	<sup>2</sup> 254,000	1,525
			Lime.....tons..	18	99

<sup>1</sup> Two dozen cans per case.<sup>2</sup> Four dozen cans per case.<sup>3</sup> Includes oyster shells crushed in South Carolina.

## FISHERIES OF EAST COAST OF FLORIDA.

The statistics here presented are for the eastern coast of Florida and, among the South Atlantic States, were surpassed only by North Carolina. The number of persons employed was 3,330, of whom 395 were on fishing and transporting vessels, 2,104 in the shore or boat fisheries, and 831 in the wholesale fishery trade, the menhaden industry, and the oyster and shrimp canning industry. Compared with 1902, there has been an increase in the persons employed of 632.

The investment amounted to \$2,210,679, which includes 30 fishing and transporting vessels, valued at \$409,900, with a net tonnage of 814 tons and outfits valued at \$75,137; 839 power boats, valued at \$459,650; 607 sail, row, and other boats, valued at \$20,180; fishing apparatus employed on vessels and boats, valued at \$235,492; shore and accessory property to the value of \$858,720; and working cash capital amounting to \$151,600. Compared with 1902, the increase in the investment amounts to \$1,855,844.

The products of eastern Florida amounted to 81,211,488 pounds, valued at \$1,746,175, an increase of 61,627,223 pounds, or 314.67 per cent, in the quantity and \$1,268,307, or 265.41 per cent, in the value as compared with 1902.

The 10 leading products arranged in order of value follow: Mullet, 10,417,889 pounds, valued at \$397,147; shrimp, 8,867,918 pounds, valued at \$266,651; Spanish mackerel, 3,061,965 pounds, valued at \$218,085; menhaden, 48,362,600 pounds, valued at \$210,175; cero and kingfish, 2,271,792 pounds, valued at \$147,608; squeteague or "sea trout," 1,645,223 pounds, valued at \$142,091; shad, 963,606 pounds, valued at \$135,844; bluefish, 561,301 pounds, valued at \$54,715; red and black drum, 900,091 pounds, valued at \$24,638; and oysters, 458,990 pounds, or 65,570 bushels, valued at \$20,128.

Compared with 1902, the increase in the catch of bluefish amounts to 481,801 pounds, or 606.03 per cent; of red and black drum, to 765,206, or 567.30 per cent; of mullet, to 3,076,973 pounds, or 41.91 per cent; of Spanish mackerel, to 2,402,877 pounds, or 364.57 per cent; of squeteague, to 746,660 pounds, or 83.09 per cent; and of shrimp, to 5,855,064 pounds, or 194.33 per cent. There has been a decrease in the catch of shad as compared with 1902, amounting to 855,825 pounds, or 47.04 per cent; and of oysters, of 1,704,493 pounds, or 243,499 bushels, or 78.78 per cent. No cero, kingfish (not king whiting), or menhaden were included in the returns for 1902.

A comparison of the fisheries of the east and west coast of Florida in 1918 is given on pages 116, 117.

## FISHERIES BY COUNTIES.

The statistics of the number of persons engaged, investment, and products of the fisheries of the eastern coast of Florida in 1918, by counties, are given in the table following.

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF THE EAST  
COAST OF FLORIDA IN 1918, BY COUNTIES.

Item.	Brevard.		Broward.		Dade		Duval.		Lake.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>										
On vessels fishing					114		214			
On vessels trans- porting					9					
In shore fisheries	228		2		229		167		5	
Shoresmen					48		163			
Total	228		2		400		544		5	
<b>INVESTMENT.</b>										
Vessels fishing:										
Gasoline					12	\$89,100	9	\$258,500		
Tonnage					202		467			
Outfit						4,143		48,997		
Vessels transport- ing: Gasolin										
Tonnage					5	2,300				
Outfit					36					
Boats:										
Sail, row etc.	216	\$5,820	1	\$40			20	550	2	\$60
Power	98	29,100	1	250	124	59,300	73	20,250	1	250
Apparatus, vessel fisheries: Purse seines										
					12	22,400	9	22,500		
Apparatus, shore fisheries:										
Haul seines			1	175			8	280	1	200
Gill nets	182	26,800			43	6,450	92	12,800		
Cast nets						3	6	30		
Dip nets						3				
Lines		40		5		920		190		
Traps							20	50		
Gaffs						3	3			
Tongs							10	70		
Shore and acces- sory property		19,000		50		104,806		583,835		500
Cash capital						18,000		55,000		
Total		80,700		520		329,675		1,003,052		1,010
<b>PRODUCTS.</b>										
	Pounds.	Value.	Pounds.	Value	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives									30,000	\$450
Amberfish			150	\$12	200	\$8				
Angelfish					175	7				
Barracuda			150	12	200	8				
Black drum	36,500	\$1,095	160	8			32,400	\$1,020		
Bluefish			300	60	23,864	1,866	1,600	165		
Blue runner or hardtail					2,500	82				
Bonito			100	10	50	3				
Butterfish					4,200	170				
Cero and kingfish			300	45	973,331	68,133				
Cow fish and "shellfish"					50	2				
Crevalle	3,300	132	800	80	800	26				
Flounders	1,210	48					400	40		
Groupers			200	20	41,978	2,518				
Grunts			400	40	10,650	426				
Hogfish					150	6				
King whiting	13,900	1,132					32,000	2,240		
Leather jacket or "turbot"					200	8				
Menhaden							42,635,400	181,201		
Moonfish			100	8	540	16				
Mullet	4,292,600	171,704	500	50	2,651,085	90,395	78,000	4,740		
Permit			50	5						
Pigfish	2,000	64			100	4				
Pinfish or sailor's choice	43,150	1,386	200	20	200	10				
Pompano	100	15	30	6	446	68	240	36		
Porgies					5,000	300				
Porkfish					350	17				
Redfish or red drum	31,400	1,256	100	12			26,400	1,680		
Sea bass					100	8	20,000	1,600		
Sergeantfish or snook	430	15	350	28						
Shad							265,608	36,855	4,850	678

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF THE EAST COAST OF FLORIDA IN 1918, BY COUNTIES—Continued.

Item.	Brevard.		Broward.		Dade.		Duval.		Lake.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>PRODUCTS—CON.</b>										
Sharks.....							50,000	\$250		
Sheepshead.....	11,945	\$478	50	\$5	100	\$6	14,000	840		
Snapper:										
Mangrove.....	200	8	600	60	2,700	135				
Mutton.....	1,400	54	760	70	7,500	300				
Red.....							19,200	1,920		
Spanish mackerel.....					870,415	59,800				
Spot.....	20,500	675					1,200	96		
Squeteague o r "sea trout".....	591,482	50,291			1,000	80	88,000	7,200		
Yellowtail or "silver perch".....					450	18				
Crabs, hard.....							52,000	1,800		
Sea crawfish or spiny lobster.....					21,408	1,070				
Oysters, market, public.....							31,500	1,800		
Turtles.....					6,000	360				
Total.....	5,050,117	228,353	5,240	551	4,625,742	225,856	43,347,948	243,483	34,850	\$1,128

Item.	Nassau.		Palm Beach.		Putnam.		Seminole.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>								
On vessels fishing.....	52							
In shore fisheries.....	319		551		142		59	
Shoresmen.....	541		42					
Total.....	912		593		142		59	
<b>INVESTMENT.</b>								
Vessels fishing: Gasoline.....	2	\$30,000						
Tonnage.....	56							
Outfit.....		8,147						
Boats:								
Sail, row, etc.....	43	2,380	55	\$3,505	88	\$2,200	49	\$1,225
Power.....	132	154,700	229	130,500	18	5,450	12	2,450
Apparatus, vessel fisheries:								
Purse seines.....	4	8,000						
Apparatus, shore fisheries:								
Purse seines.....			2	3,000				
Haul seines.....			23	18,900	15	3,200	28	1,575
Gill nets.....	16	1,050	181	25,975	36	4,000		
Lines.....				1,570				
Otter trawls.....	250	16,250						
Tongs.....			1	7				
Shore and accessory property.....		500		92,085		3,900		3,000
Cash capital.....		41,000		18,100				
Total.....		262,027		293,652		18,750		8,250
<b>PRODUCTS.</b>								
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives.....					334,520	\$5,018		
Amberfish.....			11,336	\$370				
Angelfish.....			1,170	37				
Barracuda.....			2,515	76				
Black drum.....			23,950	503				
Bluefish.....			362,339	36,532				
Blue runner or hardtail.....			47,600	1,447				
Bonito.....			7,841	230				
Cattfish.....			1,600	32				
Cero and kingfish.....			1,298,161	79,430				
Crevalle.....			61,910	2,021				
Croaker.....			34,388	1,031				
Flounders.....			430	17				
Groupers.....			32,665	1,084				
Grunts.....			18,400	595				
Hogfish.....			100	5				
Jewfish.....			7,117	222				
King whiting.....	100,000	\$2,000	13,211	530				
Ladyfish.....			1,280	13				
Leather jacket or "turbot".....			170	5				
Menhaden.....	5,680,000	28,300	57,000	570				
Moonfish.....			7,230	218				

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF THE EAST  
COAST OF FLORIDA IN 1918, BY COUNTIES—Continued.

Item.	Nassau.		Palm Beach.		Putnam.		Seminole.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS—continued.								
Mullet.....			1,016,734	\$37,466				
Parrotfish.....			3,500	70				
Permit.....			6,465	213				
Pigfish.....			4,932	148				
Pinfish or sailer's choice.....			34,135	1,034				
Pompano.....			60,029	9,568				
Porgies.....			950	28				
Porkfish.....			1,360	40				
Redfish or red drum.....			32,355	1,167				
Sea bass.....			19,821	1,021				
Sea gar or needlefish.....			100	5				
Sergeantfish or snook.....			81,074	2,604				
Shad.....	61,250	\$18,000			456,471	\$56,786	102,161	\$13,277
Sharks.....			13,350	272				
Sheepshead.....			16,686	608				
Snapper:								
Mangrove.....			16,195	666				
Mutton.....			93,385	2,994				
Red.....			1,000	80				
Spanish mackerel.....			1,493,319	102,290				
Spot.....			31,040	939				
Squeteague or "sea trout".....			135,835	12,567				
Yellowtail or "silver perch".....			20,230	607				
Shrimp.....	8,806,568	264,197						
Sea crawfish or spiny lobster.....			2,095	104				
Oysters, market:								
Public.....	90,293	3,315	2,100	195				
Private.....	135,065	3,994	10,500	1,000				
Turtles.....			250	12				
Conch meat.....			7,000	700				
Total.....	14,853,176	319,806	5,094,853	301,372	790,997	61,804	102,161	13,277

Item.	St. John.		St. Lucie.		Volusia.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
PERSONS ENGAGED.								
On vessels fishing.....							380	
On vessels transporting.....			6				15	
In shore fisheries.....	34		280		88		2,104	
Shoresmen.....			37				831	
Total.....	34		323		88		3,330	
INVESTMENT.								
Vessels fishing: Gasoline.....							23	\$377,600
Tonnage.....							725	
Outfit.....								71,287
Vessels transporting: Gasoline.....			2	\$20,000			7	32,300
Tonnage.....			53				89	
Outfit.....				1,600				3,850
Boats:								
Sail, row, etc.....	15	\$375	52	2,185	66	\$1,840	607	20,180
Power.....	9	2,550	120	49,250	22	5,600	839	459,650
Apparatus, vessel fisheries:								
Purse seines.....							25	52,900
Apparatus, shore fisheries:								
Purse seines.....							2	3,000
Haul seines.....	5	750	26	32,100	8	850	115	58,030
Gill nets.....	5	500	115	17,400	45	6,750	715	101,725
Cast nets.....	10	50					16	80
Dip nets.....							3	3
Lines.....		140				100		2,965
Otter trawls.....	5	250					255	16,500
Traps.....							20	50
Spears.....	12	12					12	12
Gaffs.....							3	3
Tongs.....	5	30	2	14	14	98	32	219
Rakes.....	5	5					5	5
Shore and accessory property.....		500		45,034		5,500		858,720
Cash capital.....				19,500				151,600
Total.....		5,062		187,083		20,738		2,210,679

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF THE EAST COAST OF FLORIDA IN 1918, BY COUNTIES—Continued.

Item.	St. John.		St. Lucie.		Volusia.		Total.		
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	
PRODUCTS.									
Alewives.....					327, 739	\$4, 905			
Amberfish.....							692, 265	\$10, 373	
Angelfish.....							11, 686	390	
Barracuda.....			1, 570	\$47			2, 915	91	
Black drum.....	16, 939	\$526	50	1			2, 915	97	
Bluefish.....	900	92	407, 192	8, 408	14, 200	618	531, 332	12, 178	
Blue runner or hardtail.....			171, 648	15, 935	650	65	561, 301	54, 715	
Bonito.....	150	9	650	13			50, 750	1, 542	
Butterfish.....							8, 141	258	
Catfish.....			12, 300	246			4, 200	170	
Cero and kingfish.....							13, 900	278	
Cowfish and "shellfish".....							2, 271, 792	147, 608	
Crevalle.....			254, 220	7, 574			50	2	
Croaker.....	2, 150	84	87, 740	2, 332			321, 030	9, 833	
Flounders.....	7, 670	460	2, 980	140	800	32	124, 278	3, 447	
Groupers.....							13, 490	737	
Grunts.....	150	9	84, 019	2, 559			74, 783	3, 622	
Hogfish.....							113, 679	3, 629	
Jewfish.....	220	9	5, 150	134			250	11	
King whiting.....	3, 150	176	82, 797	4, 855	51, 950	4, 671	12, 487	365	
Ladyfish.....							297, 008	15, 604	
Leather jacket or "turbot".....							1, 280	13	
Menhaden.....			10, 200	104			370	13	
Moonfish.....			100	3			48, 362, 600	210, 175	
Mullet.....	12, 140	529	1, 423, 870	54, 535	942, 960	37, 728	7, 970	245	
Parrotfish.....							10, 417, 889	397, 147	
Permit.....	115	5	460	11	200	10	3, 500	70	
Pigfish.....	300	12	6, 630	199	800	24	7, 290	244	
Pinfish or sailor's choice.....	1, 180	47	359, 270	10, 404	4, 400	132	14, 762	451	
Pompano.....	825	124	67, 749	9, 672	4, 000	400	442, 535	13, 033	
Porgies.....							133, 419	19, 889	
Porkfish.....							5, 950	328	
Redfish or red drum.....	9, 230	431	259, 874	7, 482	9, 400	432	1, 710	57	
Sea bass.....	1, 410	70					368, 759	12, 460	
Sea gar or needlefish.....							41, 331	2, 699	
Sergeantfish or snook.....			232, 920	5, 982			100	5	
Shad.....					73, 266	10, 248	314, 774	8, 629	
Sharks.....			425	4			963, 606	135, 844	
Sheepshead.....	465	29	60, 557	2, 125	500	24	63, 775	526	
Snapper:							104, 303	4, 115	
Mangrove.....			3, 491	106				23, 186	975
Mutton.....			138, 093	3, 981				241, 078	7, 399
Red.....							20, 200	2, 000	
Spanish mackerel.....	1, 510	151	696, 721	55, 838			3, 061, 965	218, 085	
Spot.....	3, 590	144	331, 140	9, 938	5, 560	206	393, 030	11, 998	
Squeteague or "sea trout".....	25, 372	1, 947	667, 534	57, 746	136, 000	12, 260	1, 645, 223	142, 091	
Yellowtail or "silver perch".....			23, 290	654			43, 970	1, 279	
Shrimp.....	61, 350	2, 454					8, 867, 918	266, 651	
Crabs, hard.....							152, 000	1, 800	
Sea crawfish or spiny lobster.....							23, 503	1, 174	
Clams, hard.....	2, 400	600					2, 400	600	
Oysters, market:									
Public.....	31, 500	2, 250	4, 900	455	153, 132	7, 119	313, 425	15, 134	
Private.....							145, 565	4, 994	
Turtles.....			600	30			6, 850	402	
Conch meat.....							7, 000	700	
Total.....	182, 707	10, 158	5, 398, 140	261, 513	1, 725, 557	78, 874	81, 211, 488	1, 746, 175	

<sup>1</sup> 156,000 in number.<sup>2</sup> 300 bushels.<sup>3</sup> 44,775 bushels.<sup>4</sup> 20,795 bushels.

## FISHERIES BY APPARATUS.

Gill nets were the most productive form of apparatus employed in the fisheries of the east coast of Florida in 1918, the catch amounting to 11,636,930 pounds, valued at \$671,599. The principal species taken with this form of apparatus were: Mullet, 6,882,403 pounds, valued at \$275,395; Spanish mackerel, 2,301,590 pounds, valued at \$166,592; shad, 591,719 pounds, valued at \$87,789; squeteague or "sea trout," 1,030,347 pounds, valued at \$86,549; and bluefish, 374,340 pounds, valued at \$36,156. Purse seines, taking mostly menhaden, mullet, and Spanish mackerel, yielded 51,446,435 pounds,



valued at \$332,812. Other leading forms of apparatus, in the order of their importance, based on the value of their catch, were: Otter trawls with 8,967,918 pounds, principally shrimp, valued at \$268,651; haul seines with 5,699,060 pounds, valued at \$254,635; and lines with 2,914,917 pounds, valued at \$192,880.

The total yield of all forms of apparatus employed in the fisheries of the east coast of Florida amounted to 81,211,488 pounds, valued at \$1,746,175, of which 63.04 per cent of the quantity and 18.63 per cent of the value are credited to purse seines operated in the vessel fisheries, the remainder being credited to the various forms of apparatus employed in the shore fisheries.

The products of the vessel and shore fisheries of the east coast of Florida in 1918 are shown in the following tables, by counties, apparatus, and species:

YIELD OF VESSEL FISHERIES OF EAST COAST OF FLORIDA IN 1918, BY PURSE SEINES, COUNTIES, AND SPECIES.

Species.	Dade.		Duval.		Nassau.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Bluefish.....	23,564	\$1,836					23,564	\$1,836
Bluerunner or hard-tail.....							900	34
Butterfish.....	4,200	170					4,200	170
Menhaden.....			42,635,400	\$181,201	5,660,000	\$28,300	48,295,400	209,501
Mullet.....	2,242,485	74,051					2,242,485	74,051
Pompano.....	86	14					86	14
Sharks.....			50,000	250			50,000	250
Spanish mackerel.....	579,800	39,456					579,800	39,456
Total.....	2,851,035	115,561	42,685,400	181,451	5,660,000	28,300	51,196,435	325,312

YIELD OF SHORE FISHERIES OF THE EAST COAST OF FLORIDA IN 1918, BY APPARATUS, COUNTIES, AND SPECIES.

BY SEINES.

Species.	Broward.		Duval.		Lake.		Palm Beach.		Putnam.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives.....					30,000	\$450				
Angelfish.....							400	\$12		
Barracuda.....							100	3		
Black drum.....	160	88	2,400	\$120			21,500	430		
Bluefish.....	300	60	100	15			64,340	6,834		
Blue runner or hardtail.....							25,175	775		
Bonito.....							2,190	66		
Catfish.....							1,600	32		
Cero or kingfish.....							18,000	1,080		
Crevalle.....	800	80					43,830	1,465		
Croaker.....							21,850	655		
Flounders.....			400	40			230	7		
Grunts.....	200	20					7,390	261		
Hogfish.....							100	5		
Jewfish.....							1,450	43		
King whiting.....			8,000	800			7,936	291		
Ladyfish.....							1,280	13		
Menhaden.....							57,000	570		
Moonfish.....	100	8					1,475	46		
Mullet.....	500	50	16,000	1,280			1,727,891	26,368		
Parrotfish.....							3,500	70		
Permit.....	50	5					4,130	142		
Pigfish.....							3,800	114		
Pinfish or "sailor's choice".....	200	20					31,310	949		
Pompano.....	30	6	240	36			41,427	6,604		
Porkfish.....							100	3		
Redfish or red drum.....			2,400	240			21,285	682		

YIELD OF SHORE FISHERIES OF THE EAST COAST OF FLORIDA IN 1918, BY APPARATUS, COUNTIES, AND SPECIES—Continued.

BY SEINES—Continued.

Species.	Broward.		Duval.		Lake.		Palm Beach.		Putnam.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Sea gar or needlefish							100	\$5		
Sergeantfish or snook	150	\$12					59,376	1,871		
Shad					4,850	\$678			191,610	\$23,852
Sharks							5,100	102		
Sheepshead							9,715	298		
Snapper:										
Mangrove	300	30					1,920	59		
Mutton	600	60					47,680	1,430		
Spanish mackerel							166,122	10,683		
Spot			1,200	\$96			22,800	692		
Squeteague or "sea trout"			8,000	800			29,761	2,530		
Yellowtail or "silver perch"							19,020	571		
Sea crawfish or spiny lobster							652	33		
Turtles							250	12		
Total	3,390	359	38,740	3,427	34,850	1,128	1,471,785	65,806	526,136	28,870

Species.	Seminole.		St. Lucie.		St. John.		Volusia.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives							327,739	\$4,905	692,265	\$10,373
Angelfish			1,470	\$44					1,870	56
Barracuda			50	1					150	4
Black drum			406,292	8,388	7,120	\$214	9,600	480	447,072	9,640
Bluefish			46,610	4,629	150	15	650	65	112,150	11,618
Blue runner or hardtail			650	13					25,825	788
Bonito									2,190	66
Catfish			12,300	246					13,900	278
Cero or kingfish									18,000	1,080
Crevalle			250,300	7,457					294,930	9,002
Croaker			87,740	2,332	1,250	50			110,840	3,037
Flounders			2,980	140					3,610	187
Grunts			78,839	2,365					86,479	2,646
Hogfish									100	5
Jewfish			5,150	134					6,600	177
King whiting			78,360	4,480	1,850	111	51,300	4,617	147,446	10,299
Ladyfish									1,280	13
Menhaden			10,200	104					67,200	674
Menfish			100	3					1,675	57
Mullet			527,400	18,785			960	48	1,272,751	46,531
Parrotfish									3,500	70
Permit			460	11	115	5	200	10	4,955	173
Pigfish			5,400	162	150	6			9,350	282
Pinfish or "sail-or's choice"			349,610	10,095	580	23			381,709	11,087
Pompano			57,435	8,615	625	94	4,000	400	103,757	15,755
Porkfish									100	3
Redfish or red drum			247,824	7,052	6,200	310	4,000	240	281,709	8,524
Sea gar or needlefish									100	5
Sergeantfish or snook			221,065	5,637					280,591	7,520
Shad	102,161	\$13,277					73,266	10,248	371,887	48,055
Sharks			425	4					5,525	106
Sheepshead			58,475	2,059	210	13	200	12	68,600	2,382
Snapper:										
Mangrove			825	26					3,045	115
Mutton			137,293	3,953					185,573	5,443
Spanish mackerel			6,973	627					173,095	11,310
Spot			325,920	9,776	1,340	54	1,960	98	353,220	10,716
Squeteague or "sea trout"			314,105	27,563	8,342	665	12,000	1,200	372,208	32,758
Yellowtail or "silver perch"			23,290	654					42,310	1,225
Sea crawfish or spiny lobster									652	33
Turtles			600	30					850	42
Total	102,161	13,277	3,258,191	125,385	27,932	1,560	485,875	22,323	5,949,060	262,135

<sup>1</sup> Includes 250,000 pounds of mullet, valued at \$7,500, caught with purse seines.

valued at \$332,812. Other leading forms of apparatus, in the order of their importance, based on the value of their catch, were: Otter trawls with 8,967,918 pounds, principally shrimp, valued at \$268,651; haul seines with 5,699,060 pounds, valued at \$254,635; and lines with 2,914,917 pounds, valued at \$192,880.

The total yield of all forms of apparatus employed in the fisheries of the east coast of Florida amounted to 81,211,488 pounds, valued at \$1,746,175, of which 63.04 per cent of the quantity and 18.63 per cent of the value are credited to purse seines operated in the vessel fisheries, the remainder being credited to the various forms of apparatus employed in the shore fisheries.

The products of the vessel and shore fisheries of the east coast of Florida in 1918 are shown in the following tables, by counties, apparatus, and species:

YIELD OF VESSEL FISHERIES OF EAST COAST OF FLORIDA IN 1918, BY PURSE SEINES, COUNTIES, AND SPECIES.

Species.	Dade.		Duval.		Nassau.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Bluefish.....	23,564	\$1,836					23,564	\$1,836
Bluerunner or hardtail.....							900	34
Butterfish.....	4,200	170					4,200	170
Menhaden.....			42,635,400	\$181,201	5,660,000	\$28,300	48,295,400	209,501
Mullet.....	2,242,485	74,051					2,242,485	74,051
Pompano.....	86	14					86	14
Sharks.....			50,000	250			50,000	250
Spanish mackerel.....	579,800	39,456					579,800	39,456
Total.....	2,851,035	115,561	42,685,400	181,451	5,660,000	28,300	51,196,435	325,312

YIELD OF SHORE FISHERIES OF THE EAST COAST OF FLORIDA IN 1918, BY APPARATUS, COUNTIES, AND SPECIES.

BY SEINES.

Species.	Broward.		Duval.		Lake.		Palm Beach.		Putnam.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives.....					30,000	\$450			334,526	\$5,018
Angelfish.....							400	\$12		
Barracuda.....							100	3		
Black drum.....	160	88	2,400	\$120			21,500	430		
Bluefish.....	300	60	106	15			64,340	6,834		
Blue runner or hardtail.....							25,175	775		
Bonito.....							2,190	66		
Catfish.....							1,600	32		
Cero or kingfish.....							18,000	1,080		
Crevalle.....	800	80					43,830	1,465		
Croaker.....							21,850	655		
Flounders.....			400	40			230	7		
Grunts.....	200	20					7,390	261		
Hogfish.....							100	5		
Jewfish.....							1,450	43		
King whiting.....			8,000	800			7,936	291		
Ladyfish.....							1,280	13		
Menhaden.....							57,000	570		
Moonfish.....	100	8					1,475	46		
Mullet.....	500	50	16,000	1,280			1,727,891	26,368		
Parrotfish.....							3,500	70		
Permit.....	50	5					4,130	142		
Pigfish.....							3,800	114		
Pinfish or "sailor's choice".....	200	20					31,310	949		
Pompano.....	30	6	240	36			41,427	6,040		
Porkfish.....							100	3		
Redfish or red drum.....			2,400	240			21,285	682		

YIELD OF SHORE FISHERIES OF THE EAST COAST OF FLORIDA IN 1918, BY APPARATUS, COUNTIES, AND SPECIES—Continued.

BY SEINES—Continued.

Species.	Broward.		Duval.		Lake.		Palm Beach.		Putnam.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Sea gar or needlefish							100	\$5		
Sergeantfish or snook	150	\$12								
Shad					4,850	\$678	59,376	1,871	191,610	\$23,852
Sharks							5,100	102		
Sheepshead							9,715	298		
Snapper:										
Mangrove	300	30					1,920	59		
Mutton	600	60					47,680	1,430		
Spanish mackerel							166,122	10,683		
Spot			1,200	\$96			22,800	692		
Squeteague or "sea trout"			8,000	800			29,761	2,530		
Yellowtail or "silver perch"							19,020	571		
Sea crawfish or spiny lobster							652	33		
Turtles							250	12		
Total	3,390	359	38,740	3,427	34,850	1,128	1,471,785	65,806	526,136	28,870

Species.	Seminole.		St. Lucie.		St. John.		Volusia.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives							327,739	\$4,905	692,265	\$10,373
Angelfish			1,470	\$44					1,870	56
Barracuda			50	1					150	4
Black drum			406,292	8,388	7,120	\$214	9,600	480	447,072	9,640
Bluefish			46,610	4,629	150	15	650	65	112,150	11,618
Blue runner or hardtail			650	13					25,825	788
Bonito									2,190	66
Catfish			12,300	246					13,900	278
Cero or kingfish									18,000	1,080
Crevalle			250,300	7,457					294,930	9,002
Croaker			87,740	2,332	1,250	50			110,840	3,037
Flounders			2,980	140					3,610	187
Grunts			78,889	2,365					86,479	2,646
Hogfish									100	5
Jewfish			5,150	134					6,600	177
King whiting			78,360	4,480	1,850	111	51,300	4,617	147,446	10,299
Ladyfish									1,280	13
Menhaden			10,200	104					67,200	674
Moonfish			100	3					1,675	57
Mullet			527,400	18,785			960	48	1,272,751	46,531
Parrotfish									3,500	70
Permit			460	11	115	5	200	10	4,955	173
Pigfish			5,400	162	150	6			9,350	282
Pinfish or "sailor's choice"			349,610	10,095	50	23			381,709	11,087
Pompano			57,435	8,615	625	94	4,000	400	103,757	15,755
Porkfish									100	3
Redfish or red drum			247,824	7,052	6,200	310	4,000	240	281,709	8,524
Sea gar or needlefish									100	5
Sergeantfish or snook			221,065	5,637					280,591	7,520
Shad	102,161	\$13,277					73,266	10,248	371,887	48,055
Sharks			425	4					5,525	106
Sheepshead			58,475	2,059	210	13	200	12	68,600	2,382
Snapper:										
Mangrove			825	26					3,045	115
Mutton			137,293	3,953					185,573	5,443
Spanish mackerel			6,973	627					173,095	11,310
Spot			325,920	9,776	1,340	54	1,960	98	353,220	10,716
Squeteague or "sea trout"			314,105	27,563	8,342	665	12,000	1,200	372,208	32,758
Yellowtail or "silver perch"			23,290	654					42,310	1,225
Sea crawfish or spiny lobster									652	33
Turtles			600	30					850	42
Total	102,161	13,277	3,258,191	125,385	27,932	1,560	485,875	22,323	5,949,060	262,135

<sup>1</sup> Includes 250,000 pounds of mullet, valued at \$7,500, caught with purse seines.

## YIELD OF SHORE FISHERIES OF THE EAST COAST OF FLORIDA IN 1918, BY APPARATUS, COUNTIES, AND SPECIES—Continued.

BY GILL NETS.

Species.	Brevard.		Dade.		Duval.		Nassau.		Palm Beach.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Angelfish.....									770	\$25
Barracuda.....									2,235	67
Black drum.....	36,500	\$1,095							2,450	73
Bluefish.....									249,202	24,838
Blue runner or hardtail.....			1,200	\$36					22,175	665
Bonito.....									4,191	126
Crevalle.....	3,300	132	600	18					11,975	359
Croaker.....									12,538	376
Flounders.....	1,210	48							100	5
Grunts.....									5,230	159
King whiting.....	13,900	1,132							5,275	239
Moonfish.....			500	15					5,755	172
Mullet.....	4,292,600	171,704	408,600	16,344	50,000	\$2,620			288,843	11,098
Permit.....									2,335	71
Pigfish.....	2,000	64							1,132	34
Pinfish or sailor's choice.....	43,150	1,386							2,825	85
Pompano.....	100	15							18,522	2,948
Porgies.....									100	3
Porkfish.....									1,260	37
Red drum.....	31,400	1,256							10,270	453
Sea bass.....									700	35
Sergeantfish or snook.....	430	15							7,341	221
Shad.....					265,608	36,855	61,250	\$18,000		
Sharks.....									7,750	155
Sheepshead.....	11,945	478							3,890	162
Snapper:										
Mangrove.....	200	8							10,485	419
Mutton.....	1,400	54							33,420	1,027
Spanish mackerel.....			289,835	20,288					1,322,007	91,093
Spot.....	20,500	675							8,240	247
Squeteague or "sea trout".....	518,400	42,252							67,198	6,149
Yellowtail or "sil- ver perch".....									1,210	36
Sea crawfish or spiny lobster.....									1,443	71
Total.....	4,977,035	220,314	700,735	36,701	315,608	39,475	61,250	18,000	2,110,867	141,448

Species.	Putnam.		St. Lucie.		St. John.		Volusia.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Angelfish.....			100	\$3					1,870	\$28
Barracuda.....									2,235	67
Black drum.....			900	20	8,000	\$240	4,600	\$138	52,450	1,566
Bluefish.....			125,038	11,306	100	12			374,340	36,156
Blue runner or hardtail.....										
Bonito.....									23,375	701
Crevalle.....			3,920	117					4,191	126
Croaker.....					200	6			19,795	626
Flounders.....							800	32	12,738	382
Grunts.....			5,130	194					2,110	85
King whiting.....			4,437	375	1,300	65	650	54	10,360	353
Moonfish.....									25,562	1,865
Mullet.....			896,470	35,750	3,890	199	942,000	37,680	6,882,403	275,395
Permit.....									6,255	187
Pigfish.....			1,230	37	150	6	800	24	2,335	71
Pinfish or sailor's choice.....			9,660	309	210	8	4,400	132	5,312	165
Pompano.....			10,314	1,057	200	30			60,245	1,920
Porgies.....									29,136	4,050
Porkfish.....									100	3
Red drum.....			12,050	430	1,830	73	5,400	192	1,260	37
Sea bass.....									60,950	2,404
Sergeantfish or snook.....			11,855	345					700	35
Shad.....	264,861	\$32,934							19,626	581
Shark.....									591,719	87,789
Sheepshead.....			2,082	66	175	11	300	12	7,750	155
Snapper:									18,392	729
Mangrove.....			2,666	80						
Mutton.....			800	28					13,351	507
Spanish mackerel.....			689,748	55,211					35,620	1,109
Spot.....			5,220	162	1,600	64	3,600	108	2,301,590	166,592
Squeteague or "sea trout".....			353,429	30,183	7,320	505	84,000	7,460	39,160	1,256
Yellowtail or "sil- ver perch".....									1,030,347	86,549
Sea crawfish or spiny lobster.....									1,210	36
Total.....	264,861	32,934	2,135,049	135,673	24,975	1,219	1,046,550	45,832	11,636,930	671,596

## YIELD OF SHORE FISHERIES OF THE EAST COAST OF FLORIDA IN 1918, BY APPARATUS, COUNTIES, AND SPECIES—Continued.

## BY LINES.

Species.	Brevard.		Broward.		Dade.		Duval.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Amberfish			150	\$12	200	\$8		
Angelfish					175	7		
Barracuda			150	12	200	8		
Black drum							30,000	\$900
Bluefish					300	30	1,500	150
Blue runner or hardtail					400	12		
Bonito			100	10	50	3		
Cero or kingfish			300	45	973,331	68,133		
Cowfish and "shellfish"					50	2		
Crevalle					200	8		
Grouper			200	20	41,978	2,518		
Grunts			200	20	10,650	426		
Hogfish					150	6		
King whiting							24,000	1,440
Leather jacket or "turbot"					200	8		
Moonfish					40	1		
Pigfish					100	4		
Pinfish or sailor's choice					200	10		
Pompano					360	54		
Porgies					5,000	300		
Porkfish					350	17		
Red drum			100	12			24,000	1,440
Sea bass					100	8	20,000	1,600
Sergeantfish or snook			200	16				
Sheepshead			50	5	100	6	14,000	840
Snapper:								
Mangrove			300	30	2,700	135		
Mutton			100	10	7,500	300		
Red							19,200	1,920
Spanish mackerel					780	62		
Squeteague or "sea trout"	73,082	\$8,039			1,000	80	80,000	6,400
Yellowtail or "silver perch"					450	18		
Crabs, hard							32,000	800
Total	73,082	8,039	1,850	192	1,046,564	72,164	244,700	15,490

Species.	Palm Beach.		St. John.		Volusia.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Amberfish							11,686	\$390
Angelfish	11,336	\$370					175	7
Barracuda	180	6					530	26
Black drum			1,300	\$52			31,300	952
Bluefish	48,797	4,800	650	65			51,247	5,105
Blue runner or hardtail	250	7					650	19
Bonito	1,460	44	150	9			1,760	66
Cero or kingfish	1,280,161	78,350					2,253,792	146,528
Cowfish and "shellfish"							50	2
Crevalle	6,105	197					6,305	205
Flounders	100	5	170	10			270	15
Grouper	32,605	1,084					74,783	3,622
Grunts	5,840	175	150	9			16,840	630
Hogfish							150	6
ewfish	5,667	179	220	9			5,887	188
King whiting							24,000	1,440
Leather jacket or "turbot"	170	5					370	13
Moonfish							40	1
Pigfish							100	4
Pinfish or sailor's choice							200	10
Pompano	80	16					440	70
Porgies	850	25					5,850	325
Porkfish							350	17
Red drum	800	32	1,200	48			26,100	1,532
Sea bass	19,121	986	1,410	70			40,631	2,664
Sergeantfish or snook	14,357	512					14,557	528
Sharks	500	15					500	15
Sheepshead	3,081	148					17,231	999
Snapper:								
Mangrove	3,790	188					6,790	353
Mutton	12,285	537					19,885	847
Red	1,000	80					20,200	2,000
Spanish mackerel	5,190	514	1,510	151			7,480	727
Squeteague or "sea trout"	38,876	3,888	9,360	749	40,000	\$3,600	242,318	22,756
Yellowtail or "silver perch"							450	18
Crabs, hard							32,000	800
Total	1,492,601	92,223	16,120	1,172	40,000	3,600	2,914,917	192,880

## YIELD OF SHORE FISHERIES OF THE EAST COAST OF FLORIDA IN 1918, BY APPARATUS, COUNTIES, AND SPECIES—Continued.

## BY OTTER TRAWLS, CAST NETS, DIP NETS, TRAPS, AND SPEARS.

Apparatus and species.	Dade.		Duval.		Nassau.		St. John.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Otter trawls:										
Shrimp.....					8,806,568	\$264,197	61,350	\$2,454	8,867,918	\$266,651
King whiting.....					100,000	2,000			100,000	2,000
Total.....					8,906,568	266,197	61,350	2,454	8,967,918	268,651
Cast nets:										
Croaker.....							700	28	700	28
Black drum.....							510	20	510	20
Mullet.....			12,000	\$840			8,250	330	20,250	1,170
Pinfish, or sailor's choice.....							390	16	390	16
Sheepshead.....							80	5	80	5
Spot.....							650	26	650	26
Squeteague or "sea trout".....							350	28	350	28
Total.....			12,000	840			10,930	453	22,930	1,293
Dip nets: Sea crawfish or spiny lobster.....	21,408	\$1,070							21,408	1,070
Traps: Crabs, hard.....			20,000	1,000					20,000	1,000
Spears: Flounders.....							7,500	450	7,500	450

## BY RAKES, TONGS, AND HAND.

Apparatus and species.	Dade.		Duval.		Nassau.		Palm Beach.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Tongs: Oysters, market, public.....			31,500	\$1,800			2,100	\$195
By hand:								
Oysters, market, public.....					90,293	\$3,315		
Oysters, market, private.....					135,065	3,994	10,500	1,000
Conch meat.....							7,000	700
Turtles <sup>1</sup> .....	6,000	\$360						
Total.....	6,000	360			225,358	7,309	17,500	1,700
Apparatus and species.	St. Lucie.		St. John.		Volusia.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Rakes: Clams, hard.....			2,400	\$600			2,400	\$600
Tongs: Oysters, market, public.....	4,900	\$455	31,500	2,250	153,132	\$7,119	223,132	11,819
By hand:								
Oysters, market, public.....							90,293	3,315
Oysters, market, private.....							145,565	4,994
Conch meat.....							7,000	700
Turtles <sup>1</sup> .....							6,000	360
Total.....							248,858	9,369

<sup>1</sup> Part of these were taken by gaffs.

## INDUSTRIES.

*Menhaden industry.*—In 1918 there were 4 factories, valued at \$413,098, operated on the east coast of Florida, using \$40,000 in cash capital and employing 177 persons, to whom \$103,256 were paid in wages. The manufactured products, including the products of a factory in Georgia, follow: Oil, 125,478 gallons, valued at \$48,189; dried scrap, 444 tons, valued at \$37,296; acidulated scrap, 6,886

tons, valued at \$296,174; and crude or green scrap, 5,000 tons, valued at \$185,000.

*Wholesale trade.*—There were 50 firms engaged in the wholesale trade in fishery products, valued at \$534,644. These used \$101,600 in cash capital and gave employment to 416 persons, to whom \$189,421 were paid in wages.

*Canning industry.*—In 1918 there were 3 canneries, valued at \$92,023, using cash capital to the amount of \$15,000 and employing 275 persons, to whom \$34,306 were paid in wages. The products prepared consisted of canned oysters to the value of \$17,210, and canned shrimp to the value of \$118,660.

The following tables contain detailed statistics of these industries in 1918:

INDUSTRIES ON THE EAST COAST OF FLORIDA, 1918.

MENHADEN INDUSTRY.

Item.	Number.	Value.	Item.	Number.	Value.
Establishments.....	4	\$413,098	PRODUCTS.		
Cash capital.....		40,000	Oil.....gallons..	<sup>1</sup> 125,478	\$48,189
Persons engaged.....	177		Dry scrap.....tons..	444	37,296
Wages paid.....		103,256	Acidulated scrap.....do....	6,886	296,174
			Crude or green scrap.....do....	<sup>1</sup> 5,000	185,000

OYSTER AND SHRIMP CANNING INDUSTRY.

Item.	Number.	Value.	Item.	Number.	Value.
Establishments.....	3	\$92,023	PRODUCTS—continued.		
Cash capital.....		15,000	Shrimp, canned:		
Persons engaged.....	275		No. 1 cans.....cases..	<sup>2</sup> 15,317	\$75,920
Wages paid.....		34,306	No. 1½ cans.....do....	<sup>3</sup> 8,503	42,740
PRODUCTS.			Total.....		118,660
Oysters, canned:					
4-ounce cans.....cases..	<sup>2</sup> 500	2,700			
5-ounce cans.....do....	<sup>2</sup> 1,434	8,030			
8-ounce cans.....do....	<sup>3</sup> 1,200	6,480			
Total.....		17,210			

<sup>1</sup> Includes one factory in Georgia.

<sup>2</sup> Four dozen cans per case.

<sup>3</sup> Two dozen cans per case.

SUMMARY OF THE FISHERIES OF FLORIDA IN 1918.

In the following table the fisheries of both coasts of Florida are combined for purposes of comparison and study of the State as a whole with other States of the region. In 1918 the fisheries of the State gave employment to 8,491 persons, the total investment amounted to \$4,614,924, and the products amounted to 135,965,127 pounds, valued at \$5,166,538. Of the South Atlantic and Gulf States, Florida ranks first in the number of persons engaged, investment, and quantity and value of products, and North Carolina second. Louisiana ranks third, excepting in quantity of products, Georgia and Texas having larger quantities accredited to them.



## FISHERIES OF FLORIDA IN 1918.

Item.	East coast.		West coast.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing	380		623		1,003	
On vessels transporting	15		70		85	
In shore fisheries	2,104		3,900		5,704	
Stevedores	831		868		1,699	
Total	3,330		5,161		8,491	
<b>INVESTMENT.</b>						
Vessels fishing:						
Gasoline	23	\$377,600	33	\$92,630	56	\$470,230
Tonnage	725		360		1,085	
Outfit		71,287		27,043		98,330
Sail			62	309,800	62	309,800
Towage			2,069		2,069	
Outfit				71,520		71,520
Vessels transporting:						
Gasoline	7	32,300	34	105,800	41	138,100
Tonnage	89		455		544	
Outfit		3,850		22,444		26,294
Sail			50	80,650	50	80,650
Tonnage			1,025		1,025	
Boats:						
Sail row, etc.	607	20,180	2,019	128,900	2,626	149,080
Power	829	459,650	1,018	438,962	1,857	898,612
Apparatus, vessel fisheries:						
Seines	25	52,900	1	1,600	26	54,500
Gill nets			6	120	6	120
Lines				5,379		5,379
Other trawls			16	720	16	720
Tongs			12	120	12	120
Sponges apparatus				210		210
Other apparatus				2		2
Apparatus, shore fisheries:						
Seines	117	61,030	163	61,175	280	122,205
Trawl nets			146	11,990	146	11,990
Gill nets	715	101,725	1,795	106,070	2,510	207,795
Slip nets			136	6,810	136	6,810
Cast nets	16	80			16	80
Lines		2,965		2,046		5,011
Other trawls	255	16,500	107	4,770	362	21,270
Tongs, grabs, and rakes	37	224	284	2,616	321	2,840
Spurs or gigs	12	12			12	12
Crab traps and drags	20	50			20	50
Sponge apparatus				70,935		70,935
Other apparatus		6		12,596		12,602
Shore and accessory property		858,720		619,987		1,478,707
Cash capital		151,600		219,350		370,950
Total		2,210,679		2,404,245		4,614,924
<b>PRODUCTS</b>						
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Albacore	692,265	\$10,373			692,265	\$10,373
Amberfish	11,686	390	11,100	\$413	22,786	803
Angelfish	2,915	91	20,825	798	23,740	889
Barracuda	2,915	97	4,860	252	7,775	349
Bluefish						
Fresh	561,301	54,715	246,168	17,411	807,469	72,126
Salted			12,240	915	12,240	915
Blue runner or hardtail						
Fresh	50,750	1,542	324,648	6,935	375,398	8,477
Salted			65,430	2,734	65,430	2,734
Bonito	8,141	258	50,955	2,045	59,096	2,293
Butterfish	4,200	170			4,200	170
Catfish	13,900	278	51,427	3,120	65,327	3,418
Cero and king fish	2,271,792	147,608	465,860	31,963	2,737,652	179,571
Cow fish and "shellfish"	50	2	300	12	350	13
Crevalle	321,030	9,833	105,927	3,800	426,957	13,633
Croaker	124,278	3,447			124,278	3,447
Drum, red and black	900,091	24,628	994,910	39,803	1,895,001	64,431
Fluke or ten-pounder						
Fresh			267,940	5,402	267,940	5,402
Salted			9,883	334	9,883	334
Flour-ders	13,400	737	37,381	2,080	50,871	2,817
Grouper	74,783	3,622	5,620,329	222,215	5,791,112	225,837
Grunts	113,679	3,629	87,349	3,618	201,028	7,247
Hogfish	250	11	7,344	336	7,594	347
Jew fish	12,487	365	69,844	2,704	82,331	3,069
King whiting	297,008	15,694	35,188	2,126	332,196	17,820

FISHERIES OF FLORIDA IN 1918—Continued.

Item.	East coast.		West coast.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS—continued.						
Ladyfish.....	1,280	\$13			1,280	\$13
Leather jacket or "turbot".....	370	13	7,756	\$357	8,126	370
Menhaden:						
Fresh.....	48,362,600	210,175	263,530	6,779	48,626,130	216,954
Salted.....			21,022	669	21,022	669
Moonfish.....	7,970	245	650	23	8,620	253
Mullet:						
Fresh.....	10,417,889	397,147	22,569,736	973,129	32,987,625	1,370,276
Salted.....			2,453,930	177,974	2,453,930	177,974
Mullet roe, salted.....			86,285	17,593	86,285	17,593
Parrotfish.....	3,500	70			3,500	70
Permit.....	7,290	244	7,865	294	15,155	538
Pigfish.....	14,762	451	6,596	250	21,358	701
Pinfish or sailor's choice.....	442,535	13,033	21,132	809	463,667	13,842
Pompano:						
Fresh.....	133,419	19,889	235,992	27,262	369,411	47,151
Salted.....			3,075	520	3,075	520
Porgies.....	5,950	328	56,742	2,442	62,692	2,770
Porkfish.....	1,710	57	2,400	144	4,110	201
Redfish or red drum, salted.....			7,321	366	7,321	366
Scamp.....			300	10	300	10
Sea bass.....	41,331	2,699	31,644	2,180	72,975	4,879
Sea gar or needlefish.....	100	5			100	5
Sergeantfish or snook.....	314,774	8,629	73,745	2,568	388,519	11,197
Shad.....	963,606	135,844			963,606	135,844
Sharks.....	63,775	526			63,775	526
Sheepshead.....	104,303	4,115	988,662	32,627	1,092,965	36,742
Snapper:						
Mangrove.....	23,186	975	103,999	4,359	127,185	5,334
Mutton.....	241,078	7,399	14,100	564	255,178	7,963
Red.....	20,200	2,000	7,230,168	455,640	7,250,368	457,640
Spanish mackerel:						
Fresh.....	3,061,965	218,085	3,408,701	244,026	6,470,666	462,111
Salted.....			27,200	1,505	27,200	1,505
Spot.....	393,030	11,998	37,977	1,519	431,007	13,517
Squeteague or "sea trout":						
Fresh.....	1,645,223	142,091	1,630,686	145,534	3,275,909	287,625
Salted.....			31,625	3,772	31,625	3,772
Sturgeon.....			4,915	620	4,915	620
Sturgeon caviar and roe.....			12	12	12	12
Tang.....			600	30	600	30
Tarpon.....			1,800	180	1,800	180
Yellowtail.....			31,735	1,537	31,735	1,537
Yellowtail or "silver perch".....	43,970	1,279			43,970	1,279
Shrimp.....	8,867,918	266,651	3,250,468	81,408	12,118,386	348,059
Sea crawfish.....	23,503	1,174	322,015	16,064	345,518	17,238
Crabs:						
Hard.....	52,000	1,800			52,000	1,800
Stone.....			24,500	2,600	24,500	2,600
Terrapin.....			2,475	206	2,475	206
Turtles.....	6,850	402	65,370	4,429	72,220	4,831
Clams, hard.....	2,400	600	160,872	14,336	163,272	14,936
Conch meat.....	7,000	700	2,000	100	9,000	800
Oysters, market:						
Public.....	313,425	15,134	2,602,446	121,049	2,915,871	136,183
Private.....	145,565	4,994	13,496	771	159,061	5,765
Sponges:						
Glove.....			2,022	245	2,022	245
Grass.....			73,033	12,125	73,033	12,125
Sheepswool.....			276,168	675,781	276,168	675,781
Wire.....			9,324	2,817	9,324	2,817
Yellow.....			91,641	34,187	91,641	34,187
Total.....	81,211,488	1,746,175	54,753,639	3,420,363	135,965,127	5,166,538

<sup>1</sup> 156,000 in number.

<sup>2</sup> 20,409 bushels.

<sup>3</sup> 416,533 bushels.

<sup>4</sup> 22,723 bushels.

SPONGE FISHERY OF FLORIDA.

The sponge fishery of Florida is prosecuted on the west coast of the State, and the catch is sold by bunches chiefly through the sponge exchange at Tarpon Springs. The large wool and grass sponges are estimated at 2½ pounds per bunch, small wool sponges at 1 pound, and yellow and wire sponges at 1½ pounds. In 1919 the quantity sold at the exchange amounted to 424,075 pounds, valued at \$707,964,

and in 1920 to 409,746 pounds, valued at \$678,209. A considerable quantity is also sold at Key West.

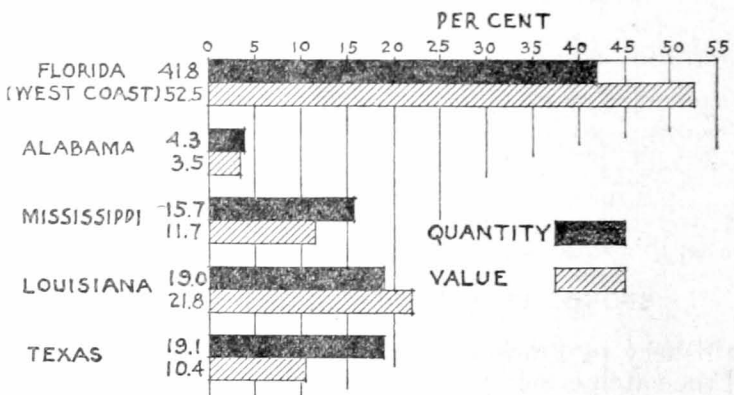
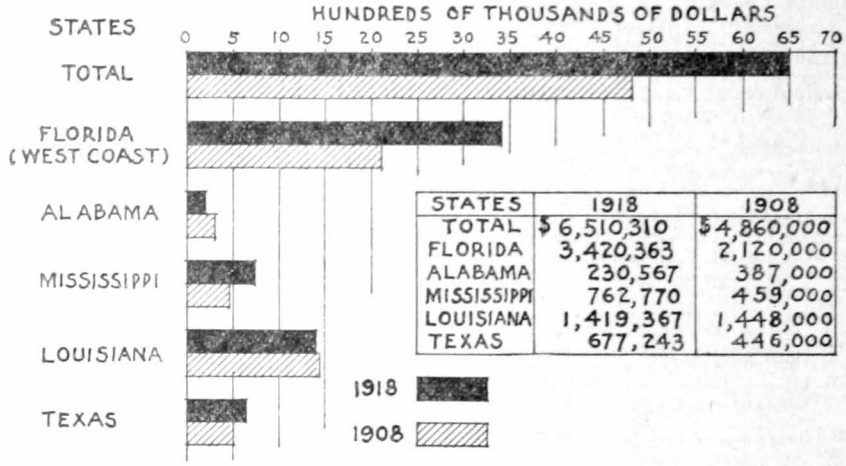
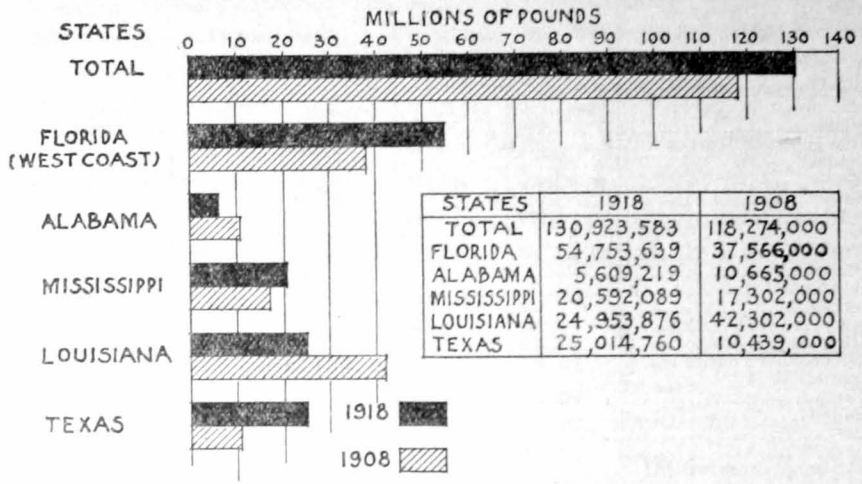


FIG. 8.—Top: Quantities of fish taken in the commercial fisheries of the Gulf States in 1918 compared with 1908. Center: Values of fish taken in the commercial fisheries of the Gulf States in 1918 compared with 1908. Bottom: Percentages of total quantity and value of fishery products for each of the Gulf States in 1918.

Following are statistics of the quantity in pounds based on the above conversion figures of the different kinds of sponges sold at the exchange at Tarpon Springs in 1919 and 1920:

SPONGES SOLD AT THE EXCHANGE, TARPON SPRINGS, FLA., 1919 AND 1920.

Kind.	1919		1920	
	Pounds.	Value.	Pounds.	Value.
Large wool.....	205,462	\$544,222	176,722	\$522,399
Small wool.....	76,309	95,386	60,902	79,172
Yellow.....	73,051	39,161	72,648	43,499
Grass.....	62,547	25,171	92,880	29,722
Wire.....	6,706	4,024	6,594	3,417
Total.....	424,075	707,964	409,746	678,209

SUMMARIES OF THE FISHERIES OF THE GULF STATES FOR VARIOUS YEARS.

In the appended table are given comparative statistics showing the number of persons engaged, investment, and quantities and values of the products of the fisheries of the Gulf States for various years from 1880 to 1918. A similar summary of the fisheries of the South Atlantic States for the same years appears on page 65 of this report. In view of the increasing attention which the fisheries of these regions are receiving, these will serve to indicate the relative rate of growth and development of these fisheries.

EXTENT OF FISHERIES OF THE GULF STATES, VARIOUS YEARS, 1880 TO 1918.<sup>1</sup>

Item.	1880	1887	1888	1889
PERSONS ENGAGED.				
Florida (west coast).....	2,112	( <sup>2</sup> )	3,066	3,739
Alabama.....	635	( <sup>2</sup> )	318	594
Mississippi.....	186	1,153	1,380	1,809
Louisiana.....	1,597	3,607	3,758	3,966
Texas.....	601	1,027	1,021	1,211
Total.....	5,131	( <sup>2</sup> )	9,543	11,319
INVESTMENT.				
Florida (west coast).....	\$362,563	( <sup>2</sup> )	\$613,736	\$1,281,190
Alabama.....	38,200	( <sup>2</sup> )	61,904	126,925
Mississippi.....	8,800	\$284,760	329,632	455,300
Louisiana.....	93,621	633,007	664,927	706,557
Texas.....	42,400	206,591	214,511	256,431
Total.....	545,584	( <sup>2</sup> )	1,884,710	2,826,403
PRODUCTS. <sup>3</sup>				
Pounds:				
Florida (west coast).....	8,376,335	( <sup>2</sup> )	( <sup>2</sup> )	23,597,240
Alabama.....	3,541,500	( <sup>2</sup> )	1,633,589	4,560,269
Mississippi.....	788,500	6,548,175	7,833,010	8,933,339
Louisiana.....	6,996,000	18,455,489	19,121,056	20,947,239
Texas.....	3,858,875	6,282,489	6,609,161	7,357,800
Total.....	23,561,210	( <sup>2</sup> )	( <sup>2</sup> )	65,395,887
Value:				
Florida (west coast).....	\$564,819	( <sup>2</sup> )	\$628,396	\$948,845
Alabama.....	119,275	( <sup>2</sup> )	75,560	146,841
Mississippi.....	22,540	\$189,716	231,712	250,884
Louisiana.....	392,610	579,504	612,820	621,048
Texas.....	128,300	256,250	271,257	297,258
Total.....	1,227,544	( <sup>2</sup> )	1,819,745	2,264,876

<sup>1</sup> Statistics for 1908 are from data published by the Bureau of the Census.

<sup>2</sup> Statistics not available.

<sup>3</sup> The quantity and value of products given for Florida for 1888 in the report of the Division of Statistics and Methods of the Fisheries for 1919, page 137, include both coasts of the State, and those for Alabama for 1908 include the Tennessee River district.

## EXTENT OF FISHERIES OF THE GULF STATES, VARIOUS YEARS, 1880 TO 1918—Contd.

Item.	1890	1897	1902	1908	1918
PERSONS ENGAGED.					
Florida (west coast).....	4,068	5,011	6,416	6,016	5,161
Alabama.....	618	789	1,098	895	783
Mississippi.....	1,721	2,565	4,344	1,561	2,867
Louisiana.....	4,068	4,403	5,027	5,152	4,191
Texas.....	1,277	1,199	1,144	1,780	1,886
Total.....	11,752	13,967	18,029	<sup>1</sup> 15,404	14,888
INVESTMENT.					
Florida (west coast).....	\$1,369,294	\$1,149,262	\$1,945,320	\$1,884,000	\$2,404,245
Alabama.....	135,290	165,189	328,285	292,000	334,741
Mississippi.....	434,710	518,301	1,270,408	461,000	1,433,585
Louisiana.....	719,876	513,813	789,723	841,000	1,475,188
Texas.....	319,122	237,496	373,724	454,000	890,100
Total.....	2,978,292	2,584,061	4,707,460	<sup>1</sup> 3,902,000	6,537,859
PRODUCTS. <sup>2</sup>					
Pounds:					
Florida (west coast).....	27,418,562	28,255,219	48,120,019	37,566,000	54,753,639
Alabama.....	4,776,968	4,699,381	9,351,447	9,918,450	5,609,219
Mississippi.....	8,131,401	7,829,685	23,426,965	17,302,000	20,592,089
Louisiana.....	20,789,203	17,401,788	24,754,135	42,302,000	24,953,876
Texas.....	7,959,400	7,174,550	8,044,404	10,439,000	25,014,760
Total.....	69,075,534	65,360,623	113,696,970	117,527,450	130,923,583
Value:					
Florida (west coast).....	\$1,064,139	\$944,793	\$1,462,166	\$2,120,000	\$3,420,363
Alabama.....	154,871	134,438	266,652	358,000	230,567
Mississippi.....	245,699	192,298	553,220	459,000	762,770
Louisiana.....	660,134	713,587	858,314	1,448,000	1,419,367
Texas.....	313,832	286,610	353,814	446,000	677,243
Total.....	2,438,675	2,271,726	3,494,196	4,831,000	6,510,310

<sup>1</sup> Exclusive of persons and investment in canneries, packing houses, and other establishments.

<sup>2</sup> The quantity and value of products given for Florida for 1888 in the report of the Division of Statistics and Methods of the Fisheries for 1919, page 137, include both coasts of the State, and those for Alabama for 1908 include the Tennessee River district.

## FISHERIES OF THE NEW ENGLAND STATES IN 1919.

The statistics of the coast fisheries of the New England States presented in this report are for the calendar year 1919 and have been published in summarized form in Statistical Bulletin No. 497.<sup>11</sup>

Included in this report are statistics of the sardine industry of Maine for 1919 and 1920 and the salmon fishery of the Penobscot River and Bay for 1918, 1919, and 1920.

## EARLIER PUBLICATIONS.

Some of the previous publications containing statistical information on the fisheries of the New England States and published in Washington, D. C., follow:

1873. Report on the Conditions of the Sea Fisheries of the South Coast of New England in 1871 and 1872. By Spencer F. Baird. Report, U. S. Commission of Fish and Fisheries, 1871 and 1872 (1873), p. i-xli.
1887. The Coast of Maine and Its Fisheries. By R. Edward Earll. *In* The Fisheries and Fishery Industries of the United States, by G. Brown Goode et al., Sec. II, Pt. I, p. 5-102.
- The Fisheries of New Hampshire. By W. A. Wilcox. *Ibid.*, Sec. II, Pt. II, p. 103-112.

<sup>11</sup> The statistical data were collected by Winthrop A. Roberts, Rob Leon Greer, Andrew J. Messner, Walter H. Rich, Lawrence T. Hopkinson, and Fred F. Johnson, statistical agents of the Bureau.

1887. The Fisheries of Massachusetts. By A. Howard Clark. *Ibid.*, Sec. II, Pt. III, p. 113-280.  
 The Fisheries of Rhode Island. By A. Howard Clark. *Ibid.*, Sec. II, Pt. IV, p. 281-310.  
 The Coast of Connecticut and Its Fisheries. By A. Howard Clark. *Ibid.*, Sec. V, p. 311-340.  
 History and Methods of the Fisheries. *Ibid.*, Sec. V, Vol. I (xi+808 p.), Vol. II (xx+881 p.), and atlas of 275 pls.
1889. The Sea Fisheries of Eastern North America. By Spencer F. Baird. Appendix A, Report, U. S. Commission of Fish and Fisheries, 1886 (1889), 224 p.
1891. Notes on the Oyster Fishery of Connecticut. By J. W. Collins. Bulletin, U. S. Fish Commission, Vol. IX, 1889 (1891), p. 461-497, Pl. CLIX-CLXVI.
1892. III. Fisheries of the New England States [1887 and 1888]. In Statistical Review of the Coast Fisheries of the United States, prepared under the direction of J. W. Collins. Report, U. S. Commission of Fish and Fisheries, 1888 (1892), p. 286-322.  
 Report on the Fisheries of the New England States. By J. W. Collins and Hugh M. Smith. Bulletin, U. S. Fish Commission, Vol. X, 1890 (1892), p. 73-176.
1898. The Herring Industry of the Passamaquoddy Region, Maine. By Ansley Hall. Report, U. S. Commission of Fish and Fisheries, 1896 (1898), p. 443-487.
1899. The Shad Fisheries of the Atlantic Coast of the United States. By Charles H. Stevenson. Report, U. S. Commission of Fish and Fisheries, 1898 (1899), p. 101-269.
1901. The Lobster Fishery of Maine. By John N. Cobb. Bulletin, U. S. Fish Commission, Vol. XIX, 1899 (1901), p. 241-265, illus., pl. 28-32.  
 Statistics of the Fisheries of the New England States. Report, U. S. Commission of Fish and Fisheries, 1900 (1901), p. 311-386.
1905. Statistics of the Fisheries of the New England States, 1902. Report, U. S. Bureau of Fisheries, 1904 (1905), p. 245-325.
1908. Statistics of the Fisheries of the New England States for 1905. Report and Special Papers, U. S. Bureau of Fisheries, 1906 (1908), 93 p.
1911. Fisheries of the United States, 1908. Special Reports, Bureau of the Census, 1911.

## COMMON AND SCIENTIFIC NAMES OF FISHES.

Following is a list of the common and scientific names of the fishes of New England States to which reference is made in the present report. If the trade will adopt the common names employed herein, it is believed that much of the confusion now encountered will be avoided and that in this way the consumer may be educated to the relative merits of individual species.

Alewives.....	{ <i>Pomolobus aestivalis</i> .
	{ <i>Pomolobus pseudoharengus</i> .
Bluefish.....	<i>Pomatomus saltatrix</i> .
Bonito.....	<i>Sarda sarda</i> .
Bullhead.....	<i>Ameiurus nebulosus</i> .
Butterfish.....	<i>Poronotus triacanthus</i> .
Carp.....	<i>Cyprinus carpio</i> .
Cod.....	<i>Gadus callarias</i> .
Cunner.....	<i>Tautoglabrus adspersus</i> .
Cusk.....	<i>Brosmius brosme</i> .
Eels.....	{ <i>Anguilla rostrata</i> .
	{ <i>Leptocephalus conger</i> .
Flounders.....	Pleuronectidæ (species).
Grayfish.....	<i>Squalus acanthias</i> .
Haddock.....	<i>Melanogrammus aeglefinus</i> .
Hake.....	{ <i>Urophycis tenuis</i> .
	{ <i>Urophycis chuss</i> .
Halibut.....	<i>Hippoglossus hippoglossus</i> .
Herring.....	<i>Clupea harengus</i> .
Hickory shad.....	<i>Pomolobus mediacris</i> .
King whiting.....	<i>Menticirrhus saxatilis</i> .

Launce.....	<i>Ammodytes americanus.</i>
Mackerel.....	<i>Scomber scombrus.</i>
Menhaden.....	<i>Brevoortia tyrannus.</i>
Monkfish.....	<i>Lophius piscatorius.</i>
Minnnows.....	Various species small fishes.
Perch, white.....	<i>Morone americana.</i>
Perch, yellow.....	<i>Perca flavescens.</i>
Pickeral.....	<i>Esox reticulatus.</i>
Pollock.....	<i>Pollachius virens.</i>
Pompano.....	<i>Trachinotus (species).</i>
Rosefish.....	<i>Sebastes marinus.</i>
Round herring.....	<i>Etrumeus teres.</i>
Salmon, Atlantic.....	<i>Salmo salar.</i>
Salmon, humpback.....	<i>Oncorhynchus gorbuscha.</i>
Sculpin.....	<i>Cottidæ (species).</i>
Scup.....	<i>Stenotomus chrysops.</i>
Sea bass.....	<i>Centropristes striatus.</i>
Sea robin.....	{ <i>Prionotus carolinus.</i> <i>Prionotus strigatus.</i>
Shad.....	<i>Alosa sapidissima.</i>
Sharks.....	All Selachii except Batoidei.
Skates and rays.....	Batoidei (species).
Smelt.....	<i>Osmerus mordax.</i>
Squeteague.....	<i>Cynoscion regalis.</i>
Striped bass.....	<i>Roccus lineatus.</i>
Sturgeon.....	<i>Acipenser sturio.</i>
Suckers.....	Catostomidæ (species).
Sunfish.....	Centrarchidæ (species).
Swordfish.....	<i>Xiphias gladius.</i>
Tautog.....	<i>Tautoga onitis.</i>
Tilefish.....	<i>Lopholatilus chamæconticeps.</i>
Tomcod.....	<i>Microgadus tomcod.</i>
Tuna.....	<i>Thunnus thynnus.</i>
Whiting.....	<i>Merluccius bilinearis.</i>
Wolfish.....	<i>Anarhichas lupus.</i>

#### GENERAL STATISTICS.

The fisheries of the New England States in 1919 gave employment to 30,767 persons, of whom 6,346 were on vessels fishing, 533 on vessels transporting fishery products, 10,968 in the shore or boat fisheries, and 12,920 shoresmen in the wholesale fishery trade, canneries, smokehouses, oysterhouses, and other shore industries connected with the fisheries. The number of persons engaged in the fisheries of the different States follows: Maine, 14,386; Massachusetts, 12,346; Connecticut, 2,289; Rhode Island, 1,646; and New Hampshire, 100. Compared with the returns for 1905, the year for which the last canvass was made by the Bureau, there has been a decrease in the number of persons employed in all of the States of 6,572 persons, or 17.60 per cent. The decrease by States follows: Massachusetts, 3,348 persons, or 21.33 per cent; Maine, 1,495 persons, or 9.41 per cent; Connecticut, 1,118 persons, or 32.81 per cent; Rhode Island, 566 persons, or 25.59 per cent; and New Hampshire, 45 persons, or 31.03 per cent.

The total amount of capital invested in the fisheries and fishery industries of these States in 1919 was \$40,597,097. There has been an increase of \$18,066,377, or 80.18 per cent, in money invested in the fisheries and fishery industries of the region since 1905. In Maine the investment amounted to \$17,544,969, an increase of \$8,572,920, or 95.55 per cent, as compared with 1905. In Massachusetts the investment was \$19,111,269, an increase of \$8,300,827,

or 76.79 per cent, compared with 1905. In Rhode Island the investment amounted to \$2,249,536, an increase of \$1,184,110, or 111.14 per cent. In Connecticut the investment was \$1,645,793, an increase of \$10,040, or 0.61 per cent, as compared with 1905; and in New Hampshire the investment in 1919 was \$45,530, a decrease of \$1,520, or 3.23 per cent, as compared with 1905. The investment included 757 fishing vessels, valued at \$8,501,081, having a net tonnage of 24,099 tons and outfits valued at \$2,400,500; 221 transporting vessels, valued at \$741,005, having a net tonnage of 3,214 tons and outfits valued at \$185,425; 10,364 boats, valued at \$2,280,713; fishing apparatus used by vessels and boats, valued at \$2,888,332; shore and accessory property to the value of \$20,354,089; and cash or working capital to the amount of \$3,245,952. The principal forms of fishing apparatus arranged in order of value are pound nets, trap nets, and weirs, 1,119 in number, valued at \$1,087,997; lobster pots, 239,558, valued at \$612,207; seines, 441, valued at \$415,507; gill nets, 14,616, valued at \$324,246; and lines valued at \$287,579.

The use of the otter trawl introduced in the vessel and shore fisheries for the capture of ground fish probably represents the most important change in apparatus since 1905. In 1905 none were reported in operation, while in 1919 there were 492, valued at \$37,987.

The combined catch of all the New England States amounted to 467,339,870 pounds, valued at \$19,838,657. Of this amount the largest quantity, amounting to 246,951,241 pounds, valued at \$10,859,746, is credited to Massachusetts. Maine ranks second, with a catch of 147,956,369 pounds, valued at \$3,889,035; Rhode Island third, with a catch of 48,250,883 pounds, valued at \$3,296,578; Connecticut fourth, with 23,652,647 pounds, valued at \$1,700,638; and New Hampshire fifth, with 528,730 pounds, valued at \$92,660.

The more important species taken in these States were: Cod, 84,917,535 pounds, valued at \$3,597,891; oysters, 19,337,374 pounds, or 2,762,482 bushels, valued at \$2,617,020; lobsters, 10,666,706 pounds, valued at \$2,550,980; haddock, 89,405,609 pounds, valued at \$2,544,617; and mackerel, 15,785,012 pounds, valued at \$1,562,088.

Compared with the Bureau's returns for 1905 there has been a decrease in the products of the fisheries of 12,943,734 pounds, or 2.70 per cent, in the quantity, and an increase of \$5,654,452, or 39.87 per cent, in the value. Compared with the returns of the Bureau of the Census for 1908 there has been a decrease in the products of 62,689,130 pounds, or 11.83 per cent, in the quantity and an increase of \$4,699,657, or 31.04 per cent, in the value. Compared with 1905 there was an increase in the quantity of products in Maine amounting to 23,232,583 pounds, or 18.62 per cent; in Rhode Island, of 24,354,640 pounds, or 101.92 per cent; but decreases in Connecticut of 51,320,001 pounds, or 68.45 per cent; in Massachusetts, of 8,703,234 pounds, or 3.40 per cent, and in New Hampshire of 507,722 pounds, or 48.99 per cent. In 1919 there was an increase in the value of the products in all of the States except Connecticut, as compared with 1905, as follows: Massachusetts, \$3,834,497, or 54.56 per cent; Rhode Island, \$1,749,920, or 113.14 per cent; Maine, \$1,502,629, or 62.96 per cent; and New Hampshire, \$40,716, or 78.38 per cent. In Connecticut the decrease in value amounted to \$1,473,310, or 46.42 per cent.

The following table gives the catch of certain species for various years from 1889 to 1919. These have been subdivided into groups



along the following general lines: (a) Species for which there have been relatively intensive fisheries and which on the basis of the returns reveal little indication of depletion of supply; (b) species showing signs of a depleted supply; and (c) species for which there has been an increasing demand and a sufficient supply to satisfy that demand.

PRODUCTS, IN POUNDS, OF CERTAIN FISHERIES OF THE NEW ENGLAND STATES, VARIOUS YEARS, 1889 TO 1919.

Year.	Cod.	Hake.	Mackerel.	Swordfish.	Clams, hard.
1889.....	97,145,645	14,816,306	8,361,408	1,230,339	544,200
1898.....	89,207,975	37,184,193	8,795,084	1,617,331	994,232
1902.....	88,254,949	33,182,559	20,358,982	1,689,740	1,223,200
1905.....	75,065,224	35,470,667	15,981,034	3,296,369	1,568,264
1908.....	95,284,000	34,121,300	11,492,000	2,703,000	1,381,000
1919.....	84,917,535	20,222,267	15,785,012	1,325,980	1,082,152

Year.	Halibut.	Alewives.	Shad.	Lobster.	Clams, soft.
1889.....	10,740,843	7,882,682	1,334,714	30,449,603	11,542,272
1898.....	10,828,187	6,985,948	1,415,649	14,661,808	11,296,901
1902.....	12,365,705	8,437,446	1,380,812	14,756,495	8,345,470
1905.....	3,017,776	8,743,284	1,260,904	11,524,499	6,375,850
1908.....	4,353,500	7,581,000	1,285,500	14,734,000	7,294,000
1919.....	1,960,030	3,782,289	939,995	10,666,707	4,992,874

Year.	Haddock.	Pollock.	Herring.	Whiting.	Flounders.
1889.....	43,473,627	8,442,397	36,316,259	126,089	2,950,978
1898.....	45,676,155	9,444,887	64,587,461	41,050	4,109,494
1902.....	47,077,315	17,744,127	191,739,467	2,513,470	4,808,746
1905.....	76,617,156	28,949,359	83,390,554	4,812,840	5,761,473
1908.....	59,544,000	29,244,300	121,700,000	713,000	9,753,000
1919.....	89,405,609	25,009,639	97,636,395	16,199,637	15,541,047

The following tables contain statistics of the number of persons employed, the amount of capital invested, the quantity and value of the products of the fisheries of the New England States in 1919, statistics of certain shellfish products in bushels and number, and comparative statistics of persons, investment, and products for various years from 1880 to 1919:

FISHERIES OF THE NEW ENGLAND STATES, 1919.

Item.	Maine.		New Hampshire.		Massachusetts.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing.....	1,004				4,459	
On vessels transporting.....	339		3		66	
In shore fisheries.....	5,332		85		3,737	
Shoresmen.....	7,711		12		4,084	
Total.....	14,386		100		12,346	
<b>INVESTMENT.</b>						
Vessels, fishing:						
Steam.....	5	\$1,002,500			34	\$2,484,545
Tonnage.....	662				3,310	
Outfit.....		70,050				429,961
Gasoline.....	173	514,650			308	2,776,508
Tonnage.....	2,039				8,202	
Outfit.....		91,013				1,059,438
Sail.....	4	53,000			54	808,315
Tonnage.....	392				4,734	
Outfit.....		25,800				352,312

## FISHERIES OF THE NEW ENGLAND STATES, 1919—Continued.

Item.	Maine.		New Hampshire.		Massachusetts.	
	Number.	Value.	Number.	Value.	Number.	Value.
INVESTMENT—continued.						
Vessels transporting:						
Steam.....	2	\$9,000				
Tonnage.....	28					
Outfit.....		2,800				
Gasoline.....	165	510,040	1	\$5,300	22	\$108,950
Tonnage.....	1,762		8		460	
Outfit.....		103,998		3,000		16,680
Sail.....	2	16,715			3	13,800
Tonnage.....	121				132	
Outfit.....		6,375				2,375
Boats:						
Sail, row, etc.....	2,759	83,639	31	802	1,308	58,488
Power.....	3,090	902,080	53	10,675	1,732	891,195
Apparatus, vessel fisheries:						
Seines.....	84	93,270			100	193,850
Gill nets.....	1,253	29,689			5,430	107,685
Otter trawls.....	13	2,520			119	17,850
Lines, hand and trawl.....		34,747				133,658
Harpoons.....		2,230				6,655
Lobster pots.....	1,085	2,195			430	1,050
Dredges.....	4	400			224	2,516
Tongs and rakes.....					3	49
Whaling apparatus.....						29,000
Apparatus, shore fisheries:						
Seines.....	103	44,055			67	46,045
Gill nets.....	2,786	71,214			3,688	77,323
Pound nets, trap nets, and weirs.....	690	514,665			254	387,470
Fyke nets.....	146	3,685			53	1,585
Bag nets and pocket nets.....	95	8,675				
Bow nets.....					13	36
Dip nets and scoop nets.....	102	776			104	374
Otter trawls.....	39	1,635			191	9,510
Lines, hand and trawl.....		61,410		462		51,412
Harpoons.....		215				540
Spears.....	42	57			72	171
Cunner traps.....	80	140			4	6
Eel pots and traps.....	599	1,198	18	36	1,826	4,455
Lobster pots.....	153,532	382,258	2,275	6,735	43,012	109,359
Crabs traps.....	180	330				
Dredges.....	24	2,500			2,764	16,521
Tongs and grabs.....					235	1,355
Rakes.....			2	12	784	5,656
Forks and hoes.....	1,103	1,167	25	50	475	887
Cockle traps.....					680	500
Shore and accessory property.....		11,864,571		11,958		7,000,239
Cash capital.....		1,029,707		5,500		1,902,945
Total.....		17,544,969		45,530		19,111,269
PRODUCTS.						
Alwivies:	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Fresh.....	580,811	\$7,455			1,097,476	\$23,070
Salted.....	6,860	176			1,259,134	55,995
Smoked.....	352,293	19,606			39,000	2,845
Bluefish.....	39	7			4,721	791
Bonito.....	44	4			189,727	18,016
Butterfish.....	32,763	3,031			296,828	26,810
Cod:						
Fresh.....	13,095,145	479,827	98,354	\$3,609	66,320,920	2,826,091
Salted.....	983,244	62,312			3,175,405	166,702
Cunner.....	30,695	615			9,959	585
Cusk:						
Fresh.....	1,046,147	33,580	2,409	86	1,561,337	55,068
Salted.....					16,870	759
Eels.....	305,050	25,249	2,000	240	374,167	47,714
Flounders.....	469,594	22,227	8,000	240	10,262,693	478,850
Grayfish.....					63,667	184
Goosefish or monkfish.....					2,500	7
Haddock:						
Fresh.....	11,124,411	332,215	18,764	829	77,804,810	2,191,215
Salted.....	73,400	2,812			373,574	16,996
Hake:						
Fresh.....	16,108,575	329,227	3,000	98	4,066,437	156,353
Salted.....	5,060	256			29,095	1,307
Halibut:						
Fresh.....	217,476	31,841			1,708,509	296,232
Salted.....	1,000	80			8,045	1,060
Herring:						
Fresh.....	86,646,126	455,604			10,811,409	129,408
Salted.....	6,200	187				
Smoked.....	161,550	6,715				

## FISHERIES OF THE NEW ENGLAND STATES, 1919—Continued.

Item.	Maine.		New Hampshire.		Massachusetts.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS—continued.						
Hickory shad.....					12, 800	\$830
King whiting.....					72	18
Lance.....					67, 800	838
Mackerel:						
Fresh.....	593, 506	\$81, 428			12, 267, 132	1, 212, 461
Salted.....	8, 000	650			1, 249, 062	109, 948
Frigate.....					61, 361	1, 862
Menhaden.....					161, 219	2, 231
Minnnows.....					1, 000	125
Perch:						
White.....					6, 200	920
Yellow.....					500	25
Pollock:						
Fresh.....	5, 597, 163	113, 487	25, 600	\$615	19, 192, 388	468, 169
Salted.....	34, 800	2, 440			50, 153	1, 774
Pompano.....					14	2
Rosefish.....	17, 322	245			36, 773	1, 124
Round herring.....					941	19
Salmon:						
Atlantic.....	20, 610	7, 926				
Humpback.....	310	62				
Sculpin.....					6, 000	15
Scup.....					78, 624	5, 666
Sea bass.....					15, 067	1, 649
Sea robin.....					490	1
Shad.....	414, 455	28, 393			62, 337	4, 309
Sharks.....	39, 747	884			328, 399	3, 664
Skates and rays.....	2, 385	47			100, 354	503
Smelt.....	523, 967	94, 496			39, 150	10, 690
Squeteague.....					5, 777	908
Striped bass.....	592	113			971	231
Sturgeon.....	8, 129	1, 714			12, 098	3, 358
Sturgeon caviar.....					150	356
Sturgeon roe.....	143	297			181	163
Suckers.....	110, 400	11, 852				
Swordfish.....	424, 813	104, 734			711, 729	155, 330
Tautog.....	14	2			91, 876	8, 885
Tilefish.....					188, 180	9, 803
Tomcod.....	147, 160	4, 511			7, 890	239
Tuna.....	31, 909	2, 040			42, 901	3, 548
Whiting:						
Fresh.....	684, 970	4, 727			13, 918, 650	148, 854
Salted.....	3, 000	90				
Wolfish.....	83, 958	2, 061			291, 188	9, 219
Other fish.....					38, 232	2, 117
Lobster.....	5, 545, 884	1, 411, 548	298, 012	73, 203	2, 387, 636	516, 393
Shrimp.....					3, 400	1, 589
Crabs:						
Hard.....	70, 575	3, 595			1, 764, 961	49, 424
Soft.....					266	40
Squid.....	377	4			6, 134, 557	108, 864
Clams:						
Hard—						
Public.....					853, 304	271, 342
Private.....					22, 640	12, 425
Soft—						
Public.....	2, 105, 734	163, 209	66, 600	13, 320	2, 062, 630	232, 194
Private.....					125, 000	10, 750
Razor.....					23, 300	3, 500
Oysters:						
Market—						
Public.....					5, 579	1, 383
Private.....					769, 055	278, 164
Seed—						
Public.....					23, 100	1, 320
Private.....					80, 178	6, 552
Scallops.....	72, 512	31, 416			1, 332, 486	439, 382
Mussels.....	16, 970	367				
Cockles and winkles.....					577, 400	3, 425
Blackfish.....					40, 000	40
Porpoise.....					750	15
Livers.....	112, 587	1, 712			313, 575	4, 844
Spawn.....	18, 857	778			146, 929	8, 836
Tongues and cheeks.....	5, 200	190			600	12
Soundns.....	5, 212	96				
Oil:						
Sperm.....					1, 545, 413	218, 111
Liver.....	8, 625	895				
Ambergris.....					30	5, 000
Alewife scales.....					10, 400	5, 200
Irish moss.....			6, 000	420	204, 200	15, 027
Total.....	147, 956, 369	3, 889, 035	528, 730	92, 660	246, 951, 241	10, 859, 746

## FISHERIES OF THE NEW ENGLAND STATES, 1919—Continued.

Item.	Rhode Island.		Connecticut.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing.....	317		566		6,346	
On vessels transporting.....	44		81		533	
In shore fisheries.....	795		1,019		10,968	
Shoresmen.....	490		623		12,920	
Total.....	1,646		2,289		30,767	
<b>INVESTMENT.</b>						
Vessels, fishing:						
Steam.....	9	\$141,000	24	\$328,243	72	\$3,956,288
Tonnage.....	564		2,240		6,776	
Outfit.....		51,910		135,346		687,267
Gasoline.....	55	199,400	67	180,425	603	3,670,983
Tonnage.....	849		924		12,014	
Outfit.....		82,025		94,690		1,327,166
Sail.....			24	12,495	82	873,810
Tonnage.....			183		5,309	
Outfit.....				7,955		386,067
Vessels transporting:						
Steam.....	5	22,000	2	13,200	9	44,200
Tonnage.....	77		111		216	
Outfit.....		23,800		9,627		36,227
Gasoline.....	13	29,200	4	7,800	205	662,290
Tonnage.....	104		95		2,429	
Outfit.....		10,500		4,370		138,548
Sail.....					5	30,515
Tonnage.....					253	
Outfit.....						8,750
Barge.....			2	4,000	2	4,000
Tonnage.....			316		316	
Outfit.....				1,900		1,900
Boats:						
Sail, row, etc.....	196	4,503	399	9,670	4,693	157,102
Power.....	432	182,780	364	136,881	5,671	2,123,611
Apparatus, vessel fisheries:						
Seines.....	18	24,695	4	7,800	206	319,615
Gill nets.....	780	14,445	115	2,680	7,578	154,499
Pound nets.....	25	75,000			25	75,000
Other trawls.....	20	973	14	680	166	22,023
Lines, hand and trawl.....		785		555		169,745
Harpoons.....		561		600		10,046
Lobster pots.....	635	1,985	480	745	2,630	5,975
Dredges.....	48	2,092	372	8,437	648	13,445
Tongs and rakes.....					3	49
Whaling apparatus.....						29,000
Apparatus, shore fisheries:						
Seines.....	11	899	54	4,893	235	95,892
Gill nets.....	360	7,300	204	13,910	7,038	169,747
Pound nets, trap nets, and weirs.....	108	101,750	42	9,112	1,094	1,012,997
Fyke nets.....	290	5,218	439	3,985	928	14,473
Bag nets and pocket nets.....					95	8,675
Bow nets.....					13	36
Dip nets and scoop nets.....	30	450	7	35	243	1,635
Other trawls.....	43	2,425	53	2,394	326	15,964
Lines, hand and trawl.....		4,492		58		117,834
Harpoons.....		690		80		1,525
Spears.....			30	39		267
Cunner traps.....					84	146
Eel pots and traps.....	995	1,035	801	617	4,239	7,341
Lobster pots.....	21,936	65,346	16,173	42,534	236,928	606,232
Crab traps.....					180	330
Dredges.....	201	1,119	55	395	3,044	20,535
Tongs and grabs.....	247	1,999	244	1,994	726	5,348
Rakes.....	29	166	61	367	876	6,201
Forks and hoes.....	152	148	68	69	1,823	2,321
Shovels.....	43	43	13	13	56	56
Cockle traps.....					680	500
Winkle pots.....	260	880			260	880
Shore and accessory property.....		978,622		498,699		20,354,089
Cash capital.....		209,300		98,500		3,245,952
Total.....		2,249,536		1,645,793		40,597,097

## FISHERIES OF THE NEW ENGLAND STATES, 1919—Continued.

Item.	Rhode Island.		Connecticut.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>PRODUCTS.</b>						
Alewives:						
Fresh.....	269,565	\$5,916	177,150	\$6,637	2,125,002	\$43,078
Salted.....					1,265,994	56,171
Smoked.....					391,293	22,451
Bluefish.....	25,675	3,170	3,710	386	34,145	4,351
Bonito.....	114,810	10,825	6,120	912	310,701	29,759
Bullheads.....			1,492	100	1,492	100
Butterfish.....	758,845	39,188	18,810	2,607	1,107,246	71,636
Carp.....			40,141	4,922	40,141	4,922
Cod:						
Fresh.....	1,148,331	49,747	96,136	9,603	80,758,886	3,368,877
Salted.....					4,158,649	229,014
Cunner.....	8,000	960			48,654	2,160
Cusk:						
Fresh.....			6,767	73	2,616,651	88,807
Salted.....					16,870	759
Eels.....	274,735	29,637	63,046	9,839	1,018,998	112,679
Flounders.....	2,451,579	79,567	2,349,181	91,962	15,541,047	672,846
Grayfish.....					63,667	184
Goosefish or monkfish.....					2,500	7
Haddock:						
Fresh.....	10,300	512	350	38	88,958,635	2,524,809
Salted.....					446,974	19,808
Hake:						
Fresh.....			10,100	102	20,188,112	485,780
Salted.....					34,155	1,563
Halibut:						
Fresh.....			25,000	5,000	1,950,985	333,073
Salted.....					9,045	1,140
Herring:						
Fresh.....	169,660	4,010	3,000	71	97,630,195	589,093
Salted.....					6,200	187
Smoked.....					161,550	6,715
Hickory shad.....					12,800	830
King whiting.....						72
Launce.....					67,800	838
Mackerel:						
Fresh.....	1,575,923	146,611	91,389	10,990	14,527,950	1,451,490
Salted.....					1,257,062	110,598
Frigate.....					61,361	1,862
Menhaden.....	21,536,000	268,700	6,736,564	93,312	28,433,783	364,243
Minnows.....					1,000	125
Perch:						
White.....	5,043	702			11,243	1,622
Yellow.....			6,108	595	6,608	620
Pickarel.....			1,079	143	1,079	143
Pollock:						
Fresh.....	99,400	5,920	10,135	717	24,924,686	588,908
Salted.....					84,953	4,214
Pompano.....					14	2
Rosefish.....					54,095	1,369
Round herring.....					941	19
Salmon:						
Atlantic.....	70	12			20,680	7,938
Humpback.....					310	62
Sculpin.....					6,000	15
Scup.....	8,261,140	817,846	1,980	202	8,341,744	823,714
Sea bass.....	52,041	5,954	3,555	528	70,663	8,131
Sea robin.....					400	1
Shad.....			463,203	86,637	939,995	119,339
Sharks.....					368,146	4,548
Skates and rays.....			400	10	103,139	560
Smelt.....			25,217	4,466	588,334	109,652
Squeteague.....	353,860	33,829	23,076	3,257	382,713	37,994
Striped bass.....	33,705	5,236	4,810	1,059	40,078	6,639
Sturgeon.....			25	5	20,252	5,077
Sturgeon caviar.....					150	356
Sturgeon roe.....					324	460
Suckers.....			99,053	7,488	209,453	19,340
Sunfish.....			105	11	105	11
Swordfish.....	101,010	19,757	88,428	15,006	1,325,980	294,827
Tautog.....	371,660	22,191	21,942	2,068	485,492	33,146
Tilefish.....					188,180	9,803
Tomcod.....			455	37	155,505	4,787
Tuna.....	61,350	4,810	5,114	550	141,274	10,948
Whiting:						
Fresh.....	1,583,700	16,010	9,317	175	16,196,637	169,766
Salted.....					3,000	90
Wolfish.....					375,146	11,280
Other fish.....					38,232	2,117
Lobster.....	1,694,327	360,679	740,848	189,157	10,666,707	2,550,980

FISHERIES OF THE NEW ENGLAND STATES, 1919—Continued.

Item.	Rhode Island.		Connecticut.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS—continued.						
Shrimp.....					3,400	\$1,589
Crabs:						
Hard.....	34,330	\$1,802			1,839,866	54,821
Soft.....					266	40
Squid.....	377,579	18,730	3,612	\$258	6,516,125	127,856
Clams:						
Hard—						
Public.....	156,232	59,649	49,976	18,912	1,059,512	349,903
Private.....					22,640	12,425
Soft—						
Public.....	403,760	24,075	229,150	32,070	4,867,874	464,868
Private.....					125,000	10,750
Razor.....					23,300	3,500
Oysters:						
Market—						
Public.....			136,654	21,900	142,233	23,283
Private.....	6,261,759	1,242,585	4,828,668	471,766	11,857,482	1,992,515
Seed—						
Public.....			740,516	68,349	763,616	69,669
Private.....			6,493,865	525,001	6,574,043	531,553
Scallops.....	33,994	14,608	38,400	13,717	1,477,392	499,123
Mussels.....	10,000	1,000			26,970	1,367
Cockles and winkles.....	10,500	2,100			587,900	5,525
Blackfish.....					40,000	40
Porpoise.....					750	15
Livers.....					426,162	6,556
Spawn.....					165,786	9,614
Tongues and cheeks.....					5,800	202
Sounds.....					5,212	96
Oil:						
Sperm.....					1,545,413	218,111
Liver.....					8,625	895
Ambergris.....					30	5,000
Alewife scales.....					10,400	5,200
Irish moss.....	2,000	240			212,200	15,687
Total.....	48,250,883	3,296,578	23,652,647	1,700,638	467,339,879	19,838,657

CERTAIN OF THE FOREGOING SHELLFISH PRODUCTS IN BUSHELS AND NUMBER.

Products.	Maine.		New Hampshire.		Massachusetts.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Clams:						
Hard (quahogs)—						
Public..... bushels.....					106,663	\$271,342
Private..... do.....					2,830	12,425
Soft—						
Public..... do.....	210,573	\$163,209	6,660	\$13,320	206,263	232,194
Private..... do.....					12,500	10,750
Razor..... do.....					2,330	3,500
Oysters:						
Market—						
Public..... do.....					797	1,383
Private..... do.....					109,865	278,164
Seed—						
Public..... do.....					3,300	1,320
Private..... do.....					11,454	6,552
Scallops..... do.....	12,085	31,416			222,081	439,382
Mussels..... do.....	1,697	367				
Cockles..... do.....					57,740	3,425
Crabs:						
Hard..... number.....	211,725	3,595			5,294,883	49,424
Soft..... do.....					798	40

CERTAIN OF THE FOREGOING SHELLFISH PRODUCTS IN BUSHELS AND NUMBER—  
Continued.

Products.	Rhode Island.		Connecticut.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Clams:						
Hard (quahogs)—						
Public.....bushels.....	19,529	\$59,649	6,247	\$18,912	132,439	\$349,093
Private.....do.....					2,830	12,425
Soft—						
Public.....do.....	40,376	24,075	22,915	32,070	486,787	464,868
Private.....do.....					12,500	10,750
Razor.....do.....					2,330	3,500
Oysters:						
Market—						
Public.....do.....			19,522	21,900	20,319	23,288
Private.....do.....	894,537	1,242,585	689,524	471,766	1,693,926	1,992,515
Seed—						
Public.....do.....			105,788	68,349	109,088	69,668
Private.....do.....			927,695	525,001	939,149	531,555
Scallops.....do.....	5,666	14,608	6,400	13,717	246,232	499,122
Mussels.....do.....	1,000	1,000			2,697	1,367
Cockles.....do.....					57,740	3,422
Winkles.....do.....	1,050	2,100			1,050	2,100
Crabs:						
Hard.....number.....					5,506,608	53,019
Soft.....do.....					798	40

## EXTENT OF FISHERIES OF NEW ENGLAND STATES, VARIOUS YEARS, 1880 TO 1919.

Item.	1880	1887	1888	1889
PERSONS ENGAGED.				
Maine.....	11,071	15,323	15,171	14,123
New Hampshire.....	414	346	362	365
Massachusetts.....	20,117	17,053	17,037	17,238
Rhode Island.....	2,310	1,635	1,703	1,757
Connecticut.....	3,131	3,024	3,037	3,047
Total.....	37,043	37,381	37,310	36,533
INVESTMENT.				
Maine.....	\$3,341,344	\$3,179,233	\$3,023,921	\$2,889,893
New Hampshire.....	209,465	106,110	107,144	112,660
Massachusetts.....	14,334,450	13,205,050	13,110,765	13,245,222
Rhode Island.....	596,678	992,761	1,022,876	1,020,177
Connecticut.....	1,421,020	2,897,687	2,869,314	2,826,891
Total.....	19,902,957	20,380,841	20,134,020	20,094,783
PRODUCTS				
Pounds:				
Maine.....		131,379,591	132,929,594	129,559,800
New Hampshire.....		4,254,727	3,843,479	4,354,560
Massachusetts.....		299,544,343	302,045,686	299,217,600
Rhode Island.....		45,284,872	91,687,487	127,365,400
Connecticut.....		39,750,008	42,401,612	92,672,400
Total.....		520,213,541	572,907,858	653,170,000
Value:				
Maine.....	\$2,742,571	\$2,354,906	\$2,292,043	\$2,111,200
New Hampshire.....	170,634	99,460	90,044	88,500
Massachusetts.....	7,959,760	6,464,396	6,355,495	5,858,200
Rhode Island.....	696,814	683,495	825,092	935,100
Connecticut.....	933,242	300,746	297,337	1,557,500
Total.....	12,503,021	9,913,003	9,860,011	10,550,600

1 The statistics for 1908 are from data published by the Bureau of the Census.

EXTENT OF FISHERIES OF NEW ENGLAND STATES, VARIOUS YEARS, 1880 TO 1919—  
Continued.

Item.	1898	1902	1905	1908	1919
<b>PERSONS ENGAGED.</b>					
Maine.....	16,954	19,832	15,881	6,861	14,386
New Hampshire.....	154	161	145	79	100
Massachusetts.....	14,363	14,300	15,694	11,577	12,346
Rhode Island.....	1,687	2,117	2,212	1,493	1,646
Connecticut.....	2,473	2,840	3,407	2,147	2,289
Total.....	35,631	39,250	37,339	22,157	30,767
<b>INVESTMENT.</b>					
Maine.....	\$4,013,053	\$6,939,503	\$8,972,049	\$2,411,000	\$17,544,959
New Hampshire.....	52,648	42,002	47,050	23,000	45,530
Massachusetts.....	13,372,902	10,811,594	10,810,442	5,750,000	19,111,269
Rhode Island.....	957,142	1,014,280	1,065,426	1,504,000	2,249,488
Connecticut.....	1,241,291	1,201,055	1,635,753	2,281,000	1,645,793
Total.....	19,637,036	20,008,434	22,530,720	11,969,000	40,597,049
<b>PRODUCTS.</b>					
<b>Pounds:</b>					
Maine.....	123,404,561	242,390,371	124,723,786	173,843,000	147,956,369
New Hampshire.....	3,020,715	1,593,013	1,036,452	677,000	528,730
Massachusetts.....	202,257,817	230,645,950	255,654,475	244,313,000	246,951,241
Rhode Island.....	32,854,396	21,613,964	23,896,243	44,254,000	48,250,883
Connecticut.....	31,920,417	37,832,149	74,972,648	66,942,000	23,652,647
Total.....	393,457,906	534,075,447	480,283,604	530,029,000	470,995,169
<b>Value:</b>					
Maine.....	\$2,654,919	\$2,918,772	\$2,386,406	\$3,257,000	\$3,889,035
New Hampshire.....	48,987	50,003	51,944	53,000	92,660
Massachusetts.....	4,463,727	6,482,427	7,025,249	7,095,000	10,859,746
Rhode Island.....	955,058	1,155,701	1,546,658	1,752,000	3,296,578
Connecticut.....	1,559,599	1,799,381	3,173,948	2,982,000	1,700,638
Total.....	9,682,290	12,406,284	14,184,205	15,139,000	19,887,406

## BY-PRODUCTS.

Only a few firms are engaged solely in the preparation of by-products in the New England States and several of these are the sole manufacturers of a particular product within the State or section, the greater part of the material being prepared incidental to other branches of the fishery trade. It is therefore impracticable to present a detailed table of this important industry for individual States. In the following table the quantity and value of the products are shown as completely as possible without disclosing private enterprise.

In view of the increased demand for protein feed for hogs, cattle, and poultry, it is suggested that New England producers of scrap and pomace give consideration to the manufacture of fish waste and waste fish into fish meal for feeding purposes.

## QUANTITY AND VALUE OF VARIOUS FISHERY BY-PRODUCTS PREPARED IN NEW ENGLAND IN 1919.

Item.	Maine.		Massachusetts.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>Oil:</b>						
Liver.....gallons..	<sup>1</sup> 97,077	\$106,363	158,797	\$180,635	<sup>2</sup> 255,874	\$286,998
Herring.....do..	23,861	14,569	.....	.....	23,861	14,569
Sperm.....do..	.....	.....	206,055	218,111	<sup>3</sup> 206,055	218,111
Liquid glue.....do..	25,058	34,583	<sup>4</sup> 388,252	474,924	413,310	509,507
Fish scrap and meal.....pounds..	4,115,200	130,461	6,291,997	140,570	10,407,197	271,031
Herring pomace.....do..	1,271,424	16,411	.....	.....	1,271,424	16,411
Other products.....do..	.....	.....	.....	.....	<sup>5</sup> 333,135	.....
Total.....	.....	302,387	.....	1,014,238	.....	1,649,762

<sup>1</sup> Includes a small quantity made in New Hampshire.<sup>2</sup> Of this amount, 1,150 gallons, or 8,625 pounds, valued at \$895, were produced by fishermen.<sup>3</sup> All produced by fishermen.<sup>4</sup> Includes a small quantity of dry glue.<sup>5</sup> Includes value of oyster shell grit made in Rhode Island and menhaden oil, dry scrap, and acidulated scrap made in Connecticut.



## FISHERIES OF MAINE.

Maine ranks first among the New England States in the number of persons engaged in the fisheries and related industries, but is surpassed by Massachusetts in the amount of capital invested and the quantity and value of fishery products. In 1919 the number of persons engaged in the various branches of the fishery industry in Maine was 14,386, of whom 1,004 were on vessels fishing, 339 on vessels transporting fishery products, 5,332 in the shore or boat fisheries, and 7,711 in the wholesale fishery trade, canning sardines, and other fishery industries.

The amount of capital invested amounted to \$17,544,969, which includes 351 fishing and transporting vessels, valued at \$2,105,905, with a net tonnage of 5,004 tons and outfits valued at \$300,036; 5,849 power, sail, row, and other small boats, valued at \$985,719; fishing apparatus to the value of \$1,259,031, of which gear to the value of \$165,051 was employed in the vessel fisheries and gear to the value of \$1,093,980 on boats; shore and accessory property to the value of \$11,864,571; and cash or working capital to the amount of \$1,029,707.

The products of the fisheries amounted to 147,956,369 pounds, valued at \$3,889,035. This represents 31.65 per cent of the total quantity and 19.60 per cent of the total value of the products of the fisheries of the New England States in 1919. Compared with 1905 there was an increase of 18.62 per cent in quantity and 62.96 per cent in value to the fishermen. Compared with 1908 there was a decrease of 14.89 per cent in the quantity and an increase in the value of 19.40 per cent. Among the products of special importance were the following: Lobsters, 5,545,884 pounds, valued at \$1,411,548; cod, fresh and salted, 14,078,389 pounds, valued at \$542,139; herring, fresh, salted, and smoked, 86,813,876 pounds, valued at \$462,506; haddock, fresh and salted, 11,197,811 pounds, valued at \$335,027; and hake, fresh and salted, 16,113,635 pounds, valued at \$329,483.

## FISHERIES BY COUNTIES.

Statistics as to number of persons employed, investment, and products of the fisheries of Maine in 1919 are given by counties in the following table:

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF MAINE IN 1919, BY COUNTIES.

Item.	Cumberland.		Hancock.		Kennebec.		Knox.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
PERSONS ENGAGED.								
On vessels fishing.....	321	.....	180	.....		.....	254	.....
On vessels transporting.....	19	.....	64	.....		.....	47	.....
In shore fisheries.....	621	.....	1,489	.....	36	.....	676	.....
Shoresmen.....	852	.....	1,145	.....		.....	668	.....
Total.....	1,813	.....	2,878	.....	36	.....	1,645	.....

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF MAINE IN 1919, BY COUNTIES—Continued.

Item.	Cumberland.		Hancock.		Kennebec.		Knox.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
<b>INVESTMENT.</b>								
Vessels fishing:								
Steam.....	1	\$2,500					4	\$1,000,000
Tonnage.....	9						653	
Outfit.....		300						69,750
Gasoline.....	62	214,250	27	\$36,500			40	66,200
Tonnage.....	808		272				308	
Outfit.....		40,382		9,855				8,730
Sail.....			4	53,000				
Tonnage.....			392					
Outfit.....				25,800				
Vessels transporting:								
Gasoline.....	9	26,900	29	69,530			22	84,200
Tonnage.....	70		290				213	
Outfit.....		3,075		21,250				13,128
Sail.....			1	15,000				
Tonnage.....			75					
Outfit.....				6,200				
Boats:								
Power.....	488	173,325	832	286,210			522	147,900
Sail, row, etc.....	150	4,070	654	15,195	12	\$320	537	17,995
Apparatus, vessel fisheries:								
Otter trawls.....	3	90					5	2,050
Lines.....		18,112		4,305				3,545
Seines.....	35	26,320	11	12,700			15	19,300
Gill nets.....	813	22,590					50	750
Harpoons.....		1,705						25
Lobster pots.....			220	495			865	1,700
Dredges.....							4	400
Apparatus, shore fisheries:								
Pound nets, trap nets, and weirs.....	17	11,800	243	170,225			75	59,400
Lines, hand and trawl.....		13,084		25,376				8,255
Gill nets.....	1,020	29,630	213	6,255	19	550	6	120
Seines.....	42	14,130	10	10,150			20	3,200
Bag nets and pocket nets.....			15	1,025	6	450		
Fyke nets.....	1	200			81	1,485		
Dip nets.....			4	12			22	43
Lobster pots.....	20,696	41,734	38,101	96,291			28,270	55,505
Eel pots and traps.....			60	90	28	55	12	25
Otter trawls.....	15	475	1	60			5	250
Crab traps.....	180	330						
Cunner traps.....	80	140						
Spears.....			13	15				
Harpoons.....		30						
Hoes and forks.....	119	119	424	424			69	70
Dredges.....			15	1,650			9	850
Shore and accessory property.....		1,868,540		1,538,545				1,363,515
Cash capital.....		440,607		116,550				181,820
<b>Total.....</b>		<b>2,954,438</b>		<b>2,522,718</b>		<b>2,860</b>		<b>3,108,726</b>
<b>PRODUCTS.</b>								
Alewives:	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Fresh.....	4,925	\$51	134,636	\$3,628			224,200	\$484
Salted.....			60	6				
Smoked.....			39,973	3,077			109,620	6,187
Bluefish.....	39	7						
Bonito.....	44	4						
Butterfish.....	15,135	1,392					178	21
Catfish and wolfish.....	36,622	772	86	2			46,309	1,266
Cod:								
Fresh.....	3,841,651	164,430	2,627,161	67,777			2,751,122	98,607
Salted.....			954,959	59,960			2,000	300
Cunner.....	30,695	615						
Cusk.....	564,601	20,189	113,772	1,599			72,749	1,510
Eels.....			7,050	950	7,050	\$600	1,000	100
Flounders.....	145,223	4,309	17,830	805			124,537	6,541
Haddock:								
Fresh.....	1,459,468	40,701	579,031	23,267			7,683,357	220,907
Salted.....				73,400				
Hake:								
Fresh.....	1,991,536	80,874	9,648,570	149,679			2,456,424	44,929
Salted.....			260	15			500	75

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF MAINE IN 1919, BY COUNTIES—Continued.

Item.	Cumberland.		Hancock.		Kennebec.		Knox.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS—continued.								
Halibut:								
Fresh.....	38, 215	\$6, 507	21, 087	\$3, 522			72, 048	\$9, 918
Salted.....			1, 000	80				
Herring:								
Fresh.....	3, 390, 072	33, 763	22, 178, 901	122, 641			9, 888, 575	45, 009
Smoked.....							29, 000	1, 700
Mackerel, fresh.....	223, 184	33, 918	16, 214	2, 100			41, 747	5, 926
Pollock:								
Fresh.....	1, 984, 382	45, 739	817, 583	12, 212			1, 321, 818	24, 136
Salted.....			7, 700	245				
Rosefish.....	15, 617	219						
Salmon, Atlantic.....	961	89	7, 050	2, 795				
Shad.....	22, 032	1, 584	78, 286	4, 840	7, 280	\$1, 365	120, 843	2, 429
Sharks.....	27, 729	622					529	15
Skates.....	2, 385	47						
Smelt.....	136, 202	12, 345	95, 435	16, 470	1, 350	340	93, 600	17, 150
Sturgeon.....	1, 618	177	2, 000	160			784	207
Suckers.....	3, 000	240			55, 300	6, 540		
Swordfish.....	307, 711	74, 515					27, 000	5, 840
Tautog.....	14	2						
Tomcod.....					65, 175	1, 955		
Tuna.....	8, 734	600						
Whiting:								
Fresh.....	610, 535	4, 016					11, 100	61
Salted.....	3, 000	90						
Squid.....	377	4						
Lobsters.....	670, 050	187, 904	1, 394, 959	346, 903			1, 362, 219	348, 850
Crabs, hard.....	70, 575	3, 595						
Clams, soft.....	442, 659	48, 131	636, 135	42, 416			162, 070	10, 376
Scallops.....			30, 800	14, 200			41, 712	17, 216
Mussels.....							16, 970	367
Sounds.....	692	13	120	1			4, 200	42
Spawn.....	10, 546	363					272	20
Livers.....	74, 949	1, 009	1, 100	13			3, 063	40
Total.....	16, 135, 178	768, 836	39, 485, 158	882, 175	136, 155	10, 809	26, 669, 546	870, 229

Item.	Lincoln.		Penobscot.		Sagadahoc.		Waldo.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
PERSONS ENGAGED.								
On vessels fishing.....	88							
On vessels transporting.....	4						8	
In shore fisheries.....	588		53		263		146	
Shoemen.....	92		61		5		154	
Total.....	772		114		268		308	
INVESTMENT.								
Vessels fishing: Gasoline.....	17	\$82, 700						
Tonnage.....	164							
Outfit.....		7, 051						
Vessels transporting:								
Gasoline.....	2	4, 200					8	\$18, 800
Tonnage.....	16						69	
Outfit.....		1, 165						2, 225
Boats:								
Power.....	298	73, 010	4	\$600	136	\$28, 140	56	14, 075
Sail, row, etc.....	410	11, 440	39	1, 550	162	4, 890	186	10, 054
Apparatus, vessel fisheries:								
Otter trawls.....	1	50						
Lines.....		1, 590						
Seines.....	18	25, 500						
Gill nets.....	15	400						
Apparatus, shore fisheries:								
Pound nets, trap nets, and weirs.....	25	15, 050	1	100	32	22, 500	103	77, 315
Lines, hand and trawl.....		4, 145		1, 200		2, 901		200
Gill nets.....	759	18, 755	60	705	287	8, 776		
Seines.....	18	7, 550			3	500		
Bag nets and pocket nets.....	16	1, 200	6	550	9	750	13	1, 300
Fyke nets.....	41	1, 160			23	840		
Dip nets.....	4	6						
Lobster pots.....	16, 366	33, 175			3, 213	6, 505	600	1, 200

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF MAINE IN 1919, BY COUNTIES—Continued.

Item.	Lincoln.		Penobscot.		Sagadahoc.		Waldo.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
<b>INVESTMENT—continued.</b>								
Apparatus, shore fisheries—Continued.								
Eel pots and traps.....	43	\$75	30	\$60	289	\$546	55	\$115
Otter trawls.....	11	500			7	350		
Spears.....	25	30						
Harpoons.....		55				30		
Hoes and forks.....	78	90			9	17		
Shore and accessory property.....		141,640		82,600		12,710		195,216
Cash capital.....		34,530		10,000		1,500		20,000
<b>Total.....</b>		<b>465,067</b>		<b>97,365</b>		<b>90,955</b>		<b>340,500</b>
<b>PRODUCTS.</b>								
<b>Alewives:</b>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Fresh.....	40,200	\$296	19,000	\$400	3,200	\$85	7,000	\$190
Salted.....	6,800	170						
Smoked.....	104,700	3,392			74,000	5,700		
Butterfish.....	800	80			16,650	1,538		
Catfish and wolffish.....	100	7						
<b>Cod:</b>								
Fresh.....	809,711	26,486			330,728	16,079	14,300	600
Salted.....	3,000	180						
Cusk.....	46,971	1,440			14,720	587		
Eels.....	52,000	4,060	24,000	2,400	175,650	12,525	8,000	800
Flounders.....	52,403	3,748			39,950	3,196		
Haddock, fresh.....	188,714	5,593			32,382	1,187	2,000	80
Hake, fresh.....	1,079,617	18,805			309,940	12,238	4,300	130
Halibut, fresh.....	811	122			11,040	1,750		
<b>Herring:</b>								
Fresh.....	5,174,117	41,658			641,400	5,011	5,479,880	22,518
Smoked.....	120,000	4,200						
<b>Mackerel:</b>								
Fresh.....	170,511	24,049			72,143	8,801	8,707	1,354
Salted.....	8,000	650						
Pollock, fresh.....	468,170	9,076			109,650	1,773	4,000	110
Rosefish.....	800	12						
Salmon, Atlantic.....			2,650	1,131	4,812	1,745	3,857	1,845
Shad.....	139,384	11,174	13	8	39,050	6,330	3,121	220
Sharks.....	9,644	193						
Smelt.....	53,500	13,242	1,900	475	74,250	18,811	23,450	5,862
Striped bass.....					535	101	57	12
Sturgeon.....	950	184			2,777	986		
Sturgeon roe.....					143	297		
Suckers.....	40,500	3,810			11,600	1,262		
Tomcod.....	37,160	1,116	24,000	600			15,000	375
Tuna.....	17,300	1,088			5,875	352		
Whiting, fresh.....	400	4			59,600	596		
Lobsters.....	619,886	152,327			147,664	39,739	8,800	640
Clams, soft.....	192,600	15,252			7,860	899		
Spawn.....	163	8						
Livers.....	4,375	73						
<b>Total.....</b>	<b>9,443,287</b>	<b>342,495</b>	<b>71,563</b>	<b>5,014</b>	<b>2,185,599</b>	<b>141,588</b>	<b>5,582,472</b>	<b>34,736</b>

Item.	Washington.		York.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing.....	58		103		1,004	
On vessels transporting.....	197				339	
In shore fisheries.....	1,263		197		5,332	
Snoresmen.....	4,725		9		7,711	
<b>Total.....</b>	<b>6,243</b>		<b>309</b>		<b>14,386</b>	
<b>INVESTMENT.</b>						
<b>Vessels fishing:</b>						
Steam.....					5	\$1,002,500
Tonnage.....						662
Outfit.....						70,050
Gasoline.....	13	\$33,500	14	\$81,500	173	514,650
Tonnage.....	176		311		2,039	
Outfit.....		11,228		13,767		91,013
Sail.....					4	53,000
Tonnage.....					392	
Outfit.....						25,800

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF MAINE IN 1919, BY COUNTIES—Continued.

Item.	Washington.		York.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>INVESTMENT—continued.</b>						
Vessels transporting:						
Steam:						
Tonnage.....	28	\$9,000			28	\$9,000
Outfit.....		2,800				2,800
Gasoline:						
Tonnage.....	1,104	306,410			1,762	510,040
Outfit.....		63,155				103,998
Sail:						
Tonnage.....	1	1,715			2	16,715
Outfit.....	46	175			121	6,375
Boats:						
Power.....	613	139,945	141	\$38,875	3,090	902,080
Sail, row, etc.	537	16,550	42	1,575	2,759	83,639
Apparatus, vessel fisheries:						
Otter trawls.....			4	330	13	2,520
Lines.....		745		6,450		34,747
Seines.....	5	9,450			84	93,270
Gill nets.....			375	5,949	1,253	29,689
Harpoons.....				500		2,230
Lobster pots.....					1,085	2,195
Dredges.....					4	400
Apparatus, shore fisheries:						
Pound nets, trap nets, and weirs.....	194	158,275			690	514,665
Lines, hand and trawl.....		4,245		2,004		61,410
Gill nets.....	65	1,573	357	4,849	2,786	71,214
Seines.....	6	4,700	4	3,825	103	44,055
Bag nets and pocket nets.....	3	3,490			95	8,675
Fyke nets.....					146	3,085
Dip nets.....	58	295	14	420	102	776
Lobster pots.....	38,685	126,630	7,601	21,218	153,532	382,258
Eel pots and traps.....	63	194	19	38	599	1,198
Otter trawls.....					39	1,635
Crab traps.....					180	330
Cunner traps.....					80	140
Spears.....			4	12	42	57
Harpoons.....				100		215
Hoes and forks.....	396	431	8	16	1,103	1,167
Dredges.....					24	2,500
Shore and accessory property.....		6,646,220		15,585		11,864,571
Cash capital.....		222,700		2,000		1,029,707
Total.....		7,763,336		199,004		17,544,969
<b>PRODUCTS.</b>						
Alewives:						
Fresh.....	147,650	\$2,321			580,811	\$7,455
Salted.....					6,860	176
Smoked.....	24,000	1,250			352,293	19,606
Bluefish.....					39	7
Bonito.....					4	4
Butterfish.....					32,763	3,031
Catfish and wolfish.....			841	\$14	83,958	2,061
Cod:						
Fresh.....	1,204,742	36,935	1,515,730	68,913	13,095,145	479,827
Salted.....	16,925	1,445	6,360	427	983,244	62,312
Cunner.....					30,695	615
Cusk.....	15,049	353	218,285	7,902	1,046,147	33,580
Eels.....	18,300	2,125	12,000	1,680	305,050	25,249
Flounders.....	2,740	251	86,911	3,377	469,594	22,227
Haddock:						
Fresh.....	142,685	5,522	1,036,774	34,958	11,124,411	332,215
Salted.....					73,400	2,812
Hake:						
Fresh.....	140,278	2,862	477,910	19,710	16,108,575	329,227
Salted.....	4,306	166			5,060	256
Halibut:						
Fresh.....	53,345	6,422	20,930	3,600	217,476	31,841
Salted.....					1,006	80
Herring:						
Fresh.....	39,893,181	185,004			86,646,126	455,604
Salted.....	6,200	187			6,200	187
Smoked.....	12,550	815			161,550	6,715
Mackerel:						
Fresh.....			1,000	5,280	593,506	81,428
Salted.....					8,006	650
Pollock:						
Fresh.....	638,680	12,657	252,880	7,784	5,597,163	113,487
Salted.....	25,100	2,095	2,000	100	34,800	2,440

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF THE FISHERIES OF MAINE IN 1919, BY COUNTIES—Continued.

Item.	Washington.		York.		Total.	
	*Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS—continued.						
Rosefish.....			905	\$14	17,322	\$245
Salmon:						
Atlantic.....	1,280	\$321			20,610	7,926
Humpback.....	310	62			310	62
Shad.....	4,000	390	446	53	414,455	28,393
Sharks.....			1,845	54	39,747	884
Skates.....					2,385	47
Smelt.....	36,300	8,226	8,000	1,575	523,967	94,496
Striped bass.....					592	113
Sturgeon.....					8,129	1,714
Sturgeon roe.....					143	297
Suckers.....					110,400	11,852
Swordfish.....			90,102	24,379	424,813	104,734
Tautog.....					14	2
Tomeod.....	5,825	465			147,160	4,511
Tuna.....					31,909	2,040
Whiting:						
Fresh.....	3,335	50			684,970	4,727
Salted.....					3,000	90
Squid.....					377	4
Lobsters.....	849,306	206,425	493,000	128,760	5,545,884	1,411,548
Crabs, hard.....					170,575	3,595
Clams, soft.....	651,910	43,365	12,500	2,770	2,105,734	163,209
Scallops.....					72,512	31,416
Mussels.....					16,970	367
Tongues and cheeks.....	200	40	5,000	150	5,200	190
Sounds.....	200	40			5,212	96
Spawn.....	29	1	7,947	386	18,857	778
Livers.....	17,025	391	12,075	186	112,587	1,712
Oil, liver.....	3,750	375	4,875	520	6,625	895
Total.....	43,919,195	520,561	4,328,216	312,592	147,956,369	3,889,035

<sup>1</sup> 211,725 in number.  
<sup>2</sup> 210,573 bushels.

<sup>3</sup> 12,085 bushels.  
<sup>4</sup> 1,697 bushels.

<sup>5</sup> 1,150 gallons.

## FISHERIES BY APPARATUS.

In the fisheries of Maine in 1919 pots ranked above all other forms of apparatus in the value of their catch, with 5,793,784 pounds of lobsters, valued at \$1,432,004, and 247,950 pounds of eels, valued at \$20,480. Lines ranked second with 32,992,588 pounds, valued at \$978,134, the principal species taken with lines arranged in the order of their value being: Cod, 7,432,231 pounds, valued at \$397,322; hake, 15,230,183 pounds, valued at \$309,878; and haddock, 3,857,610 pounds, valued at \$129,678. The yield of the pound net, trap net, and weir fishery amounted to 76,231,256 pounds, valued at \$452,146, of which 74,043,982 pounds, valued at \$362,339, were herring. Otter trawls taking mostly haddock, cod, and flounders, yielded 9,316,245 pounds, valued at \$296,356. Various species were taken in seines to the amount of 15,626,164 pounds, valued at \$220,530, and in gill nets to the amount of 4,283,308 pounds, valued at \$156,546. The catch with hoes and forks, consisting principally of soft clams, amounted to 2,122,704 pounds, valued at \$163,576; and that with harpoons, consisting mostly of swordfish, amounted to 452,633 pounds, valued at \$106,499. The combined catch of all forms of fishing apparatus employed in both the shore and vessel fisheries amounted to 147,956,369 pounds, valued at \$3,889,035.

The following tables show by counties, apparatus, and species the products of the vessel and shore fisheries of Maine in 1919:

YIELD OF VESSEL FISHERIES OF MAINE IN 1919, BY COUNTIES, APPARATUS, AND SPECIES.

Apparatus and species.	Cumberland.		Hancock.		Knox.		Lincoln.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Otter trawls:								
Butterfish.....					25	\$3		
Catfish and wolf-fish.....					45,660	1,241		
Cod.....					1,389,051	59,729		
Flounders.....	20,034	\$631			67,301	3,088	8,695	\$260
Haddock.....					7,001,906	196,054		
Hake.....					52,262	2,144		
Halibut.....					46,207	7,856		
Pollock.....					64,940	1,560		
Sharks.....					19	1		
Sturgeon.....					784	207		
Spawn.....					150	11		
Total.....	20,034	631			8,668,305	271,897	8,695	260
Lines:								
Catfish and wolf-fish.....	5,815	152	86	\$2	649	25	100	7
Cod—								
Fresh.....	1,384,643	59,534	285,519	6,908	505,993	17,025	69,484	2,683
Salted.....			951,000	59,660				
Cusk.....	483,865	17,310	1,816	29	21,129	562	13,936	497
Flounders.....	5,823	95	30	1	286	6	123	2
Haddock—								
Fresh.....	696,608	19,616	14,920	734	320,181	9,813	18,080	482
Salted.....			73,400	2,812				
Hake.....	839,392	34,380	108,385	1,999	853,597	15,378	138,749	3,001
Halibut—								
Fresh.....	34,353	5,842	3,707	556	3,566	540	11	2
Salted.....			1,000	80				
Pollock—								
Fresh.....	146,531	4,952	43,443	626	206,982	3,641	3,931	106
Salted.....			7,700	245				
Rosefish.....	14,332	199					800	12
Sharks.....	1,827	49			200	5	644	13
Skates.....	188	3						
Sounds.....			120	1				
Spawn.....	7,240	263			122	9	163	8
Livers.....	24,893	454			2,413	32	4,375	73
Total.....	3,645,510	142,849	1,491,126	73,653	1,915,118	47,036	250,396	6,886
Seines:								
Alewives.....	3,800	45					5,000	39
Butterfish.....	628	80			153	15		
Cod.....			1,934	83			612	26
Flounders.....	20	1						
Haddock.....							25	1
Hake.....			110	5				
Herring.....	3,167,907	31,542	776,500	7,655	1,029,975	8,244	2,827,367	25,763
Mackerel—								
Fresh.....	25,488	4,004	11,214	1,650	20,126	3,239	98,344	15,029
Salted.....							8,000	650
Pollock.....	139,094	3,342	283,580	4,928	725,592	12,513	85,561	1,545
Salmon, Atlantic.....	7	2						
Shad.....	9,368	695	68,286	4,140	118,343	2,229	103,336	6,440
Sharks.....	5,275	142			310	9		
Smelt.....	16,422	1,565						
Sturgeon.....	202	15						
Whiting.....	2,065	16			11,100	61	400	4
Livers.....	1,023	16	1,100	13	650	8		
Total.....	3,371,299	41,465	1,142,724	18,474	1,906,249	26,318	3,128,645	49,497
Gill nets:								
Catfish and wolf-fish.....	978	33						
Cod—Fresh.....	543,253	22,660					11,500	345
Cusk.....	1,620	103						
Flounders.....	2,690	60						
Haddock.....	164,591	4,556					1,230	38
Hake.....	37,107	1,449					950	18
Halibut.....	18	2						
Mackerel.....	46,115	6,011			12,500	1,500		
Pollock.....	626,359	15,032					1,450	27
Rosefish.....	55	2						

YIELD OF VESSEL FISHERIES OF MAINE IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

Apparatus and species.	Cumberland.		Hancock.		Knox.		Lincoln.	
	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Gill nets—Continued.								
Shad.....	262	\$23						
Sharks.....	4,150	101						
Skates.....	55	2						
Sturgeon.....	400	47						
Lobsters.....	50	24						
Spawn.....	1,110	34						
Livers.....	5,906	106						
Total.....	1,434,719	50,245			12,500	\$1,500	15,130	\$428
Harpoons: Swordfish.....	305,200	73,963			27,000	5,840		
Lobster pots: Lobsters.....			14,845	\$3,750	48,125	12,033		
Dredges: Scallops.....					12,968	5,349		
Grand total.....	8,776,762	309,133	2,648,695	95,877	12,590,265	369,973	3,402,866	57,071

Apparatus and species.	Washington.		York.		Total.	
	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Otter trawls:						
Butterfish.....					25	\$6
Catfish and wolffish.....					45,660	1,241
Cod.....					1,389,051	59,729
Flounders.....			31,000	\$1,050	127,030	5,029
Haddock.....					7,001,906	196,054
Hake.....					52,262	2,144
Halibut.....					46,207	7,836
Pollock.....			270	9	65,210	1,569
Sharks.....					19	1
Sturgeon.....					784	207
Spawn.....					150	11
Total.....			31,270	1,059	8,728,304	273,847
Lines:						
Catfish and wolffish.....			662	11	7,312	197
Cod—						
Fresh.....	270,390	\$8,278	1,045,546	44,994	3,561,575	139,422
Salted.....	500	60			951,500	59,720
Cusk.....	11,040	275	208,076	7,519	739,862	26,132
Flounders.....	240	1			6,502	105
Haddock—						
Fresh.....	18,075	688	829,952	23,236	1,897,816	54,569
Salted.....					73,400	2,812
Hake.....	17,643	651	385,266	15,797	2,343,032	71,206
Halibut—						
Fresh.....	15,180	1,985	17,880	3,039	74,697	11,064
Salted.....					1,000	80
Pollock—						
Fresh.....	42,630	701	32,550	784	476,067	10,810
Salted.....					7,700	245
Rosefish.....			905	14	16,037	225
Sharks.....			153	3	2,826	70
Skates.....					188	3
Sounds.....					120	1
Spawn.....	29	1	7,529	369	15,083	650
Livers.....	25	1	11,125	174	42,831	734
Total.....	375,752	12,641	2,539,646	95,940	10,217,548	379,005
Seines:						
Alewives.....					8,800	84
Butterfish.....					781	95
Cod.....					2,546	109
Flounders.....					20	1
Haddock.....					25	1
Hake.....					110	5
Herring.....	2,348,400	9,785			10,150,149	82,989
Mackerel—						
Fresh.....					155,172	23,922
Salted.....					8,000	650
Pollock.....	215,000	2,960			1,448,827	25,288
Salmon, Atlantic.....					7	2
Shad.....					299,333	13,504
Sharks.....					5,585	151
Smelt.....					16,422	1,565
Sturgeon.....					202	15
Whiting.....					13,565	81
Livers.....					2,773	37
Total.....	2,563,400	12,745			12,112,317	148,499



## YIELD OF VESSEL FISHERIES OF MAINE IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

Apparatus and species.	Washington.		York.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Gill nets:						
Catfish and wolffish.....			79	\$2	1,057	\$35
Cod—						
Fresh.....			165,130	7,100	719,883	30,105
Salted.....			4,360	327	4,360	327
Cusk.....			1,145	42	2,765	145
Flounders.....			271	7	2,961	67
Haddock.....			47,226	1,137	213,047	5,731
Hake.....			25,169	1,032	63,226	2,499
Halibut.....					18	2
Mackerel.....					58,615	7,511
Pollock.....			104,960	2,628	732,769	17,687
Rosefish.....					55	2
Shad.....			446	53	708	76
Sharks.....			690	21	4,840	122
Skates.....					55	2
Sturgeon.....					400	47
Lobsters.....					50	24
Spawn.....			318	17	1,428	51
Livers.....			950	12	6,856	118
Total.....			350,744	12,378	1,813,093	64,551
Harpoons: Swordfish.....			89,302	24,170	421,502	103,982
Lobster pots: Lobsters.....					62,970	13,783
Dredges: Scallops.....					12,968	5,349
Grand total.....	2,939,152	\$25,386	3,010,962	133,553	33,368,702	991,016

## YIELD OF SHORE FISHERIES OF MAINE IN 1919, BY COUNTIES, APPARATUS, AND SPECIES.

Apparatus and species.	Cumberland.		Hancock.		Kennebec.		Knox.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Pound nets, trap nets, and weirs:								
Alewives—								
Fresh.....	1,125	\$6	99,636	\$3,128				
Salted.....			60	6				
Smoked.....			34,373	2,577			55,670	\$3,340
Bluefish.....	39	7						
Bonito.....	44	4						
Butterfish.....	14,507	1,312						
Herring—								
Fresh.....	197,420	1,974	20,902,401	110,086			8,858,600	36,765
Smoked.....							29,000	1,700
Mackerel.....	113,686	17,927					9,121	1,187
Pollock.....	426,957	8,945	6,700	100				
Salmon, Atlantic.....	954	87	7,050	2,795				
Shad.....	9,302	650						
Sharks.....	16,477	330						
Smelt.....			1,600	405				
Sturgeon.....	1,016	115						
Tautog.....	14	2						
Tuna.....	4,089	275						
Whiting—								
Fresh.....	608,470	4,000						
Salted.....	3,000	90						
Squid.....	377	4						
Total.....	1,397,477	35,728	21,051,820	119,097			8,952,391	42,992
Lines:								
Catfish and wolf-fish.....	29,829	587						
Cod—								
Fresh.....	1,276,020	54,905	1,979,108	52,206			856,078	21,853
Salted.....			3,959	300			2,000	300
Cusk.....	79,116	2,776	111,956	1,370			51,620	948
Flounders.....			7,800	404			5,000	100
Haddock.....	377,269	15,939	564,111	22,533			361,270	15,040
Hake—								
Fresh.....	1,115,037	45,045	9,525,075	147,450			1,505,565	26,557
Salted.....			260	15			500	75
Halibut.....	3,844	663	17,380	2,966			22,275	1,522

## YIELD OF SHORE FISHERIES OF MAINE IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

Apparatus and species.	Cumberland.		Hancock.		Kennebec.		Knox.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>Lines—Continued.</b>								
Pollock, fresh.....	127,244	\$2,637	404,860	\$5,403			324,304	\$5,422
Rosefish.....	1,230	18						
Skates.....	2,142	42						
Smelt.....			73,650	13,250			25,000	5,500
Sounds.....	692	13					4,200	42
Spawn.....	2,196	66						
Livers.....	43,127	433						
Total.....	3,257,746	123,124	12,688,159	246,097			3,157,812	78,359
<b>Gill nets:</b>								
Alewives, smoked.....							15,000	900
Cod, fresh.....	637,735	27,331	360,600	8,580				
Flounders.....	2,000	90						
Haddock.....	21,000	590						
Hake.....			15,000	225				
Mackerel.....	37,895	5,976						
Pollock.....			10,000	125				
Shad.....					7,280	\$1,365		
Sturgeon.....			2,000	160				
Total.....	698,630	33,987	387,600	9,090	7,280	1,365	15,000	900
<b>Seines:</b>								
Herring.....	24,745	247	500,000	4,900				
Mackerel.....			5,000	450				
Pollock.....	518,197	10,831	69,000	1,030				
Shad.....	3,100	216	10,000	700			2,500	200
Smelt.....	119,780	10,780	11,400	1,200			63,600	10,150
Total.....	665,822	22,074	595,400	8,280			66,100	10,350
<b>Bag nets and pocket nets:</b>								
Smelt.....			8,785	1,615	1,350	340		
Tomcod.....					26,500	795		
Total.....			8,785	1,615	27,850	1,135		
<b>Fyke nets:</b>								
Eels.....					500	60		
Suckers.....	3,000	240			55,300	6,540		
Tomcod.....					38,675	1,160		
Total.....	3,000	240			94,475	7,760		
<b>Dip nets:</b>								
Alewives—								
Fresh.....			35,000	500			224,200	484
Smoked.....			5,600	500			38,950	1,947
Smelt.....							5,000	1,500
Total.....			40,600	1,000			268,150	3,931
<b>Eel pots, eel traps, and lobster pots:</b>								
Eels.....			3,050	350	6,550	549	1,000	100
Lobsters.....	670,000	187,880	1,380,114	343,153			1,314,094	336,817
Total.....	670,000	187,880	1,383,164	343,503	6,550	549	1,315,094	336,917
<b>Otter trawls:</b>								
Flounders.....	114,656	3,432	10,000	400			51,950	3,347
Hake.....							45,000	850
Total.....	114,656	3,432	10,000	400			96,950	4,197
<b>Crab traps and cunner traps:</b>								
Crabs, hard.....	70,575	3,595						
Cunner.....	30,695	615						
Total.....	101,270	4,210						
<b>Spears: Eels</b> .....			4,000	600				
<b>Harpoons:</b>								
Swordfish.....	2,511	552						
Tuna.....	4,645	325						
Total.....	7,156	877						
<b>Hoes and forks:</b>								
Clams, soft.....	442,659	48,131	636,135	42,416			162,070	10,376
Mussels.....							16,970	367
Total.....	442,659	48,131	636,135	42,416			179,040	10,743
<b>Dredges: Scallops</b> .....			30,800	14,200			28,744	11,867
<b>Grand total</b> .....	7,358,416	459,683	36,836,463	786,298	136,155	10,809	14,079,281	500,256

## YIELD OF SHORE FISHERIES OF MAINE IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

Apparatus and species.	Lincoln.		Penobscot.		Sagadahoc.		Waldo.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Pound nets, trapnets, and veirs:								
Alewives—								
Fresh	9,600	\$103	9,000	\$150	2,500	\$50	7,000	\$190
Smoked	24,700	992			74,000	5,700		
Butterfish	800	80			16,650	1,538		
Cod					900	54	2,300	120
Eels					30,350	2,204		
Herring—								
Fresh	1,446,750	9,645			581,400	4,411	5,479,880	22,518
Smoked	120,000	4,200						
Mackerel	11,242	1,431			72,143	8,801	8,707	1,354
Pollock					97,400	1,463	4,000	110
Salmon, Atlantic			70	30	4,812	1,745	3,857	1,845
Shad	5,168	909			21,910	3,297	3,121	220
Smelt	850	170			4,935	1,234		
Striped bass					535	101	57	12
Sturgeon					585	189		
Sturgeon roe					30	90		
Suckers	4,000	160						
Tomcod	500	15						
Whiting, fresh					59,600	596		
Total	1,623,610	17,705	9,070	180	967,750	31,473	5,508,922	26,369
Lines:								
Cod, fresh	353,336	12,361			225,378	10,973	12,000	480
Cusk	26,664	827			14,720	587		
Haddock	84,692	2,813			31,042	1,147	2,000	80
Hake, fresh	400,614	7,777			141,390	6,365	4,300	130
Halibut	800	120			11,040	1,750		
Pollock, fresh	171,646	3,767			12,250	310		
Salmon, Atlantic			630	269				
Smelt	16,690	4,150			51,125	12,784		
Total	1,054,352	31,815	630	269	486,945	33,916	18,300	690
Gill nets:								
Alewives, fresh			10,000	250	700	35		
Cod—								
Fresh	374,779	11,071			104,450	5,052		
Salted	3,000	180						
Cusk	6,371	116						
Haddock	84,687	2,259			1,340	40		
Hake	419,304	5,909			5,750	175		
Mackerel	3,500	426						
Pollock	150,582	2,556						
Salmon, Atlantic			1,950	832				
Shad	28,880	3,625	13	8	17,140	3,033		
Sharks	9,000	180						
Smelt			300	75	150	38		
Sturgeon	900	180			2,192	797		
Sturgeon roe					113	207		
Total	1,081,003	26,502	12,263	1,165	131,835	9,377		
Seines:								
Herring	900,000	6,250			60,000	600		
Mackerel	57,425	7,163						
Pollock	55,000	1,075						
Shad	2,000	200						
Smelt	19,950	4,850			5,400	1,350		
Sturgeon	50	4						
Total	1,034,425	19,542			65,400	1,950		
Bagnets and pocket nets:								
Smelt	16,100	4,072	1,600	400	8,500	2,375	23,450	5,862
Tomcod	30,000	900	24,000	600			15,000	375
Total	46,100	4,972	25,600	1,000	8,500	2,375	38,450	6,237
Fyke nets:								
Eels					750	75		
Smelt					4,120	1,030		
Suckers	36,500	3,650			11,600	1,262		
Tomcod	6,660	201						
Total	43,160	3,851			16,470	2,367		

YIELD OF SHORE FISHERIES OF MAINE IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

Apparatus and species.	Lincoln.		Penobscot.		Sagadahoc.		Waldo.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Dip nets:								
Alewives—								
Fresh.....	25,600	\$154						
Salted.....	6,800	170						
Smoked.....	80,000	2,400						
Total.....	112,400	2,724						
Eel pots, eel traps, and lobster pots:								
Eels.....	34,500	2,660	24,000	\$2,400	144,550	\$10,246	8,000	\$800
Lobsters.....	619,886	152,327			147,664	39,739	8,800	640
Total.....	654,386	154,987	24,000	2,400	292,214	49,985	16,800	1,440
Otter trawls:								
Flounders.....	43,585	3,486			39,950	3,196		
Hake.....	120,000	2,100			162,800	5,698		
Total.....	163,585	5,586			202,750	8,894		
Spears: Eels.....	17,500	1,400						
Harpoons: Tuna.....	17,300	1,088			5,875	352		
Hoes and forks: Clams, soft.....	192,600	15,252			7,860	899		
Grand total.....	6,040,421	285,424	71,563	5,014	2,185,599	141,588	5,582,472	34,736

Apparatus and species.	Washington.		York.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Pound nets, trap nets, and weirs:						
Alewives—						
Fresh.....	85,750	\$1,421			214,611	\$5,048
Salted.....					60	6
Smoked.....	4,000	300			192,743	12,909
Bluefish.....					39	7
Bonito.....					44	4
Butterfish.....					31,957	2,930
Cod.....	2,000	57			5,200	231
Eels.....	2,000	150			32,350	2,354
Flounders.....	2,500	250			2,500	250
Herring—						
Fresh.....	36,415,781	170,213			73,882,232	355,612
Salted.....	200	12			200	12
Smoked.....	12,550	815			161,550	6,715
Mackerel.....					214,899	30,700
Pollock.....	184,900	3,619			719,957	14,228
Salmon—						
Atlantic.....	645	126			17,388	6,628
Humpback.....	310	62			310	62
Shad.....					39,501	5,076
Sharks.....					16,477	330
Smelt.....	6,245	1,536			13,630	3,345
Striped bass.....					592	113
Sturgeon.....					1,601	304
Sturgeon roe.....					30	90
Suckers.....					4,000	160
Tautog.....					14	2
Tomcod.....					500	15
Tuna.....					4,089	275
Whiting—						
Fresh.....	3,335	50			671,405	4,646
Salted.....					3,000	90
Squid.....					377	4
Total.....	36,720,216	178,602			76,231,256	452,146
Lines:						
Catfish and wolffish.....					29,829	587
Cod—						
Fresh.....	932,352	28,600	260,500	\$14,717	5,894,772	196,095
Salted.....	16,425	1,385	2,000	100	24,384	2,085
Cusk.....	4,009	78	9,000	340	297,085	7,126
Eels.....			2,000	280	2,000	280
Flounders.....			45,400	1,815	58,200	2,320
Haddock.....	124,610	4,834	141,400	9,911	1,886,394	72,297

## YIELD OF SHORE FISHERIES OF MAINE IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

Apparatus and species.	Washington.		York.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>Lines—Continued.</b>						
Hake—						
Fresh.....	122,635	\$2,211	67,475	\$2,881	12,882,091	\$238,416
Salted.....	4,300	166			5,060	256
Halibut.....	38,185	4,437	3,050	561	96,554	12,019
Pollock—						
Fresh.....	196,150	5,386	82,500	3,416	1,318,954	27,341
Salted.....	25,100	2,095	2,000	100	27,100	2,195
Rosefish.....					1,230	18
Salmon, Atlantic.....					630	269
Sharks.....			1,000	30	1,000	30
Skates.....					2,142	42
Smelt.....					166,375	35,684
Tongues and cheeks.....	200	40	5,000	150	5,200	190
Sounds.....	200	40			5,092	95
Spawn.....					2,196	66
Livers.....	17,000	390			60,127	823
Oil.....	3,750	375	4,875	520	8,625	895
Total.....	1,484,896	50,037	626,200	34,822	22,775,040	599,129
<b>Gill nets:</b>						
Alewives—						
Fresh.....					10,700	285
Smoked.....					15,000	900
Catfish and wolfish.....			100	1	100	1
Cod—						
Fresh.....			44,554	2,102	1,522,118	54,136
Salted.....					3,000	180
Cusk.....			64	1	6,435	117
Flounders.....			240	4	2,240	94
Haddock.....			18,196	674	125,223	3,563
Hake.....					440,054	6,309
Herring—						
Fresh.....	3,000	40			3,000	40
Salted.....	6,000	175			6,000	175
Mackerel.....			9,000	1,080	50,395	7,482
Pollock.....			32,600	947	193,182	3,628
Salmon, Atlantic.....	500	150			2,450	982
Shad.....	4,000	390			57,313	8,421
Sharks.....					9,000	180
Smelt.....	18,350	4,045			18,800	4,158
Sturgeon.....					5,092	1,137
Sturgeon roe.....					113	207
Total.....	31,850	4,800	104,754	4,809	2,470,215	91,995
<b>Seines:</b>						
Flounders.....			10,000	500	10,000	500
Herring.....	1,020,000	4,250			2,504,745	16,247
Mackerel.....			52,000	4,200	114,425	11,813
Pollock.....					642,197	12,936
Shad.....					17,600	1,316
Smelt.....	700	110	4,000	775	224,830	29,215
Sturgeon.....					50	4
Total.....	1,020,700	4,360	66,000	5,475	3,513,847	72,031
<b>Bag nets and pocket nets:</b>						
Smelt.....	11,005	2,535			70,790	17,199
Tomcod.....	5,825	465			101,325	3,135
Total.....	16,830	3,000			172,115	20,334
<b>Fyke nets:</b>						
Eels.....					1,250	135
Smelt.....					4,120	1,030
Suckers.....					106,400	11,692
Tomcod.....					45,335	1,361
Total.....					157,105	14,218
<b>Dip nets:</b>						
Alewives—						
Fresh.....	61,900	900			346,700	2,038
Salted.....					6,800	170
Smoked.....	20,000	950			144,550	5,797
Herring.....	106,000	716			106,000	716
Salmon, Atlantic.....	135	45			135	45
Smelt.....			4,000	800	9,000	2,300
Total.....	188,035	2,611	4,000	800	613,185	11,066

YIELD OF SHORE FISHERIES OF MAINE IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

Apparatus and species.	Washington.		York.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Eel pots, eel traps, and lobster pots:						
Eels.....	16,300	\$1,975	10,000	\$1,400	247,950	\$20,480
Lobsters.....	849,306	206,425	493,000	128,760	5,482,864	1,395,741
Total.....	865,606	208,400	503,000	130,160	5,730,814	1,416,221
Otter trawls:						
Flounders.....					260,141	13,861
Hake.....					327,800	8,648
Total.....					587,941	22,509
Crab traps and cunner traps:						
Crabs, hard.....					70,575	3,595
Cunner.....					30,695	615
Total.....					101,270	4,210
Spears: Eels.....					21,500	2,000
Harpoons:						
Swordfish.....			800	200	3,311	752
Tuna.....					27,820	1,765
Total.....			800	200	31,131	2,517
Hoes and forks:						
Clams, soft.....	651,910	43,365	12,500	2,770	2,105,734	163,209
Mussels.....					16,970	367
Total.....	651,910	43,365	12,500	2,770	2,122,704	163,576
Dredges: Scallops.....					59,544	26,067
Grand total.....	40,980,043	495,175	1,317,254	179,036	114,587,667	2,898,019

SALMON FISHERY OF PENOBSCOT RIVER AND BAY.

The greater part of the catch of Atlantic salmon in Maine is usually taken in Penobscot River and Bay. In 1920, the latest year for which statistics are available, there were 128 persons engaged in the salmon fishery in these waters. The investment included 68 weirs and traps, valued at \$6,175; 15 gill nets, valued at \$240; rods and lines to the value of \$1,500; 7 gasoline boats, valued at \$700; 85 rowboats, etc., valued at \$2,845; and shore and accessory property, valued at \$1,365; a total of \$12,825. The catch amounted to 1,598 salmon in number, or 15,135 pounds, having a value to the fishermen of \$7,210. The catch in 1919 was 1,322 salmon in number, or 13,557 pounds, valued at \$5,771. The following tables give the extent of this fishery by localities, in 1918, 1919, and 1920, and comparative statistics of the catch for various years from 1895 to 1920:

EXTENT, BY LOCALITIES, OF THE SALMON FISHERY OF PENOBSCOT RIVER AND BAY IN 1918, 1919, AND 1920.

Town.	Weirs and traps.						Gill nets.					
	1918		1919		1920		1918		1919		1920	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Bucksport.....	1	\$50	2	\$125	2	\$125						
Orland.....	15	750	16	800	18	900						
Penobscot.....	4	325	7	550	7	525						
Verona.....	21	2,500	21	2,750	21	2,750						
Bangor and Brewer							8	\$80	8	\$100	8	\$100
Hampden.....	1	100	1	100	1	100	3	60	2	40	1	20
Orrington.....							6	120	6	120	6	120
South Orrington.....	2	255										
Lincolnville.....	11	940	11	940	11	940						
Sandy Point.....	4	475	4	475	4	475						
Winterport.....	3	300	3	300	4	360						
Total.....	62	5,695	65	6,040	68	6,175	17	260	16	260	15	240

## EXTENT, BY LOCALITIES, OF THE SALMON FISHERY OF PENOBSCOT RIVER AND BAY IN 1918, 1919, AND 1920—Continued.

Town.	Rods and lines.			Gasoline boats.					
	1918	1919	1920	1918		1919		1920	
	Value.	Value.	Value.	No.	Value.	No.	Value.	No.	Value.
Orland.....				2	\$150	2	\$150	2	\$150
Verona.....				2	175	2	175	2	175
Bangor and Brewer.....	\$900	\$1,200	\$1,500	2	300	2	300	1	100
Hampden.....				1	100				
South Orrington.....				1	150	1	150	1	150
Lincolnville.....				1	125	1	125	1	125
Sandy Point.....				1	100	1	100		
Winterport.....									
Total.....	900	1,200	1,500	10	1,100	9	1,000	7	700

Town.	Rowboats, etc.						Shore and accessory property.			Total investment.		
	1918		1919		1920		1918	1919	1920	1918	1919	1920
	No.	Value.	No.	Value.	No.	Value.						
Bucksport.....	2	\$35	4	\$70	4	\$70	\$10	\$20	\$25	\$95	\$215	\$220
Orland.....	19	385	19	385	20	400	150	150	150	1,435	1,485	1,600
Penobscot.....	6	85	8	115	8	115	40	55	60	450	720	700
Verona.....	20	440	20	440	20	440	175	150	150	3,290	3,515	3,515
Bangor and Brewer.....	23	1,060	23	1,060	23	1,060				2,040	2,360	2,660
Hampden.....	3	105	3	105	3	105	550	550	550	1,115	1,095	875
Orrington.....	6	180	6	180	6	180				300	300	300
South Orrington.....	4	130					50			535		
Lincolnville.....	7	340	7	340	7	340	150	150	150	1,580	1,580	1,580
Sandy Point.....	4	140	4	140	3	110	90	90	90	830	830	800
Winterport.....	4	140	4	140	1	25	190	190	190	730	730	575
Total.....	98	3,040	98	2,975	85	2,845	1,405	1,355	1,365	12,400	12,830	12,825

Town.	Persons engaged.			Catch of salmon. <sup>1</sup>								
	1918	1919	1920	1918			1919			1920		
				No.	Lbs.	Value.	No.	Lbs.	Value.	No.	Lbs.	Value.
Bucksport.....	1	3	3	30	300	\$105	48	480	\$192	23	207	\$98
Orland.....	13	14	16	56	560	191	55	550	225	94	846	372
Penobscot.....	3	4	4	240	2,400	807	181	1,810	773	259	2,331	1,127
Verona.....	11	11	11	609	6,090	2,188	421	4,210	1,605	636	5,724	2,465
Bangor and Brewer.....	31	31	31	1,115	1,380	307	133	1,330	568	140	1,540	832
Hampden.....	4	4	3	17	180	103	12	120	52	20	205	111
Orrington.....	12	12	12	80	880	91	120	1,200	511	45	495	266
South Orrington.....	2			70	770	188						
Lincolnville.....	6	6	6	148	1,480	544	105	1,050	525	124	1,116	558
Sandy Point.....	3	3	3	99	1,089	378	85	1,020	500	104	1,054	524
Searsport.....							10	100	50	21	189	95
Stockton Springs.....				103	1,133	395	61	732	364	26	260	140
Winterport.....	3	3	4	86	950	203	91	955	406	106	1,168	622
Total.....	124	126	128	1,653	17,212	5,500	1,322	13,557	5,771	1,598	15,135	7,210

<sup>1</sup> The salmon credited to Orland in 1918, 1919, and 1920, and to Searsport in 1919 and 1920 were taken incidentally with apparatus fished for other species.

## CATCH OF SALMON IN PENOBSCOT RIVER AND BAY FOR VARIOUS YEARS.

Year.	Number.	Pounds.	Value.	Year.	Number.	Pounds.	Value.
1895.....	4,395	65,011	\$11,356	1902.....	3,269	45,782	\$9,950
1896.....	6,403	80,225	12,716	1903.....	4,859	67,470	14,935
1897.....	3,985	51,522	7,911	1904.....	4,776	63,395	14,451
1898.....	3,225	42,560	8,342	1905.....	6,378	74,158	17,503
1899.....	3,515	45,688	10,424	1918.....	1,653	17,212	5,500
1900.....	3,541	44,660	7,832	1919.....	1,322	13,557	5,771
1901.....	6,821	86,055	12,263	1920.....	1,598	15,135	7,210

## HUMPBACK SALMON.

In recent years humpback or pink salmon from the Pacific coast have been planted by the Bureau in the Dennys, Pembroke, St. Croix, Penobscot, and other rivers in Maine, beginning with the year 1906, and runs of adult fish have appeared during a number of years. The fish occurred in greatest abundance in the early autumn of 1919, when there were large runs in Dennys and Pembroke Rivers, and smaller runs in various other rivers. In July, 1919, a weir fisherman of Perry caught 17 humpback salmon in Little River and sold about 12 fish at \$1 each. They averaged from 4 to 6 pounds in weight. The total catch marketed in 1919 was 310 pounds, valued at \$62. Many were taken and released and probably a considerable number were consumed locally. There seems to be no doubt that this species, if properly protected, can maintain itself in certain New England rivers and become a valuable addition to the local fish supply.

## INDUSTRIES.

*Wholesale fishery trade.*—In 1919, including one plant engaged solely in the production of liver oil, 99 firms engaged in the wholesale trade in fresh and salted fishery products, valued at \$1,722,094, using cash capital to the amount of \$274,550 and giving employment to 872 persons, to whom \$616,858 were paid in wages. As the preparation of by-products is for the most part conducted incidentally to activities in the wholesale trade, the canning and smoked fish industries, the prepared products have been listed under the respective industries. The following table gives the extent of the wholesale trade in fresh and salted fishery products of Maine in 1919:

## WHOLESALE TRADE IN FRESH AND SALTED FISHERY PRODUCTS, BY COUNTIES.

Item.	Cumberland.		Hancock.		Knox and Waldo.	
	Number.	Value.	Number.	Value.	Number.	Value.
Plants.....	17	\$346,928	35	\$164,250	19	\$1,058,006
Cash capital.....		38,500		49,000		147,550
Persons engaged.....	149		144		445	
Wages paid.....		124,393		51,105		398,993
Products:						
Liver oil..... gallons..	44,561	58,089	28,750	27,280	11,893	10,517
Other products.....						44,587
Total.....		58,089		27,280		55,104

Item.	Lincoln, Penobscot, and York.		Washington.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
Plants.....	9	\$96,160	19	\$55,850	199	\$1,722,094
Cash capital.....		17,100		22,400		274,550
Persons engaged.....	43		91		872	
Wages paid.....		23,638		18,729		616,858
Products:						
Liver oil..... gallons..	5,450	4,596			90,654	100,482
Other products.....						44,587
Total.....		4,596				145,069

<sup>1</sup> Includes one plant engaged solely in production of liver oil.

*Smoked-fish industry.*—In 1919 there were 50 firms engaged primarily in smoking fishery products in Maine. These plants utilized 23,142,814 pounds of fishery products, valued at \$359,750.



The prepared products amounted to 4,415,582 pounds, valued at \$626,835. The most important items were: Boneless smoked herring, 1,729,219 pounds, valued at \$256,740; whole smoked herring, 1,141,278 pounds, valued at \$102,334; and finnan haddie, 785,333 pounds, valued at \$95,480. The value of the secondary products was \$73,687, which included 730 tons of fish scrap, valued at \$38,500; 1,271,424 pounds of pomace, valued at \$16,411; and 28,044 gallons of herring oil and liver oil, valued at \$18,664.

## SMOKED-FISH INDUSTRY OF MAINE IN 1919.

Item.	Number.	Value.	Item.	Number.	Value.
Plants.....	1 50	\$716, 589	PRODUCTS—continued.		
Cost of materials.....		109, 577	Prepared—Continued.		
Cash capital.....		131, 700	Kipperd herring,		
Persons engaged.....	707		pounds.....	4 156, 500	\$15, 845
Wages paid.....		260, 179	Smoked herring—		
			Bloaters...pounds..	327, 330	20, 629
PRODUCTS.			Lengthwise...do....	37, 053	2, 511
Utilized:			Medium scale,		
Alewives.....pounds..	650	26	pounds.....	238, 534	13, 036
Cod,salted,dried.do....	569, 055	60, 970	Boneless...pounds..	1, 729, 219	256, 740
Haddock.....do....	8, 122, 798	192, 485	Whole.....do....	1, 141, 278	102, 334
Herring—			Other products.....		5 120, 200
Fresh.....do....	9, 575, 127	69, 629	Total.....	4, 415, 582	626, 835
Smoked <sup>2</sup> .....do....	247, 000	12, 712			
Fish skins, waste, etc.,			Secondary:		
pounds.....	3, 228, 184	10, 928	Oil—		
Pomace.....pounds..	1, 400, 000	13, 000	Herring....gallons..	23, 171	14, 086
Total.....	23, 142, 814	359, 750	Liver.....do....	4, 873	4, 578
Prepared:			Pomace.....pounds..	1, 271, 424	16, 411
Smoked alewives,			Fish scrap.....do....	1, 460, 000	38, 500
pounds.....	335	60	Other products.....		112
Finnan haddie,			Total.....		73, 687
pounds.....	3 785, 333	95, 480			

<sup>1</sup> Includes one firm in Cumberland County and three in Washington County also engaged in making herring oil, pomace, and fish scrap.

<sup>2</sup> All smoked herring under products utilized were imported from Canada and used for preparing boneless herring.

<sup>3</sup> Includes the output of one plant in Penobscot County and two in Cumberland County listed with canners.

<sup>4</sup> Includes the output of one plant in Penobscot County listed with canners.

<sup>5</sup> Includes the value of herring pickled by one firm in Washington County.

*Canning industry.*—The canning industry of Maine is of growing importance, the chief products packed being sardines, finnan haddie, and clams. In 1919, 77 plants were operated, representing a value of \$4,315,878 and employing cash or working capital to the amount of \$625,257. The cost of materials amounted to \$4,768,040; the number of persons employed was 6,116, to whom \$1,795,506 were paid in wages; and the value of the products utilized was \$1,145,614, of which the most important were: Herring, 128,163,663 pounds, valued at \$875,627; haddock, 6,983,629 pounds, valued at \$149,496; and soft clams, 1,801,070 pounds, valued at \$119,083. It is of interest to note that 19,670 bushels of mussels were utilized, and it is believed that the work of the Bureau in encouraging the use of this product has aided in the development of this fishery. The manufactured products included 2,774,656 cases of canned products, valued at \$13,086,886, and secondary products such as scrap, meal, and oil to the value of \$82,328. The canned products included 2,450,268 cases of sardines, valued at \$11,933,986; 228,127 cases of finnan haddie, valued at \$603,696, and 85,426 cases of clam products, valued at \$439,221.

The clam pack represents the output of nine firms in Washington County, five in Cumberland County, nine in Hancock County, four in Knox County, two in Lincoln County, one in Penobscot County, and one in York County. Of these firms, seven also canned sardines, one mussels, and three smoked fish. As it has been found impracticable to show the pack of clams by grades and counties without disclosing private enterprise, the pack in detailed form has been omitted from the appended table. The pack was made up of the following items: 259 cases of clams in 4-ounce containers, valued at \$1,471; 24,935 cases of 5-ounce cans, valued at \$113,373; 2,954 cases of 6-ounce cans, valued at \$10,930; 6,641 cases of 8-ounce cans, valued at \$49,847; 679 cases of 8½-ounce cans, valued at \$3,058; 4,406 cases of 10-ounce cans, valued at \$20,730; 200 cases of 11-ounce cans, valued at \$760; 19,234 cases of 1-pound cans, valued at \$115,068; 4,199 cases of 2-pound cans, valued at \$25,194; 1,327 cases of No. 3 cans, valued at \$6,348; 74 cases of clam juice in 5-ounce cans, valued at \$222; 3,843 cases of clam juice in 10-ounce cans, valued at \$4,903; 16 cases in No. 1 cans, valued at \$48; 503 cases in No. 10 cans, valued at \$946; and 16,156 cases of clam chowder and bouillon in containers of various sizes, valued at \$86,323.

## CANNING INDUSTRY OF MAINE IN 1919, BY COUNTIES.

Item.	Cumberland.		Hancock.		Knox and Waldo.	
	Number.	Value.	Number.	Value.	Number.	Value.
Plants.....	9	\$591,262	17	\$469,590	8	\$240,537
Cost of materials.....		394,446		756,025		194,373
Cash capital.....		337,107		57,550		55,070
Persons engaged.....	569		958		377	
Wages paid.....		179,780		317,380		111,347
PRODUCTS.						
Utilized:						
Cod.....pounds.....			4,320	86		
Haddock.....do.....	6,983,629	149,496				
Herring.....do.....	3,452,898	35,572	21,325,259	152,271	5,424,020	30,945
Clams, soft.....do.....	48,930	3,444	637,770	37,984	184,910	11,907
Clams, soft, steamed.....do.....			167,300	9,189		
Mussels.....bushels.....					19,670	367
Canned: <sup>2</sup>						
Sardines—						
In oil—Quarters.....cases..	57,071	452,237	314,909	1,754,761	71,769	369,714
In mustard—						
Quarters.....do.....	1,340	6,164	9,434	43,559	1,406	6,467
Halves.....do.....			7,862	66,000		
Three-quarters.....do.....	12,531	52,477	47,882	258,025	8,871	39,357
In tomato sauce—						
Quarters.....do.....	1,225	7,446	11,458	60,962	1,302	6,704
Halves.....do.....	1,071	10,280			2,816	28,732
1 pound.....do.....	811	9,732			26	312
Plain—Halves.....do.....	356	2,631				
Finnan haddie—						
6½-ounce.....do.....	197,546	486,134				
8-ounce.....do.....	25	325				
10½-ounce.....do.....	29,378	111,638				
1 pound.....do.....	1,178	5,599				
Total.....	302,532	1,144,663	391,545	2,183,307	86,190	451,286
Secondary: Fish scrap and meal, pounds.....					356,200	14,886
Grand total.....		1,144,663		2,183,307		466,172

<sup>1</sup> Steamed by the fishermen.

<sup>2</sup> Sardine quarters are packed 100 cans to the case and other sardines usually 48 cans to the case, except half-pound ovals, which sometimes contain 72 cans per case. The number of cans per case of canned clams vary as follows: The 6-oz., 8½-oz., 10-oz., 11-oz., 2-lb., and No. 3 average 2 dozen per case, while the 4-oz., 5-oz., 8-oz., and 1-lb. average 4 dozen per case. The clam juice, 5-oz., 10-oz., and No. 1 cans, average 2 dozen per case, and the No. 10 are packed one-half dozen to the case. The one-half pound kippered herring are packed 8 dozen to the case, and the 1-lb. cans are packed 4 and 6 dozen to the case.

## CANNING INDUSTRY OF MAINE IN 1919, BY COUNTIES—Continued.

Item.	Lincoln, Penobscot, and York.		Washington.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
Plants.....	4	\$84,023	139	\$2,930,466	77	\$4,315,878
Cost of materials.....		15,873		3,407,323		4,768,040
Cash capital.....		21,430		154,100		625,257
Persons engaged.....	106		4,106		6,116	
Wages paid.....		18,213		1,168,786		1,795,506
PRODUCTS.						
Utilized:						
Cod.....pounds.....			36,016	955	40,336	1,041
Haddock.....do.....					6,983,629	149,496
Herring.....do.....	101,553	1,800	97,859,933	655,039	128,163,663	875,627
Clams, soft.....do.....	134,190	9,582	727,970	46,977	1,733,770	109,894
Clams, soft, steamed.....do.....					67,300	9,189
Mussels.....bushels.....					19,670	367
Canned: <sup>2</sup>						
Sardines—						
In oil—						
Quarters.....cases.....			1,458,681	6,750,953	1,902,430	9,327,665
Halves.....do.....			878	11,500	878	11,500
In mustard—						
Quarters.....do.....			115,484	546,607	127,664	602,797
Halves.....do.....					7,862	66,000
Three-quarters.....do.....			242,363	973,555	311,647	1,323,414
In tomato sauce—						
Quarters.....do.....			76,407	457,073	90,392	532,185
Halves.....do.....			1,166	5,522	5,053	44,534
1 pound.....do.....			1,334	6,413	2,171	16,457
Plain—						
Halves.....do.....			127	490	483	3,121
No. 1.....do.....			1,688	6,313	1,688	6,313
Kippered herring—						
Half pound.....do.....					1,917	15,386
1 pound.....do.....					7,631	86,385
Finnan haddie—						
6½-ounce.....do.....					197,546	486,134
8-ounce.....do.....					25	325
10½-ounce.....do.....					29,378	111,638
1 pound.....do.....					1,178	5,599
Clams (various sizes).....do.....					85,426	439,221
Miscellaneous.....do.....					1,287	8,212
Total.....			1,898,128	8,758,426	2,774,656	13,086,886
Secondary:						
Fish scrap and meal.....pounds.....			1,972,000	66,959	2,328,200	81,845
Herring oil.....gallons.....			690	483	690	483
Total.....				67,442		82,328
Grand total.....				8,825,868		13,169,214

<sup>1</sup> This includes one plant located at Belfast, in Waldo County.<sup>2</sup> See footnote 2 on p. 149.

*Sardine industry in 1919 and 1920.*—In 1919, 53 plants were engaged in canning sardines, employing 5,463 persons, to whom \$1,685,409 were paid in wages. The plants were valued at \$3,764,875, the cost of materials used was \$4,556,963, and the working capital amounted to \$256,107. The herring utilized amounted to 125,309,415 pounds, valued at \$852,450. The total pack was 2,450,268 cases, valued at \$11,933,986, of which 1,902,430 cases, valued at \$9,327,665, were quarter oils.

In 1920 the number of plants operated was 50, valued at \$3,816,388; the cost of materials amounted to \$3,907,878; the working capital was \$250,000; and the number of persons employed was 5,109, to

whom \$1,787,402 were paid in wages. The herring utilized amounted to 104,700,010 pounds, valued at \$767,141, and the pack was 1,877,757 cases, valued at \$7,435,056, of which 1,458,670 cases, valued at \$5,669,352, were quarter oils.

The detailed statistics of the sardine industry of Maine in 1919 and 1920, by counties, are shown in the appended tables:

## SARDINE INDUSTRY OF MAINE IN 1919 AND 1920, BY COUNTIES.

1919.

Item.	Cumberland.		Hancock.		Knox and Waldo.	
	Number.	Value.	Number.	Value.	Number.	Value.
Plants .....	5	\$172,673	10	\$456,090	5	\$225,146
Cost of material.....		241,504		741,150		185,186
Cash capital.....		26,107		46,000		40,000
Persons engaged.....	392		832		235	
Wages paid.....		128,187		303,621		100,769
<b>PRODUCTS.</b>						
Herring utilized.....	Pounds. 3,395,203	Value. \$34,992	Pounds. 21,325,259	Value. \$152,271	Pounds. 5,424,020	Value. \$30,945
Canned sardines: <sup>1</sup>						
In oil—	Cases.	Value.	Cases.	Value.	Cases.	Value.
Quarters.....	57,071	\$452,237	314,909	\$1,754,761	71,769	\$369,714
Halves.....						
In mustard—						
Quarters.....	1,340	6,164	9,434	43,559	1,406	6,467
Halves.....			7,862	66,000		
Three-quarters.....	12,531	52,477	47,882	258,025	8,871	39,357
In tomato sauce—						
Quarters.....	1,225	7,446	11,458	60,962	1,302	6,704
Halves.....	1,071	10,280			2,816	28,732
One pound.....	811	9,732			26	312
Plain—						
Half-pound.....	356	2,631				
Number one.....						
Total sardines.....	74,405	540,967	391,545	2,183,307	86,190	451,286

Item.	Washington.		Total.	
	Number.	Value.	Number.	Value.
Plants .....	133	\$2,910,966	53	\$3,764,875
Cost of material.....		3,389,123		4,556,963
Cash capital.....		144,000		256,107
Persons engaged.....	4,004		5,463	
Wages paid.....		1,152,832		1,685,409
<b>PRODUCTS.</b>				
Herring utilized.....	Pounds. 95,164,933	Value. \$634,242	Pounds. 125,309,415	Value. \$852,450
Canned sardines: <sup>2</sup>				
In oil—	Cases.	Value.	Cases.	Value.
Quarters.....	1,458,681	\$6,750,953	1,902,430	\$9,327,665
Halves.....	878	11,500	878	11,500
In mustard—				
Quarters.....	115,484	546,607	127,664	602,797
Halves.....			7,862	66,000
Three-quarters.....	242,363	973,555	311,647	1,323,414
In tomato sauce—				
Quarters.....	76,407	457,073	90,392	532,185
Halves.....	1,166	5,522	5,053	44,534
One pound.....	1,334	6,413	2,171	16,457
Plain—				
Half-pound.....	127	490	483	3,121
Number one.....	1,688	6,313	1,688	6,313
Total sardines.....	1,898,128	8,758,426	2,450,268	11,933,986

<sup>1</sup> Includes one plant located at Belfast, in Waldo County.

<sup>2</sup> Quarters are packed 100 cans to the case and others usually 48 cans to the case, except half-pound ovals, which sometimes contain 72 cans to the case.

## SARDINE INDUSTRY OF MAINE IN 1919 AND 1920, BY COUNTIES—Continued.

1920.

Item.	Cumberland.		Hancock.		Knox and Waldo.	
	Number.	Value.	Number.	Value.	Number.	Value.
Plants.....	6	\$204,132	8	\$567,643	3	\$245,009
Cost of material.....		133,071		392,975		81,772
Cash capital.....		37,000		37,000		6,500
Persons engaged.....	432		649		171	
Wages paid.....		89,285		169,752		64,520
<b>PRODUCTS.</b>						
Herring utilized.....	Pounds. 3,073,468	Value. \$30,114	Pounds. 9,878,319	Value. \$80,701	Pounds. 2,034,800	Value. \$15,915
Canned sardines: <sup>1</sup>						
In oil—	Cases.	Value.	Cases.	Value.	Cases.	Value.
Quarters.....	36,510	\$206,232	142,985	\$789,168	22,077	\$149,628
Halves.....			2,228	22,280		
In mustard—						
Quarters.....	1,226	4,523	6,261	31,824	51	204
Three-quarters.....	5,492	16,650	18,067	89,842	785	3,242
In tomato sauce—						
Quarters.....	3,317	15,155	6,143	25,499	2,949	11,796
Halves.....	150	1,080			1,331	15,956
Three-quarters.....						
One pound.....	18,075	75,846			3,712	33,408
Total sardines.....	64,770	319,486	175,684	958,613	30,905	214,234

Item.	Washington.		Total.	
	Number.	Value.	Number.	Value.
Plants.....	133	\$2,799,604	50	\$3,816,388
Cost of material.....		3,300,060		3,907,878
Cash capital.....		169,500		250,000
Persons engaged.....	3,857		5,109	
Wages paid.....		1,463,845		1,787,402
<b>PRODUCTS.</b>				
Herring utilized.....	Pounds. 89,713,423	Value. \$640,411	Pounds. 104,700,010	Value. \$767,141
Canned sardines: <sup>2</sup>				
In oil—	Cases.	Value.	Cases.	Value.
Quarters.....	1,257,098	\$4,524,324	1,453,670	\$5,669,352
Halves.....			2,228	22,280
In mustard—				
Quarters.....	43,945	185,493	51,483	222,044
Three-quarters.....	158,625	586,330	182,969	696,064
In tomato sauce—				
Quarters.....	145,905	641,832	158,314	694,282
Halves.....			1,481	17,036
Three-quarters.....	348	1,643	348	1,643
One pound.....	477	3,101	22,264	112,355
Total sardines.....	1,606,398	5,942,723	1,877,757	7,435,056

<sup>1</sup> Includes two plants located in Waldo County.<sup>2</sup> Quarters are packed 100 cans to the case and others usually 48 cans to the case, except half-pound ovals, which sometimes contain 72 cans to the case.

## FISHERIES OF NEW HAMPSHIRE.

The coastal fisheries of New Hampshire are unimportant in comparison with the fisheries of the other New England States and are confined to Rockingham County, the only coastal county. In 1919 the number of persons employed was 100, of whom 3 were on a vessel transporting fishery products, 85 in the shore and boat fisheries, and 12 shoresmen in wholesale fish establishments. The amount of capital invested was \$45,530 and included: A transporting vessel with outfit, valued at \$9,300; 31 small boats, valued at \$802; 53 power boats, valued at \$10,675; fishing apparatus in the shore fish-

eries to the value of \$7,295; shore and accessory property with a value of \$11,958, and cash capital amounting to \$5,500.

The products amounted to 528,730 pounds, valued at \$92,660. The species of chief importance were as follows: Lobsters, 298,012 pounds, valued at \$73,203; soft clams, 66,600 pounds, valued at \$13,320; and cod, 98,354 pounds, valued at \$3,609.

Compared with 1905, there has been a decrease of 45 in the number of persons employed, of \$1,520 in the capital invested, and of 507,722 pounds in the quantity of products; but an increase in the value of the products of \$40,716. There has been an increase in the catch of lobsters as compared with 1905 of 41,960 pounds in quantity and \$40,628 in value and a decrease in the collection of Irish moss of 54,000 pounds in quantity and \$1,980 in the value.

## FISHERIES OF ROCKINGHAM COUNTY.

The following table shows the number of persons employed, the investment, and the quantity and value of the products of the fisheries of Rockingham County, N. H., in 1919:

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF ROCKINGHAM COUNTY, N. H., IN 1919.

Item.	Number.	Value.	Item.	Number.	Value.
<b>PERSONS ENGAGED.</b>			<b>INVESTMENT—continued.</b>		
On vessels transporting.....	3	.....	Shore and accessory property.....		\$11,958
Inshore fisheries.....	85	.....	Cash capital.....		5,500
Shoemen.....	12	.....			
<b>Total.....</b>	<b>100</b>	<b>.....</b>	<b>Total.....</b>		<b>45,530</b>
<b>INVESTMENT.</b>			<b>PRODUCTS.</b>		
Vessels transporting: Gasoline	1	\$6,300	Cod.....	<i>Pounds.</i> 98,354	<i>Value.</i> 3,609
Tonnage.....	8	.....	Cusk.....	2,400	86
Outfit.....		3,000	Eels.....	2,000	240
<b>Boats:</b>			Flounders.....	8,000	240
Sail, row, etc.....	31	802	Haddock.....	18,764	829
Power.....	53	10,675	Hake.....	3,000	98
<b>Apparatus, shore fisheries:</b>			Pollock.....	25,600	615
Hand line.....		70	Lobsters.....	298,012	73,203
Trawl lines.....		392	Clams, soft.....	166,600	13,320
Lobster pots.....	2,275	6,735	Irish moss.....	6,000	420
Eel pots.....	18	36			
Clam hoes.....	25	50	<b>Total.....</b>	<b>528,730</b>	<b>92,660</b>
Moss rakes.....	2	12			

<sup>1</sup> 6,660 bushels.

## FISHERIES BY APPARATUS.

No vessels were employed in the capture of fish in 1919. The largest quantity in the shore fisheries, consisting of 298,012 pounds of lobsters, valued at \$73,203, was taken with lobster pots. The catch with hand lines, amounting to 156,118 pounds, valued at \$5,477, was second, and the catch of soft clams with clam hoes, third. The principal species taken with hand lines were cod, pollock, haddock, and flounders. The following table gives the products of the shore fisheries in 1919 by apparatus and species:

## YIELD OF THE SHORE FISHERIES OF NEW HAMPSHIRE IN 1919, BY APPARATUS AND SPECIES.

Apparatus and species.	Pounds.	Value.	Apparatus and species.	Pounds.	Value.
Lines:			Lobster pots: Lobsters.....	298,012	\$73,203
Cod.....	98,354	\$3,609	Eel pots: Eels.....	2,000	240
Cusk.....	2,400	86	Clam hoes: Soft clams.....	66,600	13,320
Flounders.....	8,000	240	Moss rakes: Irish moss.....	6,000	420
Haddock.....	18,764	829			
Hake.....	3,000	98	Grand total.....	528,730	92,660
Pollock.....	25,600	615			
Total.....	156,118	5,477			

## WHOLESALE FISHERY TRADE.

There were only 2 wholesale fresh-fish establishments in Rockingham County in 1919, valued at \$7,540, using cash capital to the amount of \$5,500 and employing 12 persons, to whom \$12,678 were paid in wages.

## FISHERIES OF MASSACHUSETTS.

The fisheries of Massachusetts in 1919 were more productive than those of all the other New England States combined. The number of persons employed was 12,346, of whom 4,459 were on fishing vessels, 66 on vessels transporting fishery products, 3,737 in the shore and boat fisheries, and 4,084 shoresmen in the wholesale plants, canneries, salteries, smokehouses, by-products plants, and other shore establishments.

The investment included 421 fishing and transporting vessels, valued at \$6,192,118, having a net tonnage of 16,838 tons and outfits valued at \$1,860,766; 3,040 power, sail, row, and other small boats, valued at \$949,683; apparatus employed in the vessel and boat fisheries to the value of \$1,205,518; shore and accessory property valued at \$7,000,239, and cash capital to the amount of \$1,902,945, making a total investment of \$19,111,269.

The products of the fisheries amounted to 246,951,241 pounds, valued at \$10,859,746. The most important species arranged in the order of their value were: Cod, 69,496,325 pounds, valued at \$2,992,793; haddock, 78,178,384 pounds, valued at \$2,208,211; common mackerel, 13,516,194 pounds, valued at \$1,322,409; lobsters, 2,387,636 pounds, valued at \$516,393; flounders, 10,262,693 pounds, valued at \$478,850; pollock, 19,242,541 pounds, valued at \$469,943; and scallops, 1,332,486 pounds, or 222,081 bushels, valued at \$439,382.

Compared with the Bureau's returns for 1905 there has been a decrease in the number of persons employed of 3,348, an increase in the investment amounting to \$8,300,827, a decrease in the quantity of products taken amounting to 8,703,234 pounds, and an increase in the value amounting to \$3,834,497. The species for which there has been a notable increase in 1919 as compared with 1905, with the amount of increase follow: Flounders, 6,219,010 pounds; squid, 5,348,807 pounds; whiting, 9,618,960 pounds; lobsters, 1,104,565 pounds; scallops, 1,069,249 pounds; and hard crabs, 1,704,961 pounds. Those for which there has been a marked decrease as compared with 1905 are: Alewives, 1,673,820 pounds; cusk, 5,877,991 pounds; hake, 16,605,435 pounds; halibut, 1,796,447 pounds; and herring, 7,553,045 pounds.

## FISHERIES BY COUNTIES.

The statistics of the number of persons employed, investment, and products of the fisheries in Massachusetts in 1919 are given by counties in the appended table:

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF MASSACHUSETTS IN 1919, BY COUNTIES.

Item.	Barnstable.		Bristol.		Dukes.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing.....	504		218		54	
On vessels transporting.....	6					
Inshore fisheries.....	1,386		355		229	
Shoresmen.....	638		169		34	
<b>Total.....</b>	<b>2,534</b>		<b>742</b>		<b>317</b>	
<b>INVESTMENT.</b>						
<b>Vessels fishing:</b>						
Steam.....	1	\$12,000				
Tonnage.....	55					
Outfit.....		4,400				
Gasoline.....	68	186,150	15	\$52,500	14	\$59,100
Tonnage.....	626		160		128	
Outfit.....		88,940		24,900		16,210
Sail.....	12	139,500	6	98,200		
Tonnage.....	1,259		829			
Outfit.....		126,525		24,200		
<b>Vessels transporting:</b>						
Gasoline.....	3	8,500				
Tonnage.....	17					
Outfit.....		450				
<b>Boats:</b>						
Sail, row, etc.....	633	39,000	149	3,145	70	3,043
Power.....	500	238,770	161	43,375	167	74,125
<b>Apparatus, vessel fisheries:</b>						
Purse seines.....	15	32,800	8	3,650	3	2,100
Gill nets.....	661	13,835	340	5,550	555	10,080
Otter trawls.....	35	2,645	4	300	5	300
Lines, hand and trawl.....		8,294		960		2,694
Harpoons.....		800		925		725
Lobster pots.....	75	150	80	200	275	700
Dredges.....	158	1,571	2	30	12	60
Tongs.....			1	9		
Whaling apparatus.....		12,000		17,000		
<b>Apparatus, shore fisheries:</b>						
Purse seines.....	4	2,600			1	150
Haul seines.....	13	1,085	6	415	3	540
Gill nets.....	881	13,370	20	275	40	640
Pound nets, trap nets, and weirs.....	151	326,700	18	8,200	31	22,100
Fyke nets.....	44	1,010	7	475	2	100
Bow nets.....	13	36				
Dip nets.....	63	138				
Otter trawls.....	36	1,970	2	170	52	2,875
Lines, hand and trawl.....		10,250		152		91
Harpoons.....				60		480
Spears.....	27	51	29	83		
Cunner traps.....			4	6		
Cockle traps.....	400	360				
Lobster pots.....	2,750	5,549	7,352	15,762	5,543	15,661
Eel pots.....	738	1,503	55	100	587	1,545
Dredges.....	1,086	7,561	256	1,280	416	2,080
Tongs.....	115	674	70	390		
Rakes.....	537	2,219	92	1,054	54	1,080
Forks and hoes.....	139	286	1	1	7	14
Shore and accessory property.....		1,492,266		124,035		66,405
Cash capital.....		83,650		16,000		9,000
<b>Total.....</b>	<b>2,867,608</b>		<b>443,402</b>		<b>291,898</b>	
<b>PRODUCTS.</b>						
<b>Alewives:</b>						
Fresh.....	313,466	\$5,634	104,795	\$2,075	551,150	\$14,141
Salted.....	801,600	36,620	60,534	2,220	140,000	6,300
Smoked.....	39,000	2,845				
Bluefish.....	3,932	696			121	24
Bonito.....	33,956	2,549	40	4	95,461	9,929
Butterfish.....	180,500	15,577	11,700	850	56,899	5,853



PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF MASSACHUSETTS  
IN 1919, BY COUNTIES—Continued.

Item.	Barnstable.		Bristol.		Dukes.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS—continued.						
Catfish and wolffish.....	20,976	\$330				
Cod:						
Fresh.....	6,132,372	229,207	176,870	\$10,697	201,259	\$14,313
Salted.....	6,500	450				
Cunners.....			7,150	500		
Cusk, fresh.....	16,428	436				
Eels.....	112,708	16,912	24,778	2,880	79,500	11,505
Flounders.....	3,979,872	161,782	187,123	9,058	913,238	59,457
Grayfish.....	1,000	10	62,667	174		
Goosefish.....			2,500	7		
Haddock, fresh.....	5,865,917	172,356			65,554	4,553
Hake, fresh.....	644,902	15,839	2,763	180	15,086	1,501
Halibut, fresh.....	19,318	4,385	20,000	5,000		
Herring.....	6,445,441	80,284	88,765	1,373	25	3
Hickory shad.....	11,650	780	1,150	50		
Kingfish.....			72	18		
Launce.....	67,800	838				
Mackerel:						
Fresh.....	3,596,851	337,779	263,445	26,526	335,337	41,320
Frigate.....					61,361	1,862
Menhaden.....	69,303	1,605	46,516	272	5,400	54
Minnows.....	1,000	125				
Perch, white.....			200	20	6,000	900
Pollock, fresh.....	1,242,907	29,749	140	5	45,871	1,398
Pompano.....	14	2				
Rosefish.....	305	9				
Round herring.....	941	19				
Sculpin.....			6,000	15		
Scup.....	10,344	759	52	6	65,278	4,626
Sea bass.....	345	110	2,289	50	10,365	1,182
Sea robin.....			400	1		
Shad.....	5,645	1,583	352	85	37	7
Sharks.....	314,525	3,220	3,175	71		
Skates and rays.....	885	17	93,649	381		
Smelt.....	257	38	97	13		
Squeteague.....	613	74	962	151	4,202	683
Striped bass.....	307	115	605	103	59	13
Sturgeon.....	5,183	1,191				
Sturgeon caviar.....	30	85				
Sturgeon roe.....	175	150				
Swordfish.....	112,935	20,860	109,141	22,865	121,538	25,740
Tautog.....	35,427	2,589	46,369	5,421	822	49
Tilefish.....			38,000	1,330		
Tomcod.....	2,200	6	4,690	183		
Tuna.....	37,048	2,716	53	2		
Whiting.....	11,173,383	135,485	57,709	948	62,727	365
Other species.....	9,500	100	8,411	388	20,321	1,629
Squid.....	5,837,988	104,364	141,129	2,184	16,459	253
Blackfish.....	40,000	40				
Porpoise.....	750	15				
Clams:						
Hard—						
Public.....	293,520	99,348	195,360	63,600	79,120	27,300
Private.....	22,640	12,425				
Soft—						
Public.....	136,000	13,189	6,000	900	5,000	875
Private.....	125,000	10,750				
Razor.....	23,300	3,500				
Oysters:						
Market—						
Public.....	875	150	1,120	400		
Private.....	723,835	265,397	21,945	5,380		
Seed—Private.....	68,978	5,912				
Scallops.....	501,264	145,523	42,300	14,200	301,020	88,325
Cockles.....	2,400	1,025				
Lobsters.....	99,420	26,988	256,618	54,402	610,497	104,610
Shrimp.....	3,100	1,550				
Spawn.....	37,107	1,601				
Livers.....	150	1				
Sperm oil.....	678,375	92,450	867,038	125,661		
Ambergris.....	30	5,000				
Alewife scales.....	4,000	2,000				
Total.....	49,916,193	2,077,114	2,964,672	360,649	3,869,707	428,770

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF MASSACHUSETTS  
IN 1919, BY COUNTIES—Continued.

Item.	Essex.		Nantucket.		Norfolk.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing.....	2,345		43			
On vessels transporting.....	30		3			
Inshore fisheries.....	624		100		45	
Shoemen.....	2,058		6		2	
Total.....	5,057		152		47	
<b>INVESTMENT.</b>						
Vessels fishing:						
Steam.....	11	\$502,065	1	\$4,000		
Tonnage.....	931		15			
Outfit.....		119,866		1,650		
Gasoline.....	146	1,950,303	13	24,200		
Tonnage.....	5,302		122			
Outfit.....		671,348		16,075		
Sail.....	23	379,500	1	100		
Tonnage.....	1,780		5			
Outfit.....		110,222		15		
Vessels transporting:						
Gasoline.....	5	59,350	1	300		
Tonnage.....	290		6			
Outfit.....		3,170				
Sail.....	3	13,800				
Tonnage.....	132					
Outfit.....		2,375				
Boats:						
Sail, row, etc.....	163	4,435	20	700	21	\$680
Power.....	324	152,390	78	25,655	31	7,450
Apparatus, vessel fisheries:						
Purseseines.....	64	130,700	1	600		
Gill nets.....	3,089	63,875	100	1,600		
Otter trawls.....	36	4,145	6	360		
Lines, hand and trawl.....		82,495				
Harpoons.....		2,780		200		
Dredges.....			42	795		
Rakes.....			2	40		
Apparatus, shore fisheries:						
Purseseines.....	20	39,000				
Haulseines.....	11	575				
Gill nets.....	1,724	40,363	10	1,500		
Pound nets, trap nets, and weirs.....	43	19,650	3	3,000		
Dip nets.....	12	63				
Otter trawls.....	25	1,440	32	835		
Lines, hand and trawl.....		14,797		265		70
Spears.....	6	11			8	20
Cockle traps.....	280	140				
Lobster pots.....	10,859	26,329	622	1,866	2,289	6,440
Eel pots.....	119	326	180	540	15	45
Dredges.....			384	1,720		
Rakes.....			40	1,010	5	30
Forks and hoes.....	134	208			11	22
Shore and accessory property.....		3,563,906		30,165		3,145
Cash capital.....		374,795		3,000		1,200
Total.....		8,335,022		120,191		19,102
<b>PRODUCTS.</b>						
Alewives:	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Fresh.....	29,815	\$344	16,400	\$164		
Salted.....			27,000	1,080		
Bluefish.....	668	71				
Bonito.....	670	54	59,400	5,470		
Butterfish.....	20,469	2,126				
Catfish and wolfish.....	64,236	1,991				
Cod:						
Fresh.....	39,449,727	1,695,709	192,400	8,120	22,000	\$1,760
Salted.....	3,137,905	162,452	30,000	3,600		
Cunners.....	2,809	85				
Cusk:						
Fresh.....	1,073,168	37,681				
Salted.....	16,870	759				
Eels.....	113,991	10,177	30,000	4,500	3,000	530
Flounders.....	2,171,726	93,786	611,210	49,090	8,000	800
Haddock:						
Fresh.....	25,468,781	714,799	16,100	508	500	40
Salted.....	373,574	16,996				

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF MASSACHUSETTS  
IN 1919, BY COUNTIES—Continued.

Item.	Essex.		Nantucket.		Norfolk.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS—continued.						
Hake:						
Fresh	1,957,170	\$79,601				
Salted	29,095	1,307				
Halibut:						
Fresh	1,435,835	249,254				
Salted	8,045	1,060				
Herring	2,241,108	29,625	2,000	\$300		
Mackerel:						
Fresh	6,953,882	661,856	89,700	7,925		
Salted	1,249,062	109,948				
Perch, yellow	500	25				
Pollock:						
Fresh	13,956,759	341,242	28,400	1,486	1,000	\$0.80
Salted	50,153	1,774				
Rosefish	20,150	487				
Scup			2,450	245		
Sea bass	18	2	2,000	300		
Shad	33,366	1,297	12,800	750		
Sharks	9,594	319				
Skates and rays	3,510	56				
Smelt	7,796	1,864			22,200	6,425
Sturgeon	1,080	103	4,500	1,800		
Sturgeon caviar			120	271		
Sturgeon roe	6	13				
Swordfish	275,502	64,951	1,300	214		
Tautog	158	6			2,000	180
Tilefish	116,670	7,000				
Tuna	5,000	750				
Whiting	2,564,231	11,343	53,600	660		
Squid	121,831	1,671	3,350	83		
Clams:						
Hard, public	600	75	247,944	68,836		
Soft, public	460,060	58,206			63,470	9,620
Scallops			103,452	46,230		
Cockles	300,000	1,350				
Crabs, hard	18,167	395			18,475	554
Lobsters	677,387	161,249	19,446	8,759	77,054	19,390
Shrimp	300	39				
Tongues	600	12				
Spawn	57,462	3,401				
Livers	282,875	4,366				
Irish moss					25,500	1,912
Total	104,762,381	4,531,677	1,553,572	210,391	243,199	41,291

Item.	Plymouth.		Suffolk.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
PERSONS ENGAGED.						
On vessels fishing	2		1,293		4,459	
On vessels transporting			27		66	
Inshore fisheries	485		513		3,737	
Shoresmen	99		1,078		4,084	
Total	586		2,911		12,346	
INVESTMENT.						
Vessels fishing:						
Steam			21	\$1,966,480	34	\$2,484,545
Tonnage			2,309		3,310	
Outfit				304,045		429,961
Gasoline	1	\$2,500	51	501,755	308	2,776,508
Tonnage	8		1,856		8,202	
Outfit		120		241,845		1,069,438
Sail			12	191,015	54	808,315
Tonnage			861		4,734	
Outfit				91,350		352,312
Vessels transporting:						
Gasoline			13	40,800	22	108,950
Tonnage			147		460	
Outfit				13,060		16,680
Sail					3	13,800
Tonnage					132	
Outfit						2,375

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF MASSACHUSETTS  
IN 1919, BY COUNTIES—Continued.

Item.	Plymouth.		Suffolk.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>INVESTMENT—continued.</b>						
Boats:						
Sail, row, etc.	219	\$5,655	33	\$1,830	1,308	\$58,488
Power	280	90,570	191	258,860	1,732	891,195
Apparatus, vessel fisheries:						
Purse seines			9	24,000	100	193,850
Gill nets			685	12,745	5,430	107,685
Otter trawls			33	10,100	119	17,850
Lines, hand and trawl				39,215		133,658
Harpoons				1,225		6,655
Loobster pots					430	1,050
Dredges	10	60			224	2,516
Tongs					1	9
Rakes					2	40
Whaling apparatus						29,000
Apparatus, shore fisheries:						
Purse seines	1	300			26	42,050
Haul seines	2	180	6	1,200	41	3,995
Gill nets	38	1,675	975	19,500	3,688	77,323
Pound nets, trap nets, and weirs	8	7,820			254	387,470
Fyke nets					53	1,585
Bow nets					13	36
Dip nets	22	132	7	41	104	374
Otter trawls	2	120	42	2,100	191	9,510
Lines, hand and trawl		719		25,068		51,412
Harpoons						540
Spears	2	6			72	171
Cunner traps					4	6
Cockle traps					680	500
Lobster pots	11,347	31,182	2,250	5,970	43,012	109,399
Eel pots	132	396			1,826	4,455
Dredges	622	3,880			2,764	16,521
Tongs	50	291			235	1,355
Rakes	56	263			784	5,656
Forks and hoes	130	265	53	91	475	887
Shore and accessory property		106,136		1,614,181		7,000,239
Cash capital		7,300		1,408,000		1,902,945
Total		259,570		6,774,476		19,111,269
<b>PRODUCTS.</b>						
Alewives:	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Fresh	81,050	\$704	800	\$8	1,097,476	\$23,070
Salted	230,000	9,775			1,259,134	55,995
Smoked					39,000	2,845
Bluefish					4,721	791
Bonito			200	12	189,727	18,018
Butterfish	4,775	517	22,485	1,887	296,828	26,810
Catfish and wolffish			205,976	6,898	291,188	9,219
Cod:						
Fresh	182,113	7,926	19,964,179	858,359	66,320,920	2,826,091
Salted	1,000	200			3,175,405	166,702
Cunners					9,959	585
Cusk:						
Fresh	3,000	84	468,741	16,867	1,561,337	55,068
Salted					16,870	759
Eels	9,700	1,203	490	7	374,167	47,714
Flounders	42,700	1,994	2,348,824	102,883	10,262,693	478,850
Grayfish					63,667	184
Goosefish					2,500	7
Haddock:						
Fresh	4,750	183	46,383,208	1,298,776	77,804,810	2,191,215
Salted					373,574	16,996
Hake:						
Fresh	3,100	125	1,443,416	59,107	4,066,437	156,352
Salted					29,095	1,307
Halibut:						
Fresh			233,356	37,593	1,708,509	296,232
Salted					8,045	1,060
Herring	1,810,600	11,519	223,470	6,304	10,811,409	120,408
Hickory shad					12,800	830
Kingfish					72	18
Launce					67,800	838
Mackerel:						
Fresh	48,887	5,991	979,030	131,064	12,267,132	1,212,461
Salted					1,240,062	109,948
Frigate					61,361	1,862
Menhaden	40,000	300			161,219	2,231
Minnows					1,000	125

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF MASSACHUSETTS  
IN 1919, BY COUNTIES—Continued.

Item.	Plymouth.		Suffolk.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS—continued.						
Perch:						
White.....					6,200	\$920
Yellow.....					500	25
Pollock:						
Fresh.....	15,600	\$474	3,901,711	\$93,735	19,192,388	468,169
Salted.....					50,153	1,774
Pompano.....					14	2
Rosefish.....			16,318	628	36,773	1,124
Round herring.....					941	19
Sculpin.....					6,000	15
Scup.....	500	30			78,624	5,666
Sea bass.....	50	5			15,067	1,649
Sea robin.....					400	1
Shad.....			10,137	617	62,337	4,309
Sharks.....			1,105	54	328,399	3,664
Skates and rays.....			2,310	49	100,354	503
Smelt.....	7,500	2,025	1,300	325	39,150	10,690
Squeteague.....					5,777	908
Striped bass.....					971	231
Sturgeon.....			1,335	264	12,098	3,358
Sturgeon caviar.....					150	356
Sturgeon roe.....					181	163
Swordfish.....			91,313	20,700	711,729	155,330
Tautog.....	7,100	640			91,876	8,889
Tilefish.....			33,510	1,473	188,180	9,803
Tomcod.....			1,000	50	7,890	239
Tuna.....	800	80			42,901	3,548
Whiting.....	7,000	53			13,918,650	148,854
Other species.....					38,232	2,117
Squid.....	13,800	309			6,134,557	108,864
Blackfish.....					40,000	40
Porpoise.....					750	15
Clams:						
Hard—						
Public.....	36,760	12,183			1,853,304	271,342
Private.....					2,226,640	12,425
Soft—						
Public.....	1,146,100	122,885	246,000	26,519	3,062,630	232,194
Private.....					4,125,000	10,750
Razor.....					5,23,300	3,500
Oysters:						
Market—						
Public.....	3,584	833			6,5,579	1,383
Private.....	23,275	7,387			7,769,055	278,164
Seed—						
Public.....	23,105	1,320			8,23,100	1,320
Private.....	11,200	640			9,80,178	6,552
Scallops.....	384,450	145,104			10,1,332,486	439,382
Cockles.....	275,000	1,050			11,577,400	3,425
Crabs:						
Hard.....	8,000	165	1,720,319	48,310	12,1,764,961	49,424
Soft.....	265	40			13,266	40
LOBSTERS.....	575,829	119,580	71,385	21,415	2,387,636	516,393
Shrimp.....					3,400	1,589
Tongues.....					600	12
Spawn.....			52,360	3,834	146,929	8,836
Livers.....			30,550	477	313,575	4,844
Sperm oil.....					14,1,545,412	218,111
Ambergris.....					30	3,000
Alewife scales.....	6,400	3,200			10,400	5,200
Irish moss.....	178,700	13,115			204,200	15,027
Total.....	5,186,689	471,639	78,454,828	2,738,215	246,951,241	10,859,746

<sup>1</sup> 106,663 bushels.<sup>2</sup> 2,830 bushels.<sup>3</sup> 206,263 bushels.<sup>4</sup> 12,500 bushels.<sup>5</sup> 2,330 bushels.<sup>6</sup> 797 bushels.<sup>7</sup> 109,865 bushels.<sup>8</sup> 3,300 bushels.<sup>9</sup> 11,454 bushels.<sup>10</sup> 222,081 bushels.<sup>11</sup> 57,740 bushels.<sup>12</sup> 5,294,883 in number.<sup>13</sup> 798 in number.<sup>14</sup> 206,055 gallons.

## FISHERIES BY APPARATUS.

The combined yield of all forms of apparatus employed in both the vessel and shore fisheries of Massachusetts in 1919 amounted to 246,951,241 pounds, valued at \$10,859,746. Lines were the most

productive form, yielding 108,703,430 pounds, valued at \$4,311,755, the principal species taken being: Cod, 62,604,055 pounds, valued at \$2,699,786; haddock, 33,154,060 pounds, valued at \$945,599; halibut, 1,649,305 pounds, valued at \$285,860; hake, 3,436,229 pounds, valued at \$130,755; and pollock, 4,698,115 pounds, valued at \$116,328. Otter trawls ranked second, with 58,584,932 pounds, valued at \$1,906,360, of which 42,593,223 pounds, valued at \$1,195,092, were haddock. Gill nets, employed chiefly in the taking of mackerel, pollock, haddock, and cod, yielded 18,204,216 pounds, valued at \$814,940. The catch with seines amounted to 14,159,335 pounds, valued at \$792,721. The most important species taken in seines was mackerel, the catch of which amounted to 8,552,827 pounds, valued at \$738,220. Various species were taken in pound nets, trap nets, and weirs to the amount of 32,314,809 pounds, valued at \$655,005. Other important forms of apparatus used in both the vessel and shore fisheries were dredges, with 2,023,428 pounds of oysters, scallops, and clams, valued at \$680,331; tongs, rakes, hoes, and forks, with 3,387,906 pounds of oysters, scallops, clams, and Irish moss, valued at \$577,203; and lobster pots with 4,152,597 pounds of lobsters and crabs, valued at \$565,817.

The following tables give the products of the vessel and shore fisheries by counties, apparatus, and species:

YIELD OF VESSEL FISHERIES OF MASSACHUSETTS IN 1919, BY COUNTIES, APPARATUS, AND SPECIES.

Apparatus and species.	Barnstable.		Bristol.		Dukes.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>Otter trawls:</b>						
Cod—Fresh.....	1,260	\$60	650	\$25		
Flounders.....	2,888,935	110,022	92,000	4,800	243,420	\$12,805
Haddock—Fresh.....	220	13				
Hake.....	385	5	80	2		
Pollock—Fresh.....			120	4		
Scallops.....			300	200		
<b>Total.....</b>	<b>2,890,800</b>	<b>110,100</b>	<b>93,150</b>	<b>5,031</b>	<b>243,420</b>	<b>12,805</b>
<b>Lines:</b>						
Catfish and wolffish.....	7,364	235				
Cod—Fresh.....	3,012,246	94,045	174,325	10,575	155,928	12,592
Cusk—Fresh.....	12,295	382				
Flounders.....	12,178	434				
Haddock—Fresh.....	5,224,160	151,401			64,000	4,480
Hake—Fresh.....	207,258	7,232	350	25	15,000	1,500
Halibut—Fresh.....	9,107	2,681	20,000	5,000		
Pollock—Fresh.....	229,186	4,895				
Rosefish.....	305	9				
Tautog.....			4,125	450		
Tilefish.....			38,000	1,330		
Spawn.....	37,107	1,601				
<b>Total.....</b>	<b>8,751,206</b>	<b>262,915</b>	<b>236,800</b>	<b>17,380</b>	<b>234,928</b>	<b>18,572</b>
<b>Seines:</b>						
Butterfish.....	248	29				
Cod.....	12,371	358				
Cusk.....	1,030	21				
Flounders.....	4,668	164				
Haddock.....	2,990	83				
Hake.....	5,450	202				
Herring.....	513,600	9,158				
Mackerel, fresh.....	1,616,538	126,082	127,500	13,750	37,500	4,950
Pollock.....	53,470	1,579				
Smelt.....	257	38				
<b>Total.....</b>	<b>2,210,622</b>	<b>137,714</b>	<b>127,500</b>	<b>13,750</b>	<b>37,500</b>	<b>4,950</b>

## YIELD OF VESSEL FISHERIES OF MASSACHUSETTS IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

Apparatus and species.	Barnstable.		Bristol.		Dukes.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Gill nets:						
Mackerel.....	248, 748	\$27, 397	92, 900	\$7, 890	218, 330	\$27, 890
Total.....	248, 748	27, 397	92, 900	7, 890	218, 330	27, 890
Harpoons: Swordfish.....	112, 935	20, 860	106, 741	22, 265	106, 038	23, 120
Whaling gear:						
Ambergris.....	30	5, 000				
Sperm oil.....	678, 375	92, 450	867, 038	125, 661		
Total.....	678, 405	97, 450	867, 038	125, 661		
Loyster pots: Lobsters.....	1, 200	400	2, 740	685	18, 682	3, 228
Dredges:						
Clams, hard.....	4, 800	1, 200				
Oysters—						
Market, private.....	356, 685	142, 040	21, 000	5, 250		
Seed, private.....	17, 290	1, 482				
Scallops.....	68, 610	22, 375			2, 400	1, 000
Total.....	447, 385	167, 097	21, 000	5, 250	2, 400	1, 000
Tongs and rakes: Clams, hard.....			2, 800	1, 050		
Grand total.....	15, 341, 301	823, 933	1, 550, 669	198, 962	861, 298	91, 565

Apparatus and species.	Essex.		Nantucket.		Plymouth.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Otter trawls:						
Butterfish.....	330	\$23				
Catfish and wolfish.....	4, 616	312				
Cod—						
Fresh.....	2, 494, 530	107, 285	41, 000	\$2, 050		
Salted.....	40, 000	2, 200				
Cusk—						
Fresh.....	24, 765	892				
Salted.....	15, 000	675				
Flounders.....	1, 179, 280	47, 147	336, 000	26, 880		
Haddock—						
Fresh.....	8, 326, 644	234, 134	1, 000	50		
Salted.....	194, 000	6, 790				
Hake.....	32, 658	1, 338				
Halibut.....	13, 622	2, 316				
Hallock—						
Fresh.....	443, 280	10, 638				
Salted.....	14, 045	456				
Rosefish.....	9, 140	229				
Whiting.....	445	4				
Total.....	12, 792, 355	414, 439	378, 000	28, 980		
Lines:						
Catfish and wolfish.....	42, 237	1, 136				
Cod—						
Fresh.....	34, 344, 909	1, 479, 211				
Salted.....	3, 097, 905	160, 252				
Cush—						
Fresh.....	821, 692	28, 627				
Salted.....	1, 870	84				
Flounders.....	6, 016	213				
Haddock—						
Fresh.....	14, 653, 310	410, 530				
Salted.....	179, 574	10, 206				
Hake—						
Fresh.....	1, 258, 021	50, 721				
Salted.....	29, 095	1, 307				
Halibut—						
Fresh.....	1, 416, 132	245, 904				
Salted.....	8, 045	1, 060				
Pollock—						
Fresh.....	1, 503, 661	36, 792				
Salted.....	27, 258	883				
Rosefish.....	3, 470	124				
Sharks.....	1, 118	28				
Skates.....	20	1				

## YIELD OF VESSEL FISHERIES OF MASSACHUSETTS IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

Apparatus and species.	Essex.		Nantucket.		Plymouth.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>Lines—Continued.</b>						
Tilefish.....	116,670	\$7,000				
Livers.....	2,225	38				
Spawn.....	54,750	3,255				
<b>Total.....</b>	<b>57,567,978</b>	<b>2,437,372</b>				
<b>Seines:</b>						
Bonito.....	300	30				
Butterfish.....	40	4				
Cod.....	5,900	254				
Haddock.....	1,025	29				
Hake.....	3,318	136				
Herring.....	556,112	6,105				
Mackerel—						
Fresh.....	4,788,267	400,778	2,000	\$200		
Salted.....	1,249,062	109,948				
Pollock.....	2,095,253	46,863				
Shad.....	822	138				
Sharks.....	180	11				
Spawn.....	1,100	58				
<b>Total.....</b>	<b>8,701,379</b>	<b>564,354</b>	<b>2,000</b>	<b>200</b>		
<b>Gill nets:</b>						
Bonito.....	280	15				
Butterfish.....	1,060	58				
Cod.....	1,241,606	50,195				
Haddock.....	2,019,379	55,729				
Hake.....	194,641	7,988				
Mackerel.....	1,391,665	181,983	24,000	2,400		
Pollock.....	9,217,089	229,255				
Rosefish.....	825	33				
Shad.....	7,800	153				
Sharks.....	100	1				
Skates.....	30	1				
Shrimp.....	300	39				
Livers.....	195,650	3,053				
Spawn.....	30	1				
<b>Total.....</b>	<b>14,270,455</b>	<b>528,504</b>	<b>24,000</b>	<b>2,400</b>		
<b>Harpoons: Swordfish.....</b>	<b>275,502</b>	<b>64,951</b>	<b>1,300</b>	<b>214</b>		
<b>Dredges:</b>						
Clams, hard.....			132,000	39,050		
Scallops.....			8,700	3,500	4,680	\$1,320
<b>Total.....</b>			<b>140,700</b>	<b>42,550</b>	<b>4,680</b>	<b>1,320</b>
<b>Tongs and rakes: Clams, hard.....</b>			<b>4,800</b>	<b>1,800</b>		
<b>Grand total.....</b>	<b>93,607,669</b>	<b>4,009,620</b>	<b>550,800</b>	<b>76,144</b>	<b>4,680</b>	<b>1,320</b>

Apparatus and species.	Suffolk.		Total.	
	Pounds.	Value.	Pounds.	Value.
<b>Otter trawls:</b>				
Butterfish.....	21,549	\$1,782	21,879	\$1,805
Catfish and wolffish.....	62,671	1,647	67,287	1,959
Cod—				
Fresh.....	2,453,117	105,491	4,990,557	214,911
Salted.....			40,000	2,200
Cusk—				
Fresh.....	6,550	236	31,315	1,128
Salted.....			15,000	675
Eels.....	490	7	490	7
Flounders.....	1,062,262	47,269	5,801,897	248,923
Haddock—				
Fresh.....	34,057,878	953,728	42,385,742	1,187,925
Salted.....			194,000	6,790
Hake.....	397,579	16,298	430,702	17,643
Halibut.....	53,627	9,116	67,249	11,432
Pollock—				
Fresh.....	311,442	7,475	754,842	18,117
Salted.....			14,045	456
Rosefish.....	2,405	90	11,545	319
Shad.....	7	1	7	1
Sharks.....	990	52	990	52



## YIELD OF VESSEL FISHERIES OF MASSACHUSETTS IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

Apparatus and species.	Suffolk.		Total.	
	Pounds.	Value.	Pounds.	Value.
Otter trawls—Continued.				
Skates.....	1,810	\$39	1,810	\$9
Sturgeon.....	1,335	264	1,335	264
Whiting.....			445	4
Scallops.....			300	200
Total.....	38,433,712	1,143,495	54,831,437	1,714,850
Lines:				
Catfish and wolffish.....	15,509	454	65,110	1,825
Cod—				
Fresh.....	15,189,656	653,053	52,877,064	2,249,476
Salted.....			3,097,905	160,252
Cusk—				
Fresh.....	358,353	12,890	1,192,340	41,899
Salted.....			1,870	84
Flounders.....	15,909	646	34,103	1,293
Haddock—				
Fresh.....	10,467,834	293,006	30,409,304	859,417
Salted.....			179,574	10,206
Hake—				
Fresh.....	884,876	36,202	2,365,505	95,680
Salted.....			29,095	1,307
Halibut—				
Fresh.....	178,280	28,231	1,623,519	281,816
Salted.....			8,045	1,060
Pollock—				
Fresh.....	1,556,431	37,447	3,289,278	79,134
Salted.....			27,258	883
Rosefish.....	11,078	430	14,853	563
Sharks.....	115	2	1,233	30
Skates.....			20	1
Tautog.....			4,125	450
Tilefish.....	33,510	1,473	188,180	9,803
Livers.....	2,250	51	4,475	89
Spawn.....	39,396	2,890	131,253	7,746
Total.....	28,753,197	1,066,775	95,544,109	3,803,014
Seines:				
Alewives.....	800	8	800	8
Bonito.....	200	12	500	42
Butterfish.....	905	101	1,193	134
Cod.....	2,654	115	20,925	727
Cusk.....			1,030	21
Flounders.....			4,668	164
Haddock.....			4,015	112
Hake.....	670	27	9,438	365
Herring.....			1,069,712	15,263
Mackerel—				
Fresh.....	380,214	44,464	6,952,019	590,224
Salted.....			1,249,062	109,948
Pollock.....	644,845	15,476	2,793,568	63,918
Shad.....	10,000	600	10,822	738
Sharks.....			180	11
Smelt.....			257	38
Spawn.....			1,100	58
Total.....	1,040,288	60,803	12,119,289	781,771
Gill nets:				
Bonito.....			280	15
Butterfish.....			1,060	58
Cod.....	129,075	5,550	1,370,681	55,745
Haddock.....	384,286	10,760	2,403,665	66,489
Hake.....	15,090	619	209,731	8,607
Mackerel.....	273,092	32,296	2,248,735	279,856
Pollock.....	1,310,981	31,464	10,528,070	260,719
Rosefish.....			825	33
Shad.....			7,800	153
Sharks.....			100	1
Skates.....			30	1
Shrimp.....			300	39
Livers.....	28,300	426	223,950	3,479
Spawn.....			30	1
Total.....	2,140,824	81,115	16,995,257	675,196
Harpoons: Swordfish.....	91,313	20,700	693,829	152,110

## YIELD OF VESSEL FISHERIES OF MASSACHUSETTS IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

Apparatus and species.	Suffolk.		Total.	
	Pounds.	Value.	Pounds.	Value.
Whaling gear:				
Ambergris.....			30	\$5,000
Sperm oil.....			1,545,413	218,111
Total.....			1,545,443	223,111
Lobster pots: Lobsters.....			22,622	4,313
Dredges:				
Clams, hard.....			136,800	40,250
Oysters—				
Market, private.....			377,685	147,290
Seed, private.....			17,290	1,482
Scallops.....			84,390	28,195
Total.....			616,165	217,217
Tongs and rakes: Clams, hard.....			7,600	2,850
Grand total.....	70,459,334	\$2,372,888	182,375,751	7,574,432

## YIELD OF SHORE FISHERIES OF MASSACHUSETTS IN 1919, BY COUNTIES, APPARATUS, AND SPECIES.

## BY POUND NETS, TRAPS, WEIRS, DREDGES, OTTER TRAWLS, GILL NETS, DIP NETS, AND SEINES.

Apparatus and species.	Barnstable.		Bristol.		Dukes.		Essex.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Pound nets, trap nets, and weirs:								
Alewives—								
Fresh.....	194,566	\$3,484	77,795	\$1,540	96,050	\$1,706	17,315	\$244
Salted.....	35,000	1,750			140,000	6,300		
Bluefish.....	3,932	696			121	24	668	71
Bonito.....	33,956	2,549	40	4	95,461	9,929	90	9
Butterfish.....	176,061	14,966	11,700	850	56,899	5,853	19,039	2,041
Catfish and wolfish.....							14	1
Cod.....	113,668	4,822	795	37	81	6	173,066	5,400
Cunners.....							2,809	85
Eels.....	3,850	455	4,500	450				
Flounders.....	161,086	7,828	19,753	1,017	13,043	1,162	1,805	58
Frigate mackerel.....					61,361	1,862		
Grayfish.....	1,000	10	62,667	174				
Goosefish.....			2,500	77				
Haddock.....	2,631	13			554	33	2,236	63
Hake.....	395	4	183	3	86	1	4,810	110
Herring.....	5,931,481	71,121	88,765	1,373	25	3	1,321,184	17,285
Hickory shad.....	11,650	780	1,150	50				
Kingfish.....			72	18				
Launce.....	3,800	38						
Mackerel.....	1,419,313	148,182	28,605	2,871	53,007	5,035	122,886	13,034
Menhaden.....	69,303	1,605	46,516	272	5,400	54		
Perch, white.....					6,000	900		
Pollock.....	103,725	3,135	20	1	2,371	113	185,792	3,243
Pompano.....	14	2						
Round herring.....	941	19						
Sculpin.....			6,000	15				
Scup.....	8,634	494	52	6	63,578	4,393		
Sea bass.....			2,289	50	3,865	532	18	2
Sea robin.....			400	1				
Shad.....	5,645	1,553	54	17	37	7	435	47
Sharks.....	11,300	183	3,175	71			3,000	75
Skates and rays.....			93,649	381				
Smelt.....			97	13				
Squeteague.....	613	74	962	151	4,202	683		
Striped bass.....	287	110	605	103	59	13		
Sturgeon.....	5,183	1,191					180	22
Sturgeon caviar.....	30	85						
Sturgeon roe.....	175	150					6	13
Tautog.....	23,627	1,362	13,519	1,316	222	19	158	6
Tomcod.....	2,200	6	2,390	93				
Tuna.....	37,048	2,716	53	2			5,000	750
Whiting.....	11,173,383	135,485	57,709	948	62,727	365	2,563,786	11,339

## YIELD OF SHORE FISHERIES OF MASSACHUSETTS IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

BY POUND NETS, TRAPS, WEIRS, DREDGES, OTTER TRAWLS, GILL NETS, DIP NETS, AND SEINES—Continued.

Apparatus and species.	Barnstable.		Bristol.		Dukes.		Essex.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Pound nets, trap nets, and weirs—Continued.								
Other species.....	9, 500	\$100	8, 411	\$388	20, 321	\$1, 629	.....	.....
Squid.....	5, 837, 988	104, 364	141, 129	2, 184	16, 459	253	121, 831	\$1, 671
Porpoise.....	750	15	.....	.....	.....	.....	.....	.....
Total.....	25, 382, 735	509, 347	675, 555	14, 406	703, 929	40, 875	4, 546, 068	55, 569
Dredges:								
Clams, hard.....	4, 800	1, 800	.....	.....	.....	.....	.....	.....
Oysters, market, private.....	138, 915	52, 237	.....	.....	.....	.....	.....	.....
Scallops.....	397, 656	114, 328	42, 000	14, 000	298, 620	87, 325	.....	.....
Total.....	541, 371	168, 365	42, 000	14, 000	298, 620	87, 325	.....	.....
Otter trawls:								
Cod.....	.....	.....	.....	.....	.....	.....	450	19
Flounders.....	891, 315	41, 712	69, 000	2, 800	639, 275	44, 490	713, 567	30, 798
Rosefish.....	.....	.....	.....	.....	.....	.....	6, 715	101
Scup.....	.....	.....	.....	.....	1, 000	180	.....	.....
Sea bass.....	.....	.....	.....	.....	6, 000	600	.....	.....
Total.....	891, 315	41, 712	69, 000	2, 800	646, 275	45, 270	720, 732	30, 918
Gill nets:								
Butterfish.....	247	44	.....	.....	.....	.....	.....	.....
Cod.....	.....	.....	.....	.....	.....	.....	149, 788	7, 702
Flounders.....	.....	.....	.....	.....	.....	.....	4, 500	135
Haddock.....	.....	.....	.....	.....	.....	.....	18, 000	810
Herring.....	.....	.....	.....	.....	.....	.....	7, 200	205
Mackerel.....	266, 926	30, 304	10, 500	1, 500	13, 500	2, 125	362, 428	35, 506
Pollock.....	.....	.....	.....	.....	.....	.....	1, 800	54
Sharks.....	.....	.....	.....	.....	.....	.....	5, 196	204
Skates.....	.....	.....	.....	.....	.....	.....	2, 000	10
Sturgeon.....	.....	.....	.....	.....	.....	.....	900	81
Total.....	267, 173	30, 348	10, 500	1, 500	13, 500	2, 125	551, 812	44, 707
Dip nets:								
Alewives—								
Fresh.....	14, 400	396	.....	.....	.....	.....	.....	.....
Salted.....	240, 000	8, 400	.....	.....	.....	.....	.....	.....
Flounders.....	.....	.....	.....	.....	.....	.....	500	25
Herring.....	.....	.....	.....	.....	.....	.....	152, 950	4, 268
Perch, yellow.....	.....	.....	.....	.....	.....	.....	500	25
Scallops.....	34, 950	8, 800	.....	.....	.....	.....	.....	.....
Total.....	289, 350	17, 596	.....	.....	.....	.....	153, 950	4, 318
Seines:								
Alewives—								
Fresh.....	63, 000	1, 279	27, 000	535	455, 100	12, 435	12, 500	100
Salted.....	364, 600	19, 190	60, 534	2, 220	.....	.....	.....	.....
Smoked.....	2, 000	150	.....	.....	.....	.....	.....	.....
Butterfish.....	700	105	.....	.....	.....	.....	.....	.....
Cod.....	3, 000	120	.....	.....	.....	.....	.....	.....
Eels.....	.....	.....	.....	.....	21, 000	1, 200	71, 270	1, 981
Herring.....	360	5	.....	.....	.....	.....	203, 662	1, 762
Launce.....	64, 000	800	.....	.....	.....	.....	.....	.....
Mackerel.....	43, 100	5, 617	235	40	10, 000	1, 200	288, 211	30, 503
Minnows.....	1, 000	125	.....	.....	.....	.....	.....	.....
Pollock.....	.....	.....	.....	.....	.....	.....	159, 036	3, 817
Shad.....	.....	.....	298	68	.....	.....	24, 309	959
Shrimp.....	3, 100	1, 550	.....	.....	.....	.....	.....	.....
Alewife scales.....	3, 000	1, 500	.....	.....	.....	.....	.....	.....
Total.....	547, 860	30, 441	88, 067	2, 863	486, 100	14, 835	758, 988	39, 122

YIELD OF SHORE FISHERIES OF MASSACHUSETTS IN 1919, BY COUNTIES, APPARATUS,  
AND SPECIES—Continued.BY POUND NETS, TRAPS, WEIRS, DREDGES, OTTER TRAWLS, GILL NETS, DIP NETS,  
AND SEINES—Continued.

Apparatus and species.	Nantucket.		Plymouth.		Suffolk.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Pound nets, trap nets, and weirs:								
Alewives—								
Fresh.....	16,400	\$164	80,050	\$674			482,176	\$7,812
Salted.....	27,000	1,080	230,000	9,775			432,000	18,905
Bluefish.....							4,721	791
Bonito.....	59,400	5,470					188,947	17,961
Butterfish.....			4,775	517			268,474	24,227
Catfish and wolfish.....							14	1
Cod.....	1,400	70					288,950	10,335
Cunners.....							2,809	85
Eels.....							8,350	905
Flounders.....	4,210	530					199,897	10,595
Frigate mackerel.....							61,361	1,862
Grayfish.....							63,667	184
Goosefish.....							2,500	7
Haddock.....							5,421	109
Hake.....							5,474	118
Herring.....	2,000	300	406,600	4,464			7,750,055	94,546
Hickory shad.....							12,800	830
Kingfish.....							72	18
Lance.....							3,800	38
Mackerel.....	63,700	5,325	8,687	803			1,698,198	175,250
Menhaden.....							121,219	1,931
Perch, white.....							6,000	900
Pollock.....	900	36					292,808	6,528
Pompano.....							14	2
Round herring.....							941	19
Sculpin.....							6,000	15
Scup.....	2,450	245					74,714	5,138
Sea bass.....	2,000	300					8,172	884
Sea robin.....							400	1
Shad.....	12,800	750					18,971	2,374
Sharks.....							17,475	329
Skates and rays.....							93,649	381
Smelt.....							97	13
Squeteague.....							5,777	908
Striped bass.....							951	226
Sturgeon.....							5,363	1,213
Sturgeon caviar.....							30	85
Sturgeon roe.....							181	163
Tautog.....							37,526	2,703
Tomcod.....							4,590	99
Tuna.....							42,101	3,468
Whiting.....	53,600	660	7,000	53			13,918,205	148,850
Other species.....							38,232	2,117
Squid.....	3,350	83	13,800	309			6,134,557	108,864
Porpoise.....							750	15
Alewife scales.....			6,400	3,200			6,400	3,200
<b>Total.....</b>	<b>249,210</b>	<b>15,013</b>	<b>757,312</b>	<b>19,795</b>			<b>32,314,809</b>	<b>655,005</b>
Dredges:								
Clams, hard.....							4,800	1,800
Oysters—								
Market—								
Public.....			175	63			175	63
Private.....			16,275	4,887			155,190	57,124
Seed—								
Public.....			23,100	1,320			23,100	1,320
Private.....			11,200	640			11,200	640
Scallops.....	94,752	42,730	379,770	143,784			1,212,798	402,167
<b>Total.....</b>	<b>94,752</b>	<b>42,730</b>	<b>430,520</b>	<b>150,694</b>			<b>1,407,263</b>	<b>463,114</b>
Otter trawls:								
Catfish and wolfish.....						\$5	125	5
Cod.....	20,000	900				7,219	310	27,669
Flounders.....	271,000	21,680	25,000	1,000	1,082,298	46,252	3,691,455	188,732
Haddock.....						13,481	377	13,481
Hake.....						3,958	172	3,958
Pollock.....						257	6	257
Rosefish.....					2,835	108	9,550	209
Scup.....							1,000	180
Sea bass.....							6,000	600
<b>Total.....</b>	<b>291,000</b>	<b>22,580</b>	<b>25,000</b>	<b>1,000</b>	<b>1,110,173</b>	<b>47,230</b>	<b>3,753,495</b>	<b>191,510</b>

YIELD OF SHORE FISHERIES OF MASSACHUSETTS IN 1919, BY COUNTIES, APPARATUS,  
AND SPECIES—Continued.BY POUND NETS, TRAPS, WEIRS, DREDGES, OTTER TRAWLS, GILL NETS, DIP NETS,  
AND SEINES—Continued.

Apparatus and species.	Nantucket.		Plymouth.		Suffolk.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Gill nets:								
Butterfish.....							247	\$44
Cod.....			700	\$38			150,488	7,740
Flounders.....							4,500	135
Haddock.....							18,000	810
Herring.....			4,000	55			11,200	260
Mackerel.....			30,000	4,500	325,724	\$54,304	1,009,078	128,239
Pollock.....							1,800	54
Shad.....					130	16	130	16
Sharks.....							5,196	204
Skates.....							2,000	10
Sturgeon.....	4,500	\$1,800					5,400	1,881
Sturgeon caviar.....	120	271					120	271
Tuna.....			800	80			800	80
Total.....	4,620	2,071	35,500	4,673	325,854	54,320	1,208,959	139,744
Dip nets:								
Alewives—								
Fresh.....							14,400	396
Salted.....							240,000	8,400
Flounders.....							500	25
Herring.....			1,400,000	7,000	115,670	3,070	1,668,620	14,338
Perch, yellow.....							500	25
Crabs, soft.....			266	40			266	40
Scallops.....							34,950	8,800
Total.....			1,400,266	7,040	115,670	3,070	1,959,236	32,024
Seines:								
Alewives—								
Fresh.....			1,000	30			558,600	14,379
Salted.....							425,134	21,410
Smoked.....							2,000	150
Butterfish.....					31	4	731	109
Cod.....							3,000	120
Eels.....							92,270	3,181
Herring.....					107,800	3,234	311,822	5,001
Launce.....							64,000	800
Mackerel.....			10,200	688			351,746	38,048
Menhaden.....			40,000	300			40,000	300
Minnows.....							1,000	125
Pollock.....							159,036	3,817
Shad.....							24,607	1,027
Shrimp.....							3,100	1,550
Alewife scales.....							3,000	1,500
Total.....			51,200	1,018	107,831	3,238	2,040,046	91,517

BY LINES, TONGS, RAKES, HOES, FORKS, EEL POTS, LOBSTER POTS, AND SPEARS.

Apparatus and species.	Barnstable.		Bristol.		Dukes.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Lines:						
Butterfish.....	3,244	\$433				
Catfish and wolffish.....	13,612	95				
Cod—						
Fresh.....	2,989,827	129,802	1,100	\$60	45,250	\$1,715
Salted.....	6,500	450				
Cusk.....	3,103	33				
Eels.....			625	100		
Flounders.....	14,790	1,047	3,170	260	17,500	1,000
Haddock.....	635,916	20,846			1,000	40
Hake.....	431,414	8,396	2,150	150		
Halibut.....	10,211	1,704				
Mackerel.....	2,226	197	3,705	475	1,000	120
Pollock—Fresh.....	856,526	20,140			43,500	1,285
Scup.....	1,710	265			700	53
Sea bass.....	345	110			500	50
Sharks.....	303,225	3,037				
Skates.....	885	17				
Striped bass.....	20	5				
Tautog.....	11,800	1,227	28,725	3,655	600	30
Livers.....	150	1				
Total.....	5,285,504	187,805	39,475	4,700	110,050	4,293

## YIELD OF SHORE FISHERIES OF MASSACHUSETTS IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

BY LINES, TONGS, RAKES, HOES, FORKS, EEL POTS, LOBSTER POTS, AND SPEARS—Continued.

Apparatus and species.	Barnstable.		Bristol.		Dukes.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Tongs, rakes, hoes, and forks:						
Clams—						
Hard—						
Public.....	281,520	\$95,523	192,560	\$62,550	79,120	\$27,300
Private.....	22,640	12,425				
Soft—						
Public.....	136,000	13,189	6,000	900	5,000	875
Private.....	125,000	10,750				
Razor.....	23,300	3,500				
Oysters, market—						
Public.....	875	150	1,120	400		
Private.....	228,235	71,120	945	130		
Scallops.....	43	20				
Total.....	817,618	206,677	200,625	63,980	84,120	28,175
Eel pots: Eels.....	62,443	7,874	2,253	180	18,500	2,305
Lobster pots: Lobsters.....	98,220	26,588	253,878	53,717	591,815	101,382
Spears:						
Eels.....	13,235	2,006	6,800	1,200		
Flounders.....	6,900	575				
Total.....	20,135	2,581	6,800	1,200		

Apparatus and species.	Essex.		Nantucket.		Norfolk.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Lines:						
Catfish and wolffish.....	17,369	\$542				
Cod—						
Fresh.....	1,039,538	45,643	130,000	\$5,100	22,000	\$1,760
Salted.....			30,000	3,600		
Cusk.....	226,711	8,162				
Eels.....	1,790	225				
Flounders.....	266,058	15,410			8,000	800
Haddock.....	448,187	13,504	15,100	458	500	40
Hake.....	463,722	19,308				
Halibut.....	6,081	1,034				
Mackerel.....	425	52				
Pollock—						
Fresh.....	350,848	10,580	27,500	1,450	1,000	80
Salted.....	8,850	435				
Skates.....	1,460	44				
Smelt.....	7,796	1,864			22,200	6,425
Tautog.....					2,000	180
Tongues.....	600	12				
Spawn.....	1,582	87				
Livers.....	85,000	1,275				
Total.....	2,926,017	118,177	202,600	10,608	55,700	9,285
Tongs, rakes, hoes, and forks:						
Clams—						
Hard—Public.....	600	75	111,144	27,986		
Soft—Public.....	460,060	58,206			63,470	9,620
Irish moss.....					25,500	1,912
Total.....	460,660	58,281	111,144	27,986	88,970	11,532
Eel pots: Eels.....	32,025	6,190	30,000	4,500	1,000	130
Lobster pots:						
Lobsters.....	677,387	161,249	19,446	8,759	77,054	19,390
Crabs, hard.....	18,167	395			18,475	554
Total.....	695,554	161,644	19,446	8,759	95,529	19,944
Spears: Eels.....	8,906	1,781			2,000	400

YIELD OF SHORE FISHERIES OF MASSACHUSETTS IN 1919, BY COUNTIES, APPARATUS,  
AND SPECIES—Continued.BY LINES, TONGS, RAKES, HOES, FORKS, EEL POTS, LOBSTER POTS, AND SPEARS—  
Continued.

Apparatus and species.	Plymouth.		Suffolk.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Lines:						
Butterfish.....					3,244	\$433
Catfish and wolfish.....			127,671	\$54,792	158,652	5,429
Cod—						
Fresh.....	181,413	\$7,888	2,182,458	93,840	6,591,586	285,808
Salted.....	1,000	200			37,500	4,250
Cusk.....	3,000	84	103,838	3,741	336,652	12,020
Eels.....					2,415	325
Flounders.....	17,700	994	188,355	8,716	515,573	28,227
Haddock.....	4,750	183	1,459,729	40,905	2,565,182	75,976
Hake.....	3,100	125	141,243	5,789	1,041,629	33,768
Halibut.....			1,449	246	17,741	2,984
Mackerel.....					7,356	844
Pollock—						
Fresh.....	15,600	474	77,755	1,867	1,372,729	35,876
Salted.....					8,850	435
Scup.....	500	30			2,910	348
Sea bass.....	50	5			895	165
Sharks.....					303,225	3,037
Skates.....			500	10	2,845	71
Smelt.....	7,500	2,025	1,300	325	38,796	10,639
Striped bass.....					20	5
Tautog.....	7,100	640			50,225	5,732
Tomcod.....			1,000	50	1,000	50
Tongues.....					600	12
Spawn.....			12,964	944	14,546	1,031
Livers.....					85,150	1,276
Total.....	241,713	12,648	4,298,262	161,225	13,159,321	508,741
Tongs, rakes, hoes, and forks:						
Clams—						
Hard—						
Public.....	35,960	11,933			700,904	225,367
Private.....					22,640	12,425
Soft—						
Public.....	1,146,100	122,885	246,000	26,519	2,062,630	232,194
Private.....					125,000	10,750
Razor.....					23,300	3,500
Oysters, market—						
Public.....	3,409	770			5,404	1,320
Private.....	7,000	2,500			236,180	73,750
Scallops.....					48	20
Irish moss.....	178,700	13,115			204,200	15,027
Total.....	1,371,169	151,203	246,000	26,519	3,380,306	574,353
Eel pots: Eels.....	9,200	1,148			155,421	22,327
Lobster pots:						
Lobsters.....	575,829	119,580	71,385	21,415	2,365,014	512,080
Crabs, hard.....	8,000	165	1,720,319	48,310	1,764,961	49,424
Total.....	583,829	119,745	1,791,704	69,725	4,129,975	561,504
Spears:						
Eels.....	500	55			31,441	5,442
Flounders.....					6,900	575
Total.....	500	55			38,341	6,017

YIELD OF SHORE FISHERIES OF MASSACHUSETTS IN 1919, BY COUNTIES, APPARATUS,  
AND SPECIES—Continued.

BY BOW NETS, FYKE NETS, HARPOONS, COCKLE TRAPS, AND CUNNER TRAPS.

Apparatus and species.	Barnstable.		Bristol.		Dukes.		Essex.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>Bow nets: Alewives—</b>										
Fresh.....	41,500	\$475	.....	.....	.....	.....	.....	.....	41,500	\$475
Salted.....	162,000	7,280	.....	.....	.....	.....	.....	.....	162,000	7,280
Smoked.....	37,000	2,695	.....	.....	.....	.....	.....	.....	37,000	2,695
Scales.....	1,000	500	.....	.....	.....	.....	.....	.....	1,000	500
<b>Total.....</b>	<b>241,500</b>	<b>10,950</b>	.....	.....	.....	.....	.....	.....	<b>241,500</b>	<b>10,950</b>
<b>Fyke nets:</b>										
Eels.....	33,180	6,577	10,600	\$950	40,000	\$8,000	.....	.....	83,780	15,527
Flounders.....	.....	.....	3,200	181	.....	.....	.....	.....	3,200	181
Perch, white.....	.....	.....	200	20	.....	.....	.....	.....	200	20
Tomcod.....	.....	.....	2,300	90	.....	.....	.....	.....	2,300	90
<b>Total.....</b>	<b>33,180</b>	<b>6,577</b>	<b>16,300</b>	<b>1,241</b>	<b>40,000</b>	<b>8,000</b>	.....	.....	<b>89,480</b>	<b>15,818</b>
<b>Harpoons: Swordfish.....</b>	.....	.....	2,400	600	15,500	2,620	.....	.....	17,900	3,220
<b>Cockle traps: Cockles.....</b>	1,450	725	.....	.....	.....	.....	300,000	\$1,350	301,450	2,075
<b>Cunner traps: Cunnners.....</b>	.....	.....	7,150	500	.....	.....	.....	.....	7,150	500

## WITHOUT APPARATUS.

Species.	Barnstable.		Plymouth.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Blackfish.....	40,000	\$40	.....	.....	40,000	\$40
Clams, hard.....	2,400	\$25	800	\$250	3,200	1,075
Oysters, seed, private.....	51,688	4,430	.....	.....	51,688	4,430
Cockles.....	950	300	275,000	1,050	275,950	1,350
<b>Total.....</b>	<b>95,038</b>	<b>5,595</b>	<b>275,800</b>	<b>1,300</b>	<b>370,838</b>	<b>6,895</b>

## INDUSTRIES.

*Wholesale fishery trade.*—In 1919 there were 139 wholesale fishery establishments in Massachusetts, valued at \$2,928,405, with a cash capital amounting to \$1,522,545, in which 1,468 persons were engaged, to whom \$1,790,495 were paid in wages.

Five of these firms engaged in the manufacture of oil and fertilizer incidental to their wholesale business. The quantity of fish oil manufactured amounted to 56,250 gallons, valued at \$60,147, and of fertilizer to 324,750 pounds, valued at \$2,000.

*Smoked, canned, and by-product industries.*—In the appended table the statistics of the smoked, canned, and by-product industries of Massachusetts in 1919 are shown in detail. The quantity of fish smoked, salted, and pickled amounted to 12,807,782 pounds, valued at \$863,927, the principal items being finnan haddie, 4,506,216 pounds, valued at \$352,692, and salted and pickled herring, 3,299,950 pounds, valued at \$100,530. The pack of canned products amounted to 52,474 cases, valued at \$362,926, and the value of the by-products was \$1,050,317.



## INDUSTRIES OF MASSACHUSETTS IN 1919.

Item.	Smoked fish, and salted and pickled herring.		Canned.		By-products.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
Plants.....	<sup>1</sup> 16	\$694,688	6	\$1,513,725	<sup>2</sup> 12	\$447,389	34	\$2,655,802
Cost of materials.....		139,644		654,079				
Cash capital.....		122,500		154,500		122,400		399,400
Persons engaged.....	365		1,490		331		2,186	
Wages paid.....		332,979		1,082,065		428,929		1,843,973
MANUFACTURED PRODUCTS.								
Liver and menhaden oil, gallons.....					<sup>3</sup> 207,627	236,110	207,627	236,110
Liquid glue, do.....					<sup>4</sup> 388,252	474,924	388,252	474,924
Fish scrap and fertilizer.....pounds.....					14,895,358	339,283	14,895,358	339,283
Kippered herring, pounds.....	233,378	28,440					233,378	28,440
Finnan haddle, pounds.....	4,506,216	352,692					4,506,216	352,692
Smoked herring: Plain and Bismarck, pounds.....	3,045,400	201,550					3,045,400	201,550
Bloaters, do.....	1,290,600	131,350					1,290,600	131,350
Smoked alewives, halibut, salmon, and sharks, pounds.....	432,238	49,365					432,238	49,365
Salted and pickled herring, pounds.....	3,299,950	100,530					3,299,950	100,530
Clams (various sizes).....cases.....			12,340	72,089			12,340	72,089
Clam chowder and clam extract (various sizes).....cases.....			2,384	10,824			2,384	10,824
Miscellaneous species of fish (various sizes).....cases.....			<sup>5</sup> 37,750	280,013			37,750	280,013
Total.....	12,807,782	863,927	52,474	362,926		1,050,317		2,277,170

<sup>1</sup> Does not include two plants which are shown under canning industry.

<sup>2</sup> Includes two menhaden plants operated in Connecticut.

<sup>3</sup> Includes small quantities of shark, blackfish, and porpoise oils.

<sup>4</sup> Includes a small quantity of dry glue.

<sup>5</sup> Includes "sardines," cod, haddock, herring, mackerel, whiting, and fish roe.

## FISHERIES OF RHODE ISLAND.

Rhode Island ranked third among the New England States in 1919 in the investment, quantity, and value of its fishery products, and fourth in the number of persons engaged. The number of persons employed was 1,646, of whom 317 were on fishing vessels, 44 on vessels transporting fishery products, 795 in the shore and boat fisheries, and 490 shoresmen in the wholesale fish establishments.

The investment amounted to \$2,249,536 and included 82 fishing and transporting vessels, valued at \$392,164, with a net tonnage of 1,594 tons and outfits valued at \$168,235; 628 power, sail, row, and other small boats, valued at \$187,283; apparatus employed in the vessel and boat fisheries to the value of \$314,496; shore and accessory property valued at \$978,622, and working cash capital to the amount of \$209,300.

The products of the fisheries amounted to 48,250,883 pounds, valued at \$3,296,578. The five most important species, arranged in the order of their value, were: Oysters, 6,261,759 pounds, or 894,537 bushels, valued at \$1,242,585; scup, 8,261,140 pounds, valued at \$817,846; lobsters, 1,694,327 pounds, valued at \$360,679; menhaden,

21,536,000 pounds, valued at \$268,700, and mackerel, 1,575,923 pounds, valued at \$146,611.

Compared with 1905, there has been a decrease of 566 in the number of persons employed in the fisheries of the State, but an increase in the investment amounting to \$1,184,062, in the total quantity of products of 24,354,640 pounds and in the value of \$1,749,920. There was a large increase in the catch of the following species as compared with 1905: Menhaden, 20,509,800 pounds in quantity and \$265,678 in value; scup, 2,721,100 pounds in quantity and \$679,816 in value; whiting, 1,313,630 pounds in quantity and \$12,244 in value; flounders, 1,308,114 pounds in quantity and \$44,139 in value; lobsters, 1,053,873 pounds in quantity and \$296,321 in value; and mackerel,

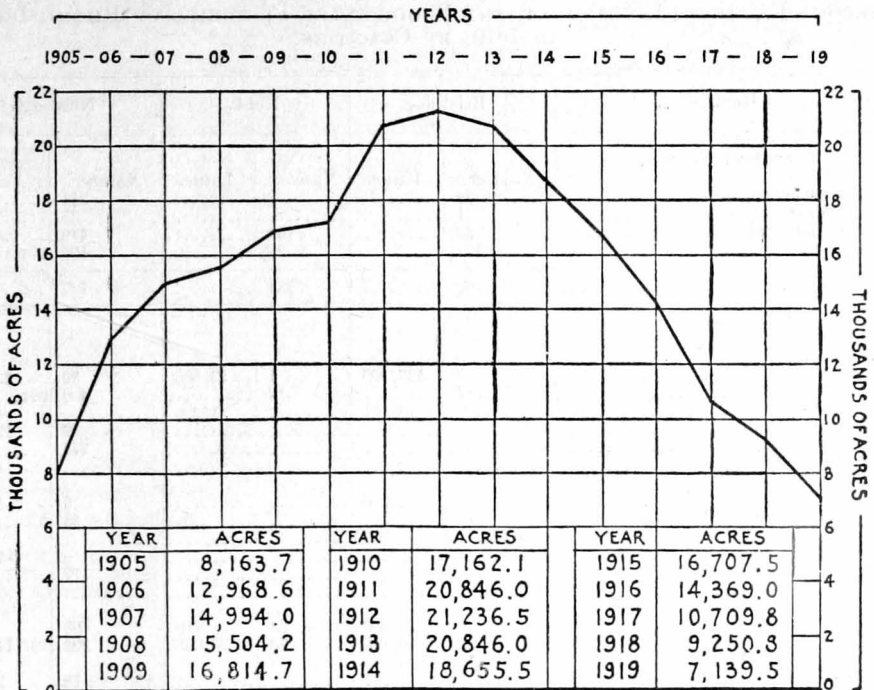


FIG. 9.—Acres of oyster ground leased to individuals in Rhode Island, by years, from 1905 to 1919, inclusive.

737,993 pounds in quantity and \$98,557 in value. The species for which there has been a significant decrease, with the amount of the decrease, follow: Squeteague, 2,868,925 pounds in quantity and \$52,649 in value; haddock, 505,435 pounds in quantity and \$14,276 in value; and alewives, 329,025 pounds in quantity and \$1,115 in value. No shad, hickory shad, or king whiting were reported in the catch in 1919. The take of Irish moss amounted to only 2,000 pounds, valued at \$240, in 1919, as compared with 16,000 pounds, valued at \$1,120, in 1905.

The accompanying graph (fig. 9), showing the number of acres of oyster ground leased to individuals in Rhode Island, by years, from 1905 to 1919, indicates with marked clearness the rise and fall in that State of its most important fishery. According to canvasses made by this Bureau, the yield in 1905 amounted to 916,088 bushels, in 1910 to 2,268,278 bushels, and in 1919 to 894,537 bushels, which substan-

tiates in a measure the general trend of the oyster industry as indicated by this graph.

Although the figures appearing in the appended table show the number of acres leased from the State, they do not represent the actual number of acres under cultivation during each year. From data secured in 1910 the number of acres under cultivation was 15,927.2, or 93 per cent of the total number leased during that year.

## FISHERIES BY COUNTIES.

The statistics as to the number of persons employed, investment, and products of the fisheries in Rhode Island are given by counties in the following table:

## PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF RHODE ISLAND IN 1919, BY COUNTIES.

Items.	Bristol.		Kent.		Newport.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing.....	24		2		211	
On vessels transporting.....	1				33	
In shore fisheries.....	39		104		449	
Shoresmen.....	104		28		104	
<b>Total.....</b>	<b>168</b>		<b>134</b>		<b>797</b>	
<b>INVESTMENT.</b>						
Vessels fishing:						
Gasoline.....	7	\$25,300	1	\$3,500	30	\$92,200
Tonnage.....	113		13		406	
Outfit.....		12,481		1,200		46,874
Steam.....					7	124,000
Tonnage.....					277	
Outfit.....						45,950
Vessels transporting:						
Gasoline.....	1	1,000			6	16,000
Tonnage.....	10				55	
Outfit.....		100				4,600
Steam.....					5	22,000
Tonnage.....					77	
Outfit.....						23,800
Boats:						
Sail, row, etc.....	16	350	24	410	93	2,580
Power.....	22	6,175	76	20,065	229	117,290
Apparatus, vessel fisheries:						
Purse seines.....					18	24,695
Gill nets.....					780	14,445
Pound nets.....					25	75,000
Lines, hand and trawl.....						785
Otter trawls.....	1	45			14	688
Harpoons.....						561
Lobster pots.....					410	1,310
Dredges.....	14	620	2	75	4	130
Apparatus, shore fisheries:						
Seines.....	2	175			7	574
Gill nets.....					360	7,300
Pound nets and trap nets.....	6	1,800			75	70,350
Fyke nets.....			20	310	240	4,368
Dip nets.....					30	450
Lines, hand and trawl.....		42				4,185
Otter trawls.....					39	2,270
Harpoons.....						690
Lobster pots.....	321	1,030	146	413	15,942	47,610
Eel pots.....	480	530			60	85
Dredges.....	12	122	142	744	40	218
Tongs.....	21	185	92	743	58	583
Rakes.....	1	5	5	40	7	27
Hoes.....	12	12	54	54	7	7
Grabs.....					6	18
Shovels.....	10	10	11	11		
Winkle pots.....					260	880
Shore and accessory property.....		107,982		9,562		462,753
Cash capital.....		34,500		4,800		79,000
<b>Total.....</b>		<b>192,464</b>		<b>41,927</b>		<b>1,294,276</b>

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF RHODE ISLAND IN 1919, BY COUNTIES—Continued.

Items.	Bristol.		Kent.		Newport.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>PRODUCTS.</b>						
Alewives.....					260,550	\$5,736
Bluefish.....					21,345	2,485
Bonito.....					114,810	10,825
Butterfish.....	20,000	\$1,000			712,320	36,592
Cod.....					1,123,331	48,647
Cunner.....					8,000	960
Eels.....	67,450	7,042			131,730	14,075
Flounders.....	41,330	1,240	510	\$15	1,687,699	53,740
Haddock.....					10,300	512
Herring.....					144,550	3,509
Mackerel.....					1,531,423	141,689
Menhaden.....					21,536,000	268,700
Perch, white.....					5,043	702
Pollock.....					99,400	5,920
Scup.....					8,206,000	812,456
Sea bass.....					48,741	5,454
Squeteague.....					285,440	26,675
Swordfish.....					101,010	19,757
Tautog.....	30,780	1,561	280	15	274,825	15,275
Tuna.....					50,130	4,010
Whiting.....					1,405,200	14,140
Lobster.....	24,300	4,780	9,413	1,993	1,270,562	273,086
Crabs.....					26,000	1,300
Squid.....					180,265	8,065
Clams:						
Hard.....	5,560	2,130	49,944	18,845	34,544	13,106
Soft.....	15,290	919	108,120	6,432	23,160	1,268
Scallops.....	400	200	31,074	13,125	2,016	1,032
Mussels.....					10,000	1,000
Winkles.....					10,500	2,100
Oysters, market, private.....	1,481,942	282,592	81,508	16,124	56,700	11,472
Irish moss.....					2,000	240
<b>Total.....</b>	<b>1,687,052</b>	<b>301,464</b>	<b>280,849</b>	<b>56,549</b>	<b>39,373,594</b>	<b>1,804,528</b>

Items.	Providence.		Washington.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing.....	55		25		317	
On vessels transporting.....	2		8		44	
In shore fisheries.....	73		130		795	
Shoresmen.....	231		23		490	
<b>Total.....</b>	<b>361</b>		<b>186</b>		<b>1,646</b>	
<b>INVESTMENT.</b>						
Vessels fishing:						
Gasoline.....	7	\$52,000	10	\$26,400	55	\$199,400
Tonnage.....	229		88		849	
Outfit.....		13,520		7,950		82,025
Steam.....	2	17,000			9	141,000
Tonnage.....	87				564	
Outfit.....		3,960				51,910
Vessels transporting:						
Gasoline.....	1	1,200	5	11,000	13	29,200
Tonnage.....	5		34		104	
Outfit.....		1,400		4,400		10,500
Steam.....					5	22,000
Tonnage.....					77	
Outfit.....						23,800
Boats:						
Sail, row, etc.....	29	483	34	680	196	4,503
Power.....	21	4,575	84	34,675	432	182,780
Apparatus, vessel fisheries:						
Purse seines.....					18	24,695
Gill nets.....					780	14,445
Pound nets.....					25	70,000
Lines, hand and trawl.....						785
Otter trawls.....			5	240	20	973
Harpoons.....						561
Lobster pots.....			225	675	635	1,985
Dredges.....	20	950	8	312	48	2,092

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF RHODE ISLAND  
IN 1919, BY COUNTIES—Continued.

Items.	Providence.		Washington.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
INVESTMENT—continued.						
Apparatus, shore fisheries:						
Seines.....	1	\$50	1	\$100	11	\$69
Gill nets.....					360	7,300
Pound nets and trap nets.....			27	29,600	138	101,750
Fyke nets.....			30	540	290	5,218
Dip nets.....					30	450
Lines, hand and trawl.....				265		4,492
Otter trawls.....			4	155	43	2,425
Harpoons.....						690
Lobster pots.....			5,527	16,293	21,936	65,346
Eel pots.....	280	255	175	165	995	1,035
Dredges.....			7	35	201	1,119
Tongs.....	42	405	8	65	241	1,981
Rakes.....	4	16	12	78	29	166
Hoes.....	55	53	24	22	152	148
Grabs.....					6	18
Shovels.....	22	22			43	43
Winkle pots.....					260	880
Shore and accessory property.....		370,570		27,755		978,622
Cash capital.....		81,500		9,500		200,300
Total.....		549,964		170,905		2,249,536
PRODUCTS.						
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives.....			9,015	\$180	269,565	\$5,916
Bluefish.....			4,330	685	25,675	3,170
Bonito.....					114,810	10,825
Butterfish.....			26,525	1,596	758,845	39,188
Cod.....			25,000	1,160	1,148,331	49,747
Cunner.....					8,000	960
Eels.....	25,300	\$2,698	50,165	5,822	274,735	29,637
Flounders.....			722,040	24,572	2,451,579	79,567
Haddock.....					10,300	512
Herring.....			25,110	501	199,660	4,010
Mackerel.....			44,500	4,922	1,575,923	146,611
Menhaden.....					21,536,000	268,700
Perch, white.....					5,043	792
Follock.....					99,400	5,920
Salmon.....			70	12	70	12
Scup.....			55,140	5,390	8,261,140	817,846
Sea bass.....			3,300	500	52,041	5,954
Squeteague.....			68,420	7,154	353,860	33,829
Striped bass.....			33,705	5,236	33,705	5,236
Swordfish.....					101,010	19,757
Tautog.....			65,775	5,340	371,660	22,191
Tuna.....			11,230	800	61,350	4,810
Whiting.....			178,500	1,870	1,583,700	16,010
Lobster.....			390,052	80,820	1,694,327	390,679
Crabs.....			8,330	502	34,330	1,802
Squid.....			197,314	10,665	377,579	18,730
Clams:						
Hard.....	27,128	10,918	39,056	14,650	156,232	59,649
Soft.....	205,770	12,371	51,420	3,085	403,766	24,075
Scallops.....			504	251	33,994	14,608
Mussels.....					10,000	1,000
Winkles.....					10,500	2,100
Oysters, market, private.....	4,428,018	885,600	213,091	46,797	6,261,759	1,242,585
Irish moss.....					2,000	240
Total.....	4,686,306	911,587	2,223,082	222,450	48,250,883	3,296,578

<sup>1</sup> 19,529 bushels. <sup>2</sup> 40,376 bushels. <sup>3</sup> 5,666 bushels. <sup>4</sup> 1,060 bushels. <sup>5</sup> 1,050 bushels. <sup>6</sup> 894,537 bushels.

## FISHERIES BY APPARATUS.

The combined yield of all forms of apparatus employed in the vessel and shore fisheries of Rhode Island in 1919 amounted to 48,250,883 pounds, valued at \$3,296,578. Dredges employed principally in the oyster vessel fishery were the most productive form of apparatus, yielding 6,142,623 pounds of oysters and mussels, valued at \$1,217,637; while dredges, tongs, rakes, hoes, shovels, and grabs used in the shore fisheries took 723,122 pounds of oysters, clams,

and scallops, valued at \$124,280. Pound nets used in both the vessel and shore fisheries yielded 13,759,923 pounds, valued at \$1,051,315, of which 8,261,140 pounds, valued at \$799,846, were scup. Other important species taken in pound nets were: Butterfish, 625,095 pounds, valued at \$32,493; mackerel, 321,343 pounds, valued at \$30,139; squeteague, 311,260 pounds, valued at \$29,574; and flounders, 911,965 pounds, valued at \$27,574. The catch with pots amounted to 1,790,182 pounds, valued at \$370,399. Lobsters were the principal species taken in pots, amounting to 1,694,327 pounds, valued at \$360,679. Purse seines yielded 21,959,000 pounds, valued at \$308,150, of which 21,536,000 pounds were menhaden, valued at \$268,700, and 423,200 pounds were mackerel, valued at \$39,450.

Other important forms of apparatus employed in both the vessel and shore fisheries, arranged in the order of their importance, based on the value of their catch, were: Lines, with 1,389,986 pounds, mostly cod, bonito, and eels, valued at \$75,724; gill nets, with 759,980 pounds of mackerel, valued at \$70,632; otter trawls, with 1,481,340 pounds, valued at \$50,389, consisting principally of flounders; and harpoons, with 101,010 pounds of swordfish, valued at \$19,757.

The catch of winkles with pots amounted to 10,500 pounds, valued at \$2,100. These are caught in winkle pots and are used for bait for cod. The pots are similar to the ordinary lobster pots, with the entrance at the top instead of at the end. The bait employed in the pots is of about the same character as that used in lobster pots.

The following tables give the products of the vessel and shore fisheries of Rhode Island in 1919, by counties, apparatus, and species:

YIELD OF VESSEL FISHERIES OF RHODE ISLAND IN 1919, BY COUNTIES, APPARATUS, AND SPECIES.

Apparatus and species.	Bristol.		Kent.		Newport.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Purse seines:						
Mackerel.....					423,200	\$39,450
Menhaden.....					21,536,000	268,700
Total.....					21,959,200	308,150
Gill nets: Mackerel.....					519,450	48,385
Pound nets:						
Alewives.....					60,110	1,202
Bluefish.....					11,200	1,140
Butterfish.....					133,750	6,695
Cod.....					40,100	2,010
Eels.....					3,520	452
Flounders.....					465,300	13,950
Mackerel.....					23,100	1,890
Scup.....					7,685,500	764,000
Sea bass.....					1,500	160
Squeteague.....					41,800	4,160
Tautog.....					13,550	675
Whiting.....					751,000	7,510
Squid.....					45,100	2,015
Total.....					9,275,530	805,859
Lines:						
Cod.....					846,711	37,280
Pollock.....					34,000	1,750
Tautog.....					8,000	600
Total.....					888,711	39,630
Otter trawls: Flounders.....	5,000	\$150			830,500	28,075
Harpoons: Swordfish.....					42,100	7,910

## YIELD OF VESSEL FISHERIES OF RHODE ISLAND IN 1919, BY COUNTIES, APPARATUS, AND SPECIES—Continued.

Apparatus and species.	Bristol.		Kent.		Newport.	
	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Lobster pots:						
Lobsters.....					17, 500	\$3, 830
Crabs.....					26, 000	1, 300
Total.....					43, 500	5, 130
Dredges:						
Mussels.....					10, 000	1, 000
Oysters, market, private.....	1, 418, 942	\$269, 992	21, 000	\$4, 020	54, 950	11, 000
Total.....	1, 418, 942	269, 992	21, 000	4, 020	64, 950	12, 000
Grand total.....	1, 423, 942	270, 142	21, 000	4, 020	33, 623, 941	1, 255, 139

Apparatus and species.	Providence.		Washington.		Total.	
	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>	<i>Pounds.</i>	<i>Value.</i>
Purse seines:						
Mackerel.....					423, 200	\$39, 450
Menhaden.....					21, 536, 000	268, 700
Total.....					21, 959, 000	308, 150
Gill nets: Mackerel.....					519, 450	48, 385
Pound nets:						
Alewives.....					60, 110	1, 202
Bluefish.....					11, 200	1, 140
Butterfish.....					133, 750	6, 695
Cod.....					40, 100	2, 010
Eels.....					3, 520	452
Flounders.....					465, 300	13, 950
Mackerel.....					23, 100	1, 890
Scup.....					7, 685, 500	764, 000
Sea bass.....					1, 500	160
Squeteague.....					41, 800	4, 160
Tautog.....					13, 550	675
Whiting.....					751, 000	7, 510
Squid.....					45, 100	2, 015
Total.....					9, 275, 530	805, 859
Lines:						
Cod.....					846, 711	37, 280
Pollock.....					34, 000	1, 750
Tautog.....					8, 000	600
Total.....					888, 711	39, 630
Otter trawls: Flounders.....			365, 200	\$13, 490	1, 200, 700	41, 715
Harpoons: Swordfish.....					42, 100	7, 910
Lobster pots:						
Lobsters.....			16, 500	3, 500	34, 000	7, 330
Crabs.....					26, 000	1, 300
Total.....			16, 500	3, 500	60, 000	8, 630
Dredges:						
Mussels.....					10, 000	1, 000
Oysters, market, private.....	4, 427, 500	\$885, 500	210, 231	46, 125	6, 132, 623	1, 216, 637
Total.....	4, 427, 500	885, 500	210, 231	46, 125	6, 142, 623	1, 217, 637
Grand total.....	4, 427, 500	885, 500	591, 931	63, 115	40, 088, 314	2, 477, 916

## YIELD OF SHORE FISHERIES OF RHODE ISLAND IN 1919, BY APPARATUS, COUNTIES, AND SPECIES.

BY SEINES, POUND NETS, AND LINES.

Apparatus and species.	Bristol.		Newport.		Providence.		Washington.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>Seines:</b>										
Eels.....					10,920	\$1,211			10,920	\$1,211
Flounders.....	5,000	\$150							5,000	150
Herring.....			30,160	\$758					30,160	758
Mackerel.....							6,300	\$700	6,300	700
Perch, white.....			5,043	702					5,043	702
Tautog.....	10,000	500							10,000	500
<b>Total.....</b>	<b>15,000</b>	<b>650</b>	<b>35,203</b>	<b>1,460</b>	<b>10,920</b>	<b>1,211</b>	<b>6,300</b>	<b>700</b>	<b>67,423</b>	<b>4,021</b>
<b>Pound nets:</b>										
Alewives.....			200,440	4,534			9,015	180	209,455	4,714
Bluefish.....			10,145	1,345			4,330	685	14,475	2,030
Bonito.....			39,810	3,320					39,810	3,320
Butterfish.....	20,000	1,000	578,570	29,897			26,525	1,596	625,095	32,493
Cod.....			73,840	2,730			25,000	1,100	98,840	3,830
Eels.....	20,000	2,000	117,990	12,184			4,500	450	142,490	14,634
Flounders.....	30,000	900	175,985	5,292			240,680	7,432	446,665	13,624
Herring.....			114,390	2,751			25,110	501	139,500	3,252
Mackerel.....			284,943	26,117			36,400	4,022	321,343	30,139
Pollock.....			44,400	2,680					44,400	2,680
Salmon.....							70	12	70	12
Scup.....			520,500	48,456			55,140	5,390	575,640	53,846
Sea bass.....			46,231	5,255			3,300	500	49,531	5,755
Squeteague.....			243,640	22,515			67,620	7,059	311,260	29,574
Striped bass.....							31,555	4,836	31,555	4,836
Tautog.....	20,000	1,000	199,065	10,642			39,800	3,140	258,865	14,782
Tuna.....							10,220	720	10,220	720
Whiting.....			654,200	6,630			178,500	1,870	832,700	8,500
Squid.....			135,165	6,050			197,314	10,665	332,479	16,715
<b>Total.....</b>	<b>90,000</b>	<b>4,900</b>	<b>3,439,314</b>	<b>190,398</b>			<b>955,079</b>	<b>50,158</b>	<b>4,484,303</b>	<b>245,456</b>
<b>Lines:</b>										
Bonito.....			75,000	7,505					75,000	7,505
Cod.....			162,680	6,627					162,680	6,627
Eels.....	15,000	1,600	6,200	1,010			37,250	4,410	58,450	7,020
Flounders.....	1,330	40					21,550	740	22,880	780
Mackerel.....			40,200	3,600			1,800	200	42,000	3,800
Pollock.....			21,000	1,490					21,000	1,490
Sea bass.....			1,010	39					1,010	39
Squeteague.....							800	95	800	95
Striped bass.....							2,150	400	2,150	400
Tautog.....	780	61	29,090	1,485			25,975	2,200	55,845	3,746
Tuna.....			50,130	4,910			1,000	80	51,130	4,990
Crabs.....							8,330	502	8,330	502
<b>Total.....</b>	<b>17,110</b>	<b>1,701</b>	<b>385,310</b>	<b>25,766</b>			<b>98,855</b>	<b>8,627</b>	<b>501,275</b>	<b>36,094</b>

BY GILL NETS, FYKE NETS, DIP NETS, OTTER TRAWLS, AND HARPOONS.

Apparatus and species.	Kent.		Newport.		Washington.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Gill nets: Mackerel.....			240,530	\$22,247			240,530	\$22,247
<b>Fyke nets:</b>								
Flounders.....	510	\$15	35,184	1,021	5,000	\$150	40,694	1,186
Tautog.....	280	15	25,120	1,873			25,400	1,888
<b>Total.....</b>	<b>790</b>	<b>30</b>	<b>60,304</b>	<b>2,894</b>	<b>5,000</b>	<b>150</b>	<b>66,094</b>	<b>3,074</b>
Dip nets: Cunner.....			8,000	960			8,000	960
<b>Otter trawls:</b>								
Flounders.....			180,730	5,402	89,610	2,760	270,340	8,162
Haddock.....			10,300	512			10,300	512
<b>Total.....</b>			<b>191,030</b>	<b>5,914</b>	<b>89,610</b>	<b>2,760</b>	<b>280,640</b>	<b>8,674</b>
Harpoons: Swordfish.....			58,910	11,847			58,910	11,847
<b>Grand total.....</b>	<b>790</b>	<b>30</b>	<b>558,774</b>	<b>43,862</b>	<b>94,610</b>	<b>2,910</b>	<b>654,174</b>	<b>46,802</b>



## YIELD OF SHORE FISHERIES OF RHODE ISLAND IN 1919, BY APPARATUS, COUNTIES, AND SPECIES—Continued.

## BY POTS.

Species.	Bristol.		Kent.		Newport.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Eels.....	32,450	\$3,442			4,020	\$429
Lobsters.....	24,300	4,780	9,413	\$1,993	1,253,062	269,256
Winkles.....					10,500	2,100
Total.....	56,750	8,222	9,413	1,993	1,267,582	271,785

Species.	Providence.		Washington.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Eels.....	14,470	\$1,487	8,415	\$962	59,355	\$6,320
Lobsters.....			373,552	77,320	1,660,327	353,349
Winkles.....					10,500	2,100
Total.....	14,470	1,487	381,967	78,282	1,730,182	361,769

## BY DREDGES, TONGS, RAKES, HOES, SHOVELS, GRABS, AND HANDS.

Species.	Bristol.		Kent.		Newport.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Clams:						
Hard.....	5,560	\$2,130	49,944	\$18,845	34,544	\$13,106
Soft.....	15,290	919	108,120	6,432	23,160	1,268
Scallops.....	400	200	31,074	13,125	2,016	1,032
Oysters, market, private.....	63,000	12,600	60,508	12,104	1,750	472
Irish moss.....					2,000	240
Total.....	84,250	15,849	249,646	50,506	63,470	16,118

Species.	Providence.		Washington.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Clams:						
Hard.....	27,128	\$10,918	39,056	\$14,650	156,232	\$59,649
Soft.....	205,770	12,371	51,420	3,085	403,760	24,075
Scallops.....			504	251	33,994	14,608
Oysters, market, private.....	518	100	3,360	672	129,136	25,948
Irish moss.....					2,000	240
Total.....	233,416	23,389	94,340	18,658	725,122	124,520

## WHOLESALE FISHERY TRADE.

The appended table shows the extent of the wholesale trade in Rhode Island in 1919. A considerable quantity of poultry grit, made by grinding oyster shells, was manufactured by one concern. To avoid the disclosure of individual enterprise the products of this plant are not included in the table.

WHOLESALE TRADE IN FRESH FISH, OYSTERS, CLAMS, SCALLOPS, AND LOBSTERS IN RHODE ISLAND IN 1919.<sup>1</sup>

Item.	Number.	Value.	Item.	Number.	Value.
Establishments.....	40	\$928,355	Persons engaged.....	472	
Cash capital.....		209,300	Wages paid.....		\$422,330

<sup>1</sup> Includes one firm engaged in the manufacture of oyster-shell grit.

## FISHERIES OF CONNECTICUT.

In 1919 Connecticut ranked third in the number of persons engaged and fourth in the investment and quantity and value of the products. The number of persons employed on fishing and transporting vessels was 647, in the shore or boat fisheries 1,019, and in the wholesale establishments, including the fertilizer plants, 623, representing a total of 2,289. The investment amounted to \$1,645,793, which includes 123 fishing and transporting vessels, valued at \$546,163, with a net tonnage of 3,869 tons and outfits valued at \$253,888; 763 power, sail, row, and other boats, valued at \$146,551; fishing apparatus employed in the vessel and shore fisheries to the value of \$101,992; shore and accessory property valued at \$498,699; and working cash capital to the amount of \$98,500.

The products of the fisheries amounted to 23,652,647 pounds, valued at \$1,700,638. The most important products were oysters, 12,197,703 pounds, or 1,742,529 bushels, valued at \$1,087,016; menhaden, 6,736,564 pounds, valued at \$93,312; flounders, 2,349,181 pounds, valued at \$91,962; lobsters, 740,848 pounds, valued at \$189,157; and shad, 463,203 pounds, valued at \$86,637.

Compared with 1905, there has been a decrease in the number of persons employed of 1,118, an increase in the investment amounting to \$10,040, and a decrease in the quantity of products taken amounting to 51,320,001 pounds and in the value amounting to \$1,473,310. The species for which the decrease in 1919 has been most marked as compared with 1905, with the amount of decrease, follow: Menhaden, 22,993,824 pounds; alewives, 1,054,878 pounds; swordfish, 362,287 pounds; squeteague, 138,503 pounds; bluefish, 124,292 pounds; and sea bass, 93,161 pounds. In the oyster fishery there has been a decrease, compared with the catch in 1905, amounting to 1,944,895 bushels, or 52.74 per cent, and with the catch in 1910, of 1,529,471 bushels, or 46.74 per cent.

## FISHERIES BY COUNTIES.

Statistics of the number of persons employed, investment, and products of the fisheries in Connecticut are given by counties in the following table:

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF CONNECTICUT IN 1919, BY COUNTIES.

Item.	Fairfield.		Hartford.		Middlesex.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing.....	337					
On vessels transporting.....	22					
In shore fisheries.....	88		126		275	
Shoresmen.....	254				2	
<b>Total.....</b>	<b>701</b>		<b>126</b>		<b>277</b>	
<b>INVESTMENT.</b>						
Vessels fishing:						
Steam.....	16	\$195,193				
Tonnage.....	1,116					
Outfit.....		104,038				

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF CONNECTICUT  
IN 1919, BY COUNTIES—Continued.

Item.	Fairfield.		Hartford.		Middlesex.	
	Number.	Value.	Number.	Value.	Number.	Value.
INVESTMENT—continued.						
Vessels fishing—Continued.						
Gasoline.....	41	\$98,025				
Tonnage.....	568					
Outfit.....		53,740				
Sail.....	19	9,195				
Tonnage.....	135					
Outfit.....		5,035				
Vessels transporting:						
Steam.....	2	13,200				
Tonnage.....	111					
Outfit.....		9,627				
Boats:						
Sail, row, etc.....	35	2,040	73	\$1,582	73	\$1,814
Power.....	39	11,325	8	825	93	22,455
Apparatus, vessel fisheries:						
Otter trawls.....	7	300				
Harpoons.....		30				
Lobster pots.....	430	645				
Dredges.....	289	5,398				
Apparatus, shore fisheries:						
Seines.....	6	710	27	1,834	17	1,244
Gill nets.....	1	10	83	1,066	92	9,369
Pound nets.....					9	2,935
Fyke nets.....			266	2,043	37	447
Scoop nets.....			3	15		
Otter trawls.....	3	110			7	280
Lobster pots.....	2,085	4,060			1,353	3,053
Eel pots.....					145	123
Dredges.....	51	359				
Tongs.....	28	190			6	55
Rakes.....	17	116				
Hoes.....	8	10			15	18
Shore and accessory property.....		279,084		1,703		7,986
Cash capital.....		29,000				
Total.....		821,440		9,068		49,779
PRODUCTS.						
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives.....			40,161	\$2,008	98,713	\$2,122
Bluefish.....			965	95		
Bullheads.....			60	6	365	17
Butterfish.....					50	3
Carp.....			11,854	1,637	18,509	2,145
Eels.....			4,768	1,038	6,420	608
Flounders.....	85,105	\$3,727			184,160	6,202
Menhaden.....	300	25			18,314	1,110
Perch, yellow.....			2,434	235	1,213	109
Pickarel.....			128	20	340	35
Shad.....			34,959	8,627	329,829	59,309
Smelt.....	4,114	886				
Squeteague.....					2,721	231
Striped bass.....					850	110
Sturgeon.....					25	5
Suckers.....			55,576	4,564	28,527	1,918
Sunfish.....			80	8	25	3
Swordfish.....	1,480	295				
Tautog.....					809	61
Lobsters.....	72,924	23,885			80,355	23,092
Clams:						
Hard.....	39,472	14,589				
Soft.....	8,000	725				
Oysters:					12,200	804
Market—						
Public.....	18,942	2,880			4,004	810
Private.....	2,570,197	227,935			5,614	1,001
Seed—						
Public.....	633,885	58,345				
Private.....	4,976,454	372,677				
Total.....	8,410,873	705,969	150,985	18,238	793,043	99,695

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF CONNECTICUT  
IN 1919, BY COUNTIES—Continued.

Item.	New Haven.		New London.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
<b>PERSONS ENGAGED.</b>						
On vessels fishing.....	142		87		566	
On vessels transporting.....	59				81	
In shore fisheries.....	272		258		1,019	
Shoresmen.....	301		66		623	
Total.....	774		411		2,289	
<b>INVESTMENT.</b>						
Vessels fishing:						
Steam.....	6	\$73,050	2	\$60,000	24	\$328,243
Tonnage.....	952		172		2,240	
Outfit.....		18,708		12,600		135,346
Gasoline.....	19	60,550	7	21,850	67	180,425
Tonnage.....	273		83		924	
Outfit.....		25,325		15,625		94,690
Sail.....	3	1,200	2	2,100	24	12,495
Tonnage.....	33		15		183	
Outfit.....		1,050		1,870		7,955
Vessels transporting:						
Steam.....					2	13,200
Tonnage.....					111	
Outfit.....						9,627
Gasoline.....	4	7,800			4	7,800
Tonnage.....	95				95	
Outfit.....		4,370				4,370
Barges.....	2	4,000			2	4,000
Tonnage.....	316				316	
Outfit.....		1,900				1,900
Boats:						
Sail, row, etc.....	156	2,773	62	1,461	399	9,670
Power.....	61	14,215	163	88,061	364	136,881
Apparatus, vessel fisheries:						
Purse seines.....			4	7,800	4	7,800
Gill nets.....			115	2,680	115	2,680
Lines.....				555		555
Otter trawls.....	1	30	6	350	14	680
Harpoons.....				570		600
Lobster pots.....	50	100			480	745
Dredges.....	83	3,039			372	8,437
Apparatus, shore fisheries:						
Seines.....			4	1,105	54	4,893
Gill nets.....			28	3,465	204	13,910
Pound nets.....	2	577	31	5,600	42	9,112
Fyke nets.....	4	75	132	1,420	439	3,985
Scoop nets.....			4	20	7	35
Lines.....		18		40		58
Otter trawls.....	10	361	33	1,643	53	2,394
Harpoons.....				80		80
Lobster pots.....	3,835	8,238	8,900	27,183	16,173	42,534
Eel pots.....	22	37	634	457	801	617
Dredges.....	4	36			55	395
Tongs.....	207	1,724	3	25	244	1,994
Rakes.....	44	251			61	367
Hoes.....	45	41			68	69
Shovels.....	13	13			13	13
Spears.....	28	34	2	5	30	39
Shore and accessory property.....		147,665		62,261		498,699
Cash capital.....		50,200		19,300		98,500
Total.....		427,380		338,126		1,645,793
<b>PRODUCTS.</b>						
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives.....	500	\$5	37,776	\$2,502	177,150	\$6,637
Bluefish.....	660	80	2,085	211	3,710	386
Bonito.....			6,120	912	6,120	912
Bullheads.....			1,067	77	1,492	100
Butterfish.....			18,760	2,604	18,810	2,607
Carp.....			9,778	1,140	40,141	4,922
Cod.....			96,136	9,603	96,136	9,603
Cusk.....			6,767	73	6,767	73
Eels.....	14,153	1,960	37,705	6,233	63,046	9,839
Flounders.....	99,475	4,801	1,980,441	77,232	2,349,181	91,962
Haddock.....			350	38	350	38
Hake.....	100	2	10,100	100	10,200	102
Halibut.....			25,000	5,000	25,000	5,000
Herring.....			3,000	71	3,000	71
Mackerel.....	7,400	1,572	83,989	9,418	91,389	10,990

PERSONS ENGAGED, INVESTMENT, AND PRODUCTS OF FISHERIES OF CONNECTICUT  
IN 1919, BY COUNTIES—Continued.

Item.	New Haven.		New London.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
PRODUCTS—continued.						
Menhaden.....	102,350	\$350	6,615,600	\$91,827	6,736,564	\$93,312
Perch, yellow.....			2,461	251	6,108	595
Pickarel.....			611	88	1,079	143
Pollock.....			10,135	717	10,135	717
Scup.....			1,980	202	1,980	202
Sea bass.....	210	60	3,345	468	3,555	528
Shad.....	327	83	98,088	18,618	463,203	86,637
Skates.....			400	10	400	10
Smelt.....			21,103	3,580	25,217	4,466
Squeteague.....	808	58	19,547	2,968	23,076	3,257
Striped bass.....	21	5	3,939	944	4,810	1,059
Sturgeon.....					25	5
Suckers.....			14,950	1,006	99,053	7,488
Sunfish.....					105	11
Swordfish.....			86,948	14,711	88,428	15,006
Tautog.....	500	50	20,633	1,957	21,942	2,068
Tomcod.....			455	37	455	37
Tuna.....			5,114	550	5,114	550
Whiting.....			9,317	175	9,317	175
Lobsters.....	163,674	45,633	423,895	96,547	740,848	189,157
Squid.....			3,612	258	3,612	258
Clams:						
Hard.....	10,504	4,323			149,976	18,912
Soft.....	208,950	30,541			229,150	32,070
Scallops.....			38,400	13,717	38,400	13,717
Oysters:						
Market—						
Public.....	106,708	15,210	7,000	3,000	4136,654	21,900
Private.....	2,250,857	242,830			4,826,668	471,766
Seed—						
Public.....	106,631	10,004			740,516	68,349
Private.....	1,517,411	152,324			7,493,865	525,001
Total.....	4,591,239	509,891	9,706,507	366,845	23,652,647	1,700,638

<sup>1</sup> 6,247 bushels.<sup>2</sup> 22,915 bushels.<sup>3</sup> 6,400 bushels.<sup>4</sup> 19,522 bushels.<sup>5</sup> 689,524 bushels.<sup>6</sup> 105,788 bushels.<sup>7</sup> 927,695 bushels.

## FISHERIES BY APPARATUS.

Dredges employed in the oyster fisheries of Connecticut in 1919 were the most productive form of apparatus. In the vessel fisheries dredges took 11,844,084 pounds; or 1,692,012 bushels, of oysters, valued at \$1,037,717, and in the shore fisheries dredges, tongs, rakes, and hoes took oysters to the amount of 353,619 pounds, or 50,517 bushels, valued at \$49,299, and clams to the amount of 279,126 pounds, or 29,162 bushels, valued at \$50,982. The catch with pots amounted to 768,078 pounds, valued at \$192,629, of which 740,848 pounds, valued at \$189,157, were lobsters. Otter trawls caught flounders, giant scallops, and hake to the amount of 2,359,221 pounds, valued at \$103,031. The catch with purse seines amounted to 6,625,240 pounds, valued at \$93,812, the principal species taken being menhaden to the amount of 6,608,400 pounds, valued at \$91,765. Gill nets, used principally in the taking of shad, yielded 443,551 pounds, valued at \$76,175. The quantity of shad taken with gill nets amounted to 374,823 pounds, or 86,567 in number, valued at \$69,201, of which 53,822 were roes and 32,745 were bucks. Various species were taken with lines, amounting to 201,763 pounds, valued at \$24,241; with pound nets, amounting to 379,371 pounds, valued at \$22,047; and with seines, amounting to 189,160 pounds, valued at \$21,680. All forms of apparatus employed in both the vessel and shore fisheries yielded a total of 23,652,647 pounds, valued at \$1,700,638.

The following tables give the products of the vessel and shore or boat fisheries in 1919, by counties, apparatus, and species:

YIELD OF VESSEL FISHERIES OF CONNECTICUT IN 1919, BY COUNTIES, APPARATUS, AND SPECIES.

Apparatus and species.	Fairfield.		New Haven.		New London.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Purse seines:								
Mackerel.....					16,840	\$2,047	16,840	\$2,047
Menhaden.....					6,608,400	91,765	6,608,400	91,765
Total.....					6,625,240	93,812	6,625,240	93,812
Gill nets: Mackerel.....					41,688	4,310	41,688	4,310
Lines:								
Cod.....					93,694	9,503	93,694	9,503
Halibut.....					25,000	5,000	25,000	5,000
Pollock.....					9,810	687	9,810	687
Total.....					128,504	15,190	128,504	15,190
Dredges: Oysters—								
Market—								
Public.....	1,400	\$160	3,500	\$610			4,900	770
Private.....	2,555,161	225,544	2,201,143	232,176			4,756,304	457,720
Seed—								
Public.....	527,583	48,369	72,632	6,817			600,215	55,186
Private.....	4,965,254	371,717	1,517,411	152,324			6,482,665	524,041
Total.....	8,049,398	645,790	3,794,686	391,927			11,844,084	1,037,717
Otter trawls:								
Flounders.....	45,605	2,527	3,330	200	439,841	14,943	488,776	17,670
Hake.....					10,000	100	10,000	100
Scallops.....					2,816	853	2,816	853
Total.....	45,605	2,527	3,330	200	452,657	15,896	501,592	18,623
Lobster pots: Lobsters.....	14,131	5,141	2,476	793			16,607	5,934
Harpoons: Swordfish.....	1,480	295			76,828	12,501	78,308	12,796
Grand total.....	8,110,614	653,753	3,800,492	392,920	7,324,917	141,709	19,236,023	1,188,352

YIELD OF SHORE FISHERIES OF CONNECTICUT IN 1919, BY APPARATUS, COUNTIES, AND SPECIES.

BY SEINES AND GILL NETS.

Apparatus and species.	Fairfield.		Hartford.		Middlesex.		New London.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Seines:										
Alewives.....			39,484	\$1,988	16,484	\$277	800	\$40	56,768	\$2,305
Bullhead.....			60	6	300	14			360	20
Carp.....			9,373	1,381	12,512	1,460	6,810	806	28,695	3,647
Eels.....							4,440	801	4,440	801
Perch, yellow.....			530	44	299	27			829	71
Pickerel.....					109	12			109	12
Shad.....			18,873	4,595	26,407	4,666	5,088	1,219	50,368	10,480
Smelt.....	4,114	\$886					293	50	4,407	936
Striped bass.....							600	151	600	151
Suckers.....			27,511	2,238	15,048	1,016			42,559	3,254
Sunfish.....					25	3			25	3
Total.....	4,114	886	95,831	10,252	71,184	7,475	18,031	3,067	189,160	21,680
Gill nets:										
Alewives.....					11,446	385	9,297	1,572	20,743	1,957
Bluefish.....					925	92			925	92
Carp.....					31	3	2,968	334	2,999	337
Eels.....							94	9	94	9
Menhaden.....	300	25							300	25
Shad.....			15,465	3,876	268,428	48,392	90,930	16,933	374,823	69,201
Squeteague.....					1,104	111			1,104	111
Striped bass.....					850	110			850	110
Sturgeon.....					25	5			25	5
Total.....	300	25	15,465	3,876	282,809	49,098	103,289	18,848	401,863	71,847

YIELD OF SHORE FISHERIES OF CONNECTICUT IN 1919, BY APPARATUS, COUNTIES,  
AND SPECIES—Continued.

BY POUND NETS, FYKE NETS, AND LINES.

Apparatus and species.	Hartford.		Middlesex.		New Haven.		New London.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Pound nets:										
Alewives.....			68,073	\$1,405	500	\$5	26,115	\$808	94,688	\$2,218
Bluefish.....			40	3			200	32	240	35
Butterfish.....			50	3			18,760	2,604	18,810	2,607
Carp.....			5,093	571					5,093	571
Cusk.....							6,767	73	6,767	73
Eels.....							2,150	300	2,150	300
Flounders.....			6,350	187			20,215	1,837	26,565	2,024
Herring.....							3,000	71	3,000	71
Mackerel.....							410	67	410	67
Menhaden.....			18,314	1,110	102,350	350	7,200	62	127,864	1,522
Perch, yellow.....			736	67			50	10	786	77
Scup.....							1,980	202	1,980	202
Sea bass.....					210	60			210	60
Shad.....			34,994	6,251	327	83	2,070	466	37,391	6,800
Skates.....							400	10	400	10
Squeteague.....			1,617	120			18,650	2,841	20,267	2,961
Striped bass.....							2,349	559	2,349	559
Suckers.....			6,069	384					6,069	384
Tautog.....			809	61	500	50	9,639	925	10,948	1,036
Tomcod.....							455	37	455	37
Whiting.....							9,317	175	9,317	175
Squid.....							3,612	258	3,612	258
Total.....			142,145	10,162	103,887	548	133,339	11,337	379,371	22,047
Fyke nets:										
Alewives.....	677	\$20	2,710	55			1,564	82	4,951	157
Bullhead.....			65	3			1,067	77	1,132	80
Carp.....	2,481	256	873	111					3,354	367
Eels.....	4,768	1,038	98	10			8,100	1,884	12,966	2,932
Flounders.....					495	28	5,740	325	6,235	353
Hake.....					100	2			100	2
Perch, yellow.....	1,904	191	178	15			2,411	241	4,493	447
Pickrel.....	128	20	231	23			611	88	970	131
Squeteague.....					808	58	111	14	919	72
Striped bass.....					21	5	210	39	231	44
Suckers.....	28,065	2,326	7,410	518			14,950	1,006	50,425	3,850
Sunfish.....	80	8							80	8
Tautog.....							390	33	390	33
Total.....	38,103	3,859	11,565	735	1,424	93	35,154	3,789	86,246	8,476
Lines:										
Bluefish.....					660	80	1,885	179	2,545	259
Bonito.....							6,120	912	6,120	912
Cod.....							2,442	100	2,442	100
Eels.....					515	48	2,012	357	2,527	405
Flounders.....					2,450	216	3,110	155	5,560	371
Haddock.....							350	38	350	38
Mackerel.....					7,400	1,572	25,051	2,994	32,451	4,566
Pollock.....							325	30	325	30
Sea bass.....							3,345	468	3,345	468
Smelt.....							310	45	310	45
Squeteague.....							786	113	786	113
Striped bass.....							780	195	780	195
Tautog.....							10,604	999	10,604	999
Tuna.....							5,114	550	5,114	550
Total.....					11,025	1,916	62,234	7,135	73,259	9,051

## BY OTTER-TRAWLS, HARPOONS, SCOOP NETS, POTS, AND SPEARS.

Apparatus and species.	Fairfield.		Hartford.		Middlesex.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Otter trawls: Flounders.....	33,500	\$1,200			177,810	\$6,015
Scoop nets: Shad.....			621	\$156		
Pots:						
Eels.....					6,322	598
Lobsters.....	58,793	18,744			80,355	23,092
Total.....	58,793	18,744			86,677	23,690
Grand total.....	98,293	19,944	621	156	264,487	29,705

## YIELD OF SHORE FISHERIES OF CONNECTICUT IN 1919, BY APPARATUS, COUNTIES, AND SPECIES—Continued.

BY OTTER TRAWLS, HARPOONS, SCOOP NETS, POTS, AND SPEARS—Continued.

Apparatus and species.	New Haven.		New London.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Otter trawls:						
Flounders.....	93, 200	\$4, 357	1, 511, 535	\$59, 972	1, 822, 045	\$71, 544
Scallops.....			35, 584	12, 864	35, 584	12, 864
Total.....	93, 200	4, 357	1, 547, 119	72, 836	1, 857, 629	84, 408
Harpoons: Swordfish.....			10, 120	2, 210	10, 120	2, 210
Scoop nets:						
Shad.....					621	156
Smelt.....			20, 500	3, 485	20, 500	3, 485
Total.....			20, 500	3, 485	21, 121	3, 641
Pots:						
Eels.....	276	42	20, 632	2, 832	27, 230	3, 472
Lobsters.....	161, 198	44, 840	423, 895	96, 547	724, 241	183, 223
Total.....	161, 474	44, 882	444, 527	99, 379	751, 471	186, 695
Spears: Eels.....	13, 362	1, 870	277	50	13, 639	1, 920
Grand total.....	268, 036	51, 109	2, 022, 543	177, 960	2, 653, 980	278, 874

## BY DREDGES, TONGS, RAKES, HOES, AND SHOVELS.

Species.	Fairfield.		Middlesex.		New Haven.		New London.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Clams:										
Hard.....	39, 472	\$14, 589			10, 504	\$4, 323			49, 976	\$18, 912
Soft.....	8, 000	725	12, 200	\$804	208, 950	30, 541			229, 150	32, 070
Oysters:										
Market—										
Public.....	17, 542	2, 720	4, 004	810	103, 208	14, 600	7, 000	\$3, 000	131, 754	21, 130
Private.....	15, 036	2, 391	5, 614	1, 001	49, 714	10, 654			70, 364	14, 046
Seed—										
Public.....	106, 302	9, 976			33, 999	3, 187			140, 301	13, 163
Private.....	11, 200	960							11, 200	960
Total.....	197, 552	31, 361	21, 818	2, 615	406, 375	63, 305	7, 000	3, 000	632, 745	100, 281

## WHOLESALE FISHERY TRADE AND MENHADEN INDUSTRY.

In 1919 there were 25 establishments engaged in the wholesale fishery trade of Connecticut, employing 559 persons, to whom \$338,884 were paid in wages. The value of these establishments with their equipment, etc., was \$418,801 and the cash capital utilized amounted to \$81,500.

There were only two factories engaged in the reduction of menhaden to oil and scrap. The statistics of these plants have been included in the fishery industries table of Massachusetts.