PART XII.

NORTH CAROLINA AND ITS FISHERIES.

By R. EDWARD EARLL.

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PART XII.

NORTH CAROLINA AND ITS FISHERIES.

A.—GENERAL REVIEW OF THE FISHERY INTERESTS OF THE STATE

167. GEOGRAPHY OF THE COAST.

GENERAL DESCRIPTION.—The coast of North Carolina, which is about 300 miles in length, resembles somewhat in its general characteristics certain portions of New Jersey. Its outer shore in the northern and central portions is simply a bar of sand separating the waters of the ocean from those of an enormous inland sound system. This bar is constantly changing in form and shape under the action of winds and waves, and within the memory of many of the residents a number of new inlets have "cut out," while others have been completely closed. At the present time there are but six openings through this bar between the Virginia line and Cape Lookout, all of them being shoal and barred on either side so that vessels of small size only can enter. The region is thus practically cut off from direct communication with the ocean, though it is connected with the Chesapeake by means of canals. In the central portion of the State the inland sounds are much smaller, most of them being shoal and narrow lagoons running parallel with the coast. Farther south we find a wide belt of low, marshy islands, separated by numerous tide channels and salt-water creeks. The outer bars, or "banks," as they are locally called, average about half a mile in breadth, and with the exception of a few isolated spots where shrubs and trees occur they are bald ridges of drifting sand, almost destitute of vegetation. Owing to this fact they have few inhabitants, these living in small isolated communities and depending largely upon the water for their support. The mainland bordering the coast region is, for the most part, low and swampy, the scattered population living in the more elevated portions, where the land is well adapted for farming. A few live in the vicinity of the wooded tracts, and during a portion of the year devote their attention to lumbering interests, cutting and shipping large quantities of pine timber. There are few settlements of any size along the shore, the only ones of importance within the limits of the State being Wilmington, New Berne, Beaufort, and Morehead City, the last two being separated from each other only by a shallow bay scarcely a mile in breadth.

The fisheries of the region are quite important, as every one living near the water catches fish enough for family use, while many salt considerable quantities to be shipped to other portions of the State in exchange for corn. Within the last few years a trade has been developed in fresh fish; shad, mullet, and trout being sent to Baltimore and Norfolk from Wilmington, Beaufort, and

the larger settlements on Albemarle Sound. Each portion of the coast has fishing interests peculiar to itself, and as the fisheries of the different sounds are so unlike each other, it is thought desirable to describe each section separately.

168. STATISTICS OF THE COMMERCIAL FISHERIES.

THE DIFFERENT FISHERIES.—The large rivers and brackish sounds of North Carolina are visited annually by immense quantities of shad and alewives (commonly called herring), and in spring and early summer the fishing is extensive in many portions of the State. The principal fisheries, however, are near the junction of the Roanoke and Chowan Rivers, at the head of Albemarle Sound, and in the Neuse and Tar Rivers. In the alewife fisheries the State ranks first on the list, with 15,520,000 pounds, netting the fishermen $142,784. The quantity of shad taken in 1880 was 3,221,263 pounds, being a little below the Maryland catch, but the price realized is so much greater that the value of the catch is more than double that for the Maryland fishery. Its sea fisheries, when compared with those of the more northern States, are of little importance, though in the bays and sounds between Beaufort and Wilmington many follow fishing for a livelihood and secure annually large quantities of the various species. The mullet fisheries of the State are second only to those of Florida. In 1880 the catch of mullet amounted to 3,368,000 pounds, valued at $80,500. The oyster industry is confined almost wholly to the Neuse River, Beaufort, and Wilmington. In 1880, according to Mr. Ingersoll, it gave employment to 1,020 men; the invested capital was $68,500, and the value of native oysters produced was $60,000.

STATISTICAL RECAPITULATION.—A detailed statistical review of the North Carolina fisheries will be found in the following statements:

Summary statement of persons employed.

Persons employed.	Number.
Number of fishermen	4,729
Number of shoremen	520
Number of factory hands	25
Total	5,274

Detailed statement of capital invested and apparatus employed.

Apparatus specified.	Number.	Value.
Vessels (1,457.90 tons)	95	$39,000
Boats	2,714	123,175
Pound-nets	117	30,800
Fykes, pots, and baskets	230	1,150
Gill-nets	18,796	43,290
Dip-nets and cast-nets	522	1,594
Drag-seines	835	95,982
Minor apparatus, including outfit		52,620
Factories and other shore property		99,100
Additional cash capital		19,850
Total capital		506,561

Detailed statement of the quantities and values of the products.

Products specified.	Pounds.	Values.
Grand total for fishery products	32,249,488	$845,695
Sea fisheries.		
Bluefish	600,000	12,000
Clams (hard)	309,600	15,575
Crabs	11,200	450
Mullet	3,368,000	80,500
Oysters	1,190,000	60,000
Shrimp	63,000	4,500
Spotted sea-trout	950,000	23,000
Squeteague	170,000	2,550
Terrapin	123,000	10,850
All other species	4,572,500	71,320
Total sea products	11,357,300	280,745
River fisheries.		
Alewives	15,520,000	142,784
Shad	3,221,263	329,569
Sturgeon	436,900	18,094
All other species	1,714,025	74,503
Total river products	20,892,188	564,950

169. STATISTICS OF THE SEA FISHERIES EXCLUSIVE OF THE OYSTER INTERESTS.

In the following statements the statistics of all of the fresh-water fisheries are neglected, and the figures relate only to the salt-water fisheries, exclusive of the oyster industry. The statements have been carefully compiled from notes made during interviews with many of the more intelligent fishermen and dealers in the various localities, and the figures are thought to be sufficiently accurate for all purposes for which they are intended. We are under obligations to the fish dealers of Wilmington, Beaufort, and New Berne for information and assistance which have made it possible to give to the public a general account of the fisheries of each district.

Summary statement of persons employed.

Persons employed.	Number.
Fishermen	1,707
Shoremen	118
Factory hands	25
Total	1,850

Detailed statement of capital invested and apparatus employed.

Apparatus specified.	Number.	Value.
Vessels (117.90 tons)	4	$11,600
Boats	1,110	56,500
Pound-nets	3	1,800
Fykes, pots, and baskets	230	1,150
Gill-nets	850	13,250
Purse-seines	1	400
Drag-seines	536	22,200
Dip-nets and cast-nets	100	550
Minor apparatus, including outfit		17,900
Factories, and other shore property		27,600
Cash capital		19,850
Total		172,800

Detailed statement of the quantities and values of the products.

Products specified.	Pounds.	Value.
Bluefish	600,000	$12,000
Clams (hard)	309,600	15,575
Crabs	11,200	450
Mullet	3,368,000	80,500
Shrimp	63,000	4,500
Spotted sea trout	950,000	23,000
Squeteague	170,000	2,550
Terrapin	123,000	10,850
All other species	4,572,500	71,320
Total	10,167,300	220,745

B.—THE MORE IMPORTANT FISHERY DISTRICTS.

170. THE FISHERIES OF CURRITUCK SOUND.

A BRIEF DESCRIPTION OF THE REGION.—Currituck Sound is a shoal body of water beginning near the northern boundary of the State, and extending about 40 miles southward in a direction nearly parallel with the coast. It has an average width of 3 or 4 miles, and is separated from the sea by a belt of low sand-hills less than a mile in breadth. Formerly it communicated freely with the ocean through a large inlet, and, the water being salt, it was a favorite resort for the various species of marine fishes common to this portion of the coast; but the inlet has been closed for many years, and the water has gradually freshened until now only the fresh water and anadromous fishes occur. Chub (*M. pallidus*) and perch (*R. americanus*) are particularly abundant in these waters, while other species, including rock (*Roccus lineatus*) and "herring" (*Clupea vernalis* and *C. æstivalis*), are found at certain seasons. The region is also visited each winter by enormous numbers of wild fowl, including ducks and geese of several species, and it is one of the most popular resorts of the entire coast for the sportsmen of the larger cities.

THE FISHERIES.—The country has a scattered population depending largely on farming, gunning, and fishing. It is quite isolated, and up to 1869 had no regular communication with any of the larger cities. At that time a steamboat line was established between Poplar Branch and Norfolk for the purpose of carrying the game and fish that might be taken. Prior to that date a few fish had been carried to market in wagons, but the distance was so great that not many were caught beyond those needed for local supply. With good shipping facilities the business at once assumed important proportions, and the steamer often carried 15,000 pounds of chub and perch at a single trip. The fishery reached its height about 1872, when, according to Captain Walker, nearly 1,000,000 pounds of these species were taken, the bulk of the catch being shipped to the Norfolk market. In 1875 the catch had fallen off one-third, and in the winter of 1879–'80 it reached only 350,000 pounds of chub and 83,000 pounds of perch, from the sale of which the fishermen realized about $13,000.

The fishing begins in October and continues till the following April. The fish are taken chiefly in small drag-seines. These are fished in the grassy bays both along the shore and at a considerable distance from it. In fishing the men remain constantly in their boats. After properly stowing the seine in the stern they proceed to the fishing grounds, and, when a suitable locality is reached, a pole to which one end of the seine is attached is imbedded in the mud of the bottom, after which the seine is "shot" in the form of a circle in order to surround and retain the fish.

When the ends have been brought together the men begin "hauling in" one of them, and they continue their work till the circle has become very small and the fish are brought together in a limited space. The seine with its fish is then quickly lifted into the stern of the boat. In warm weather this method would be hardly practicable, for in hauling the lead-line is frequently raised several feet above the bottom, and the fish have an excellent opportunity to escape; but the fishing occurs chiefly in winter when the water is cold; at this time the fish are so sluggish that they make little effort to escape. The fishing is not confined to any particular region, but extends over the entire sound, and even as far south as Kitty Hawk Bay, a few miles above Roanoke Island. In the winter of 1879–'80 there were two hundred and eighty men with one hundred and forty boats and a like number of seines engaged in this fishery.

171. THE FISHERIES OF ALBEMARLE SOUND.

THE FISHING WHOLLY FOR FRESH-WATER AND ANADROMOUS SPECIES.—Albemarle Sound, a sheet of water 50 miles long by 7 to 10 miles wide is the center of the shad, herring, and rock fisheries of the State. Its only communication with the sea is through Oregon Inlet, situated some distance below Roanoke Island. The water of the sound, under ordinary circumstances, is fresh, but during seasons of extreme drought it becomes more or less brackish, especially in its lower part.

The fishing is confined wholly to the capture of shad, herring, rock, and perch. Formerly haul-seines were almost exclusively used; as the fishery increased in importance these were made larger and larger, until, at the present time, they average 2,000 to 2,500 yards in length, being among the largest in the country. Within the past three or four years small steamboats have been introduced into the fishery for the purpose of "laying out" the seines, and horse and steam power are frequently employed in hauling them to the shore. In 1870 the first pound-nets were introduced into the region by Mr. J. P. Hetterick, of Huron, Ohio. They have proved very successful in this fishery, and are not only coming into general favor, but seem destined to revolutionize the fisheries of the Albemarle. Stationary gill-nets, or stake-nets, are also extensively used in the lower part of the sound; and, according to Col. M. McDonald, the first drift-nets were introduced into the region in 1880.

A large part of the shad, rock, and perch are shipped in ice to New York, Philadelphia, and Baltimore; but so many herring are taken, that no market can be found for them fresh, and nearly all are salted.

A detailed account of the fisheries of this region will be given by Colonel McDonald in the chapter on the shad and alewife fisheries.

172. THE FISHERIES OF ROANOKE ISLAND.

Roanoke Island, lying between Albemarle and Currituck Sounds on the north, and Pamlico Sound on the south, has a population of about 1,100, largely dependent upon farming and fishing. Capt. J. W. Etheridge estimates that fully three-fourths of the total earnings of these people come from the water. Probably 225 men are extensively engaged in fishing, while the others fish occasionally for local use.

THE FISHERIES OF THE REGION.—The principal fishing is for shad (*Clupea sapidissima*), herring (*Clupea vernalis* and *C. æstivalis*), and rock (*Roccus lineatus*), in spring; for mullet (*Mugil albula*), hogfish (*Diabasis* sp.), spot (*Liostomus xanthurus*), and terrapin, in summer; and for bluefish (*Pomatomus saltatrix*), rock, and terrapin in the fall and early winter. Oysters and quahaugs are also gathered for local use and for sale in the interior.

The shad arrive about the middle of February, when fully one hundred men begin fishing with stake-nets; a little later the others seek employment at the various seining beaches of the region. One seine is owned on the island, and three others are fished on the opposite side of the channel. After the shad season is over, many of the islanders fish for other species, exchanging their catch for corn with the people of the mainland. Early in September quite a number go to Oregon Inlet to fish for mullet; and a little later they turn their attention to the capture of bluefish.

THE PURSE-SEINE USED IN THE CAPTURE OF ROCK.—So far as we can learn, Roanoke Island is the only place on the entire coast where the purse-seine has been used for catching rock. This method was first employed by Mr. Samuel Terry, of Rhode Island, in 1873. He came regularly to the region each fall for three or four years with a purse-seine, and succeeded in taking large numbers of rock, which he sent to the Northern markets. It is reported that during the first season the catch was so large that only the largest fish were marketed, the others being used as a dressing for the land. Though remarkably abundant for a time, the fish were soon caught up, and the business was abandoned.

HISTORY OF THE ROANOKE ISLAND TERRAPIN FISHERY AND A DESCRIPTION OF THE METHODS OF CAPTURE.—Roanoke Island has an important terrapin fishery, and, with the exception of Beaufort, it is the only place in the United States where dredges and traps are extensively used in the capture of the species. Until 1849 the fishing was wholly for local supply, as the fishermen were not aware of the market value of the terrapin. About that time Capt. J. B. Etheridge caught 4,150 during the months of February and March. These he sold in Norfolk and Baltimore for $750. The news spread rapidly, and many at once engaged in the fishery, prosecuting the business to such an extent as to nearly exterminate the species.

The terrapin-dredge was invented about 1845, by Mr. William Midgett, of Roanoke Island. It is arranged on the plan of an oyster-dredge, being simply an iron bar 36 to 40 inches long provided with stout iron teeth. Either end of the bar is fastened to the base of an iron ring. The rings are connected at the top by a thick bar of wood. To this frame a large-mesh net, or bag, of netting 3 or 4 feet in length is attached. The dredges are used chiefly in the fall and winter, when the terrapin are "bedded" in the mud. A vessel or boat takes from one to three of these in tow, and drags them back and forth along the bottom where the terrapin are thought to be abundant.

The trap is a cylinder of netting somewhat resembling a New Jersey lobster-pot, having a funnel-shaped opening at either end. After being baited with fish, it is fastened to a stake at the surface of the water, or placed on the flats where a portion of the upper part is exposed. It is used only in summer when the fish are moving about in search of food.

The method of hunting terrapin with dogs is also peculiar to this region. The dogs are trained to track them from the water-line to the place where their eggs are deposited during the breeding season, or to follow their trail through the marshes in summer.

There is also a large terrapin pound on the island, in which the experiment of raising terrapin from the egg to a marketable size is being tried. This pound is an inclosure of several acres, through which a tide-stream passes. It also includes a salt marsh where the terrapin may "bed" in winter, and a bank of sand in which their eggs may be deposited. At present the experiment has not progressed far enough to warrant an opinion as to its practical value.

173. THE FISHERIES OF PAMLICO SOUND.

THE GEOGRAPHY OF THE REGION.—Pamlico Sound is an irregular sheet of water, 60 miles long by 15 to 25 miles broad. Barring Long Island Sound, it is the largest salt-water sound between Maine and Florida. It is nearly surrounded by land, being separated from the ocean by

a long and narrow strip of sand known as "The Banks." It communicates with the sea through several narrow openings that have been cut through the bar by the waves and currents. The water varies greatly in saltness in different localities. In the vicinity of the inlets it is as salt as that of the ocean, but in portions more remote it is usually quite fresh. During certain seasons of the year a large part of it becomes brackish. It may, however, be considered as a sheet of salt water, with a fauna similar to that of the adjoining sea-coast.

On the west the land is low and marshy, and the settlements are small and widely separated. The fishing of this region, with the exception of that in Croatan Sound and in the larger rivers for shad, is limited to the capture of a few mullet (*M. albula* and *braziliensis*), spot (*L. xanthurus*), and hogfish (*Diabasis* sp.), for family use.

"THE BANKS" AND THEIR INHABITANTS.—The land along the eastern side, locally known as "The Banks," is for the most part a ridge of low and barren sand hills, with only here and there a small "hummock" or wooded district, having a thin layer of vegetable mold. It is separated from the mainland by distances varying from 3 to 30 miles, and is quite cut off from communication with the outside world. Formerly this region was the home of a class of wreckers, who lived chiefly by plunder, but owing to the establishment of light-houses and life-saving stations along the shore, the number of wrecks has been greatly diminished, and the people have been obliged to turn their attention to fishing, clamming, and oystering. Most of the men own boats and nets, while others have small vessels for trading with the inhabitants of the mainland. Those who are unable to own a fishing outfit usually share that of a neighbor, giving him a part of the catch as an equivalent.

THE VARIOUS FISHERIES OF THE REGION.—The fishing is not extensive, and there are no large seines or pounds requiring the labor of any considerable number of men. The people do not fish with any regularity, many of them going out only during the height of the season, or when necessity compels. The region is so far removed from any market, that, with the exception of the bluefish taken in winter, all the fish are salted. The catch is usually taken to the mainland and exchanged with the inhabitants along the larger rivers for corn or other produce. Barter is the common method of trade, and many a man with a large family has less than $50 in money during the entire year.

In January, parties having vessels or large boats are engaged in gathering oysters and clams, which they exchange with the people of the mainland for corn, at the rate of a bushel of oysters to a bushel of ears of corn. This business continues till April, when nearly all turn their attention to their small garden patches, where they raise such vegetables as are needed for their family use. The summer fishing is quite small, and only for local supply. A few of the vessel owners engage in a traffic called "shelling" at this season. This consists in the gathering of small oysters, which are sold for fertilizing purposes at from 3 to 5 cents a bushel. Early in September the fishing becomes quite extensive, and all of the fishermen are soon engaged in the capture of hogfish, spot, mullet, trout (*Cynoscion regale*), and small bluefish, for salting. Gill-nets and seines, 75 to 125 yards in length, are used in this fishery. When a good fishing ground is reached, several of the fishermen work together setting their nets in the form of a circle around a school of fish. The size of the circle is then gradually reduced until the fish are confined in a small area, after which they are driven into the nets by the fishermen, who wade or row about inside of the circle, keeping up a continual splashing with the oars. When seines are used, several are often tied together, so as to give a greater length; and in fishing for mullet a second line of them is often drawn behind the first, to catch the fish that jump over the inner net in their efforts to escape. The catch in this

fishery averages about 10 to 15 barrels of salted fish to the man. Early in November nearly all resort to the ocean shore for bluefish, where they are usually engaged till Christmas.

THE QUAHAUG INTERESTS, INCLUDING THE CANNERY AT OCRACOKE INLET.—In addition to the above, there is an extensive fishery for clams or quahaugs to supply the clam cannery of Maltby & Edwards at Ocracoke Inlet. This cannery was located at Elizabeth City in 1876, but on account of the distance to which the clams must be carried it was removed to its present site the following season. It is the most southern of the three American canneries engaged in the packing of quahaugs. A large business has been done yearly since its establishment. During the season of 1879 forty fishermen and laborers were regularly employed in catching and packing the clams, and fifty others fished occasionally for the cannery. In addition to the clam business, a few turtle, crabs, and Spanish mackerel (*Scomberomorus maculatus*) were put up by way of experiment.

THE EXTENT OF THE TERRAPIN FISHERY.—The trade in terrapin is not very extensive, though a good many are found along the western shore and a few are picked up on "The Banks." The bulk of the catch is taken by farmers and others for their own tables, and comparatively few are shipped. Parties at New Berne, on the Neuse River, buy and ship a few, and one or two merchants of the smaller settlements do a limited business in the same line. At Sladesville there is a small pound for keeping the terrapin during the summer months, or until the price is sufficiently high to warrant their shipment to the Northern markets. The total catch, including that of Roanoke Island, is 4,000 "heifers", 4,000 counts, and 9,000 "bulls", valued at $3,250.

THE SHRIMP FISHERY.—Shrimp are often quite abundant in some localities, especially in the southern part of the sound and at the mouth of the Neuse River. The seine fishermen have sometimes taken 20 to 30 bushels at a haul while fishing for trout or mullet. There is no market for the species in the region, as the dealers have not yet learned how to prepare them for shipment. Very few are eaten by the fishermen or other residents, and no one has yet learned their value.

174. THE FISHERIES OF NEW BERNE.

NO PROFESSIONAL FISHERMEN AT NEW BERNE PRIOR TO 1840.—The city of New Berne, situated on the south bank of the Neuse River, 20 miles above its mouth, is a settlement of 6,000 inhabitants. Its location on one of the largest rivers of the State, within a few miles of the salt water, with excellent shipping facilities by rail and boat, gives it an advantage in the fisheries over any other settlement in the region. Prior to 1840 it had no professional fishermen, and the supply of fish, consisting chiefly of perch and "robins," was taken in small gill-nets called "fly-tails." About this time Capt. Isaac Lewis removed to New Berne from Beaufort, to engage in the river fisheries. He introduced the drag-net into the locality, and was the only professional fisherman of the town for several years.

THE ORIGIN OF THE SHAD FISHERIES.—In 1844, according to Captain Lewis, gill-nets were first used for the capture of shad at New Berne, and then for the first time was this species extensively taken. In 1846 haul-seines were introduced by Richard Felton, a fisherman from Albemarle Sound. The first vessel was used in 1858. At present, there are two small vessels acting simply as "tenders" for the seine fishermen at the mouth of the river.

At the present time New Berne has one of the most important shad fisheries in the State, and most of her fishermen engage regularly in the work during the fishing season. At other times many are employed in taking herring (*Clupea vernalis* and *C. æstivalis*), gizzard shad (*Dorosoma cepedianum*), rock, red-fins (*Perca americana*), robins (*Centrarchus* sp.), welchmen (*Micropterus pallidus*), catfish (*Amiurus* sp.), and gars (*Lepidosteus osseus*), all along the river bank.

THE FISHING FOR MARINE SPECIES OF LITTLE IMPORTANCE.—At times the fishermen visit the salt water of the sound with seines, and catch bluefish, mullet, trout, spot, and sheepshead; but there is no regular salt-water fishing, and, according to Mr. C. F. Watson, the yearly catch of marine species does not exceed 100,000 bunches, or 300,000 pounds, valued at $5,000.

A description of the river fisheries of the place will be found in the chapter on the shad fisheries of North Carolina.

THE WHOLESALE FISH TRADE OF NEW BERNE.—As a fish market, New Berne ranks among the most important in the State, and, if credited with the fish shipped from Beaufort by firms having branch houses in that city, it stands at the head of the list. There are six firms, each doing an extensive business in the shipment of fresh and salt water fishes, oysters, and clams. Formerly the trade was small and confined to the immediate locality, but within the last ten years, owing to the energy of the dealers, it has increased fourfold. Many fish are now sent to all of the larger cities of the Southeastern States, except Florida, and in addition a large number are consigned to the principal dealers of New York, Philadelphia, and Baltimore. The supply of salt-water fish comes chiefly by rail from Beaufort and Morehead City, where several of the dealers have branch houses for buying and packing. A few of the oysters are obtained from this source also, but the greater part come direct from "The Banks" by vessel.

New Berne has also a trade in salt-water terrapin and "loggerhead turtles" (*Chelydra*), and in 1879 shipped about 280 dozen terrapin that were taken in Pamlico Sound. The shipping of turtles began about 1873, and has gradually increased until in the fall of 1879 fully 8,000 pounds were sent to the Northern markets. Most of the turtles are gathered in the rivers and creeks during the months of September and October.

THE RETAIL FISH TRADE.—The retail fish trade of New Berne is controlled wholly by negroes. There are eight fish-stalls in the market at the dock, and four or five men and boys peddle fish about the streets. Probably no city on the coast is so peculiar in its retail trade as New Berne. The coarsest species are not only seen in the markets, but they make up the bulk of the sales. The gar (*L. osseus*), not seen by us in any other market in the country, is one of the principal food-fishes here, where it is highly prized by the negroes. The other important species are catfish, eels, sturgeon, gizzard-shad, herring, perch, robins, and welchmen. Any surplus of fresh fish at times of over-supply is salted and dried or smoked, and it is not uncommon to see even catfish and other of the coarser species that have been prepared in this way exposed for sale in the market-stalls.

175. THE FISHERIES OF BEAUFORT AND MOREHEAD CITY.

THE GEOGRAPHY OF THE REGION.—Lying to the southward of Pamlico Sound, and communicating freely with it, is a long and narrow sheet of water, running parallel with the coast for a distance of 50 miles. It varies in breadth from 1 to 6 miles, and on account of its shoalness is navigable for vessels of small size only. It communicates with the ocean through Beaufort and Bear Inlets, the former being situated near its center, and the latter at its southern extremity. The portion lying to the north of Beaufort Inlet is known as Core Sound, and that to the south as Bogue Sound. The land on the east is merely a continuation of the sandy banks that occur farther north, and, with the exception of a small portion in the vicinity of Beaufort, it has almost no inhabitants. Carteret County, which forms the western shore, is very irregular in shape. It is long and narrow, reaching from the Neuse River, on the north, to Bear Inlet, on the south, and extending but a short distance into the interior. Its shores are so frequently interrupted by bays, rivers, and creeks, and the whole country is so cut up by water-channels, that wagons are almost wholly

dispensed with, and the communication between different sections is carried on by means of boats. Indeed, such is the peculiar relation of land to water, that, according to Sheriff J. D. Davis, one can go in a boat to within a mile of any house in the county.

The principal settlements are Beaufort and Morehead City. These are situated on opposite sides of Newport River, just abreast of Beaufort Inlet, with a population of 1,600 and 400, respectively.

THE INHABITANTS LARGELY DEPENDENT UPON THE FISHERIES.—Fully three-fourths of the people of the county are largely dependent upon fishing and oystering. For many years large quantities of mullet, trout, hogfish, and spot have been annually salted for shipment to the interior. Prior to 1858, when the railroad was completed to Morehead City, the fish were salted and carried in vessels to Norfolk, or to various points on Pamlico and Albemarle Sounds, where they were exchanged for corn; but now many are sent by rail to the markets of the interior.

THE SHIPPING OF FRESH FISH IN ICE.—Up to 1870 no fresh fish were shipped, and at that time only an occasional box was sent out in midwinter to some of the larger cities of the State. In 1874 the iced-fish trade was inaugurated by Mr. George N. Ives, of New Haven, Conn. Mr. Ives came to Beaufort to engage in the oyster trade, but finding that fresh fish of excellent quality could be readily obtained, he decided to establish a business in this line. From that date this branch of the business has grown very rapidly, and though most of the larger dealers have found it convenient to locate in New Berne, the fish are usually packed and shipped direct from the station at Morehead City. During the year ending May 30, 1880, there were 250,000 bunches of fresh fish, equal to 892,000 pounds, netting the fishermen $25,500, either shipped from or consumed in Carteret County. Of these, 90,000 bunches were trout (*Cynoscion maculatum*), 40,000 were mullet (*Mugil albula* and *M. braziliensis*), 20,000 were bluefish (*Pomatomus saltatrix*), 5,000 were sea-mullet (*Menticirrus alburnus*). The remaining 100,000 bunches included red drum (*Sciæna ocellata*), spot (*Liostomus xanthurus*), star-fish (probably a species of *Trachynotus*), Spanish mackerel (*Scomberomorus maculatus*), and other species. There are five firms engaged in the fish trade at Beaufort, and four additional at Morehead City. These occupy property worth $3,000, require a capital of $5,000, and furnish employment to thirty men and boys for eight months of the year. The shipping season lasts from the middle of August to the middle of December and from the 20th of January to the 1st of May.

EXTENSIVE SHIPMENTS OF SALT FISH.—The combined salt-fish trade of Beaufort and Morehead City is more extensive than that of any other city on the Southern coast. These places handle nearly all of the fish put up by the fishermen living between Ocracoke Inlet, on the north, and New River, on the south. The trade is confined to no one class, but is open to general competition, so that the regular fish dealers, the merchants, and many of the citizens buy and ship a considerable quantity, while thirty-three vessels, ranging from 5 to 20 tons each, are engaged in carrying salt fish to the various river towns and to Norfolk to exchange for corn.

THE BARRELS USED FOR PACKING THE FISH.—Formerly the fish were salted in almost any barrel, keg, or kit that would hold pickle, and there was no uniformity in the size of the package. To overcome this difficulty, the State legislature, in 1879, passed a law requiring the fish barrel to have a stave 25 inches long and a head 13 inches in diameter. This regulation barrel, which is quite generally, though not universally adopted, is calculated to hold 100 pounds.

The difficulty, however, is that the law does not state how many pounds it shall contain, and people inclined to dishonesty, by packing the fish with the backbone toward the center, can make a barrel seem full when it contains but 85 or 90 pounds; when the fish are carefully packed with the backbones outward the barrel will hold about 110 pounds.

KINDS OF FISH SALTED.—The principal species salted, arranged in the order of their importance, are mullet, spot, hogfish, trout, bluefish, drum, Spanish mackerel, and sheepshead. Mullet are by far the most important species on the list, and, including all that were eaten, shipped, and carted into the country, there were not less than 13,000 barrels salted by the fishermen of this district. These net the fishermen about $3 per barrel. The total quantity of other fish salted is about 3,000 barrels.

The trade in salt fish is largely with the eastern portion of North Carolina, though a few find their way to other parts of the State and to South Carolina and Virginia.

THE SALT FISH USUALLY EXCHANGED FOR CORN.—During former years the fishermen depended wholly upon small vessels to carry the catch to market, and it became customary for the captains to exchange the fish with the farmers of the river towns for corn. This practice grew almost universal, and the fishermen thus laid in their "bread" each fall as regularly as the ice merchant of the North cuts and houses his stock of ice for the following summer. The same practice is still quite common, even though it frequently results to the disadvantage of the fishermen, who argue, and with considerable force, that if they sold for money they would spend it for other things, and come to want for bread before the close of the winter.

DIFFERENT SPECIES TAKEN AT DIFFERENT SEASONS.—About the 20th of January many of the fishermen of Beaufort and vicinity go to the Neuse, Tar, and Cape Fear Rivers and to Albemarle Sound to fish for shad and herring. By the 1st of February one hundred others resort to the outer beach to engage in the shore whale fisheries, which continue till the 20th of April or the 1st of May. The remainder are engaged in oystering and clamming. Early in March the salmon-trout (*C. maculatum*) appear and are captured with drag-nets. This fishery lasts till the middle of May, when the drag-nets are laid aside and those owning drop-nets begin fishing for mullet, hogfish, and spot for salting. Others catch a few terrapin and crabs, and the remainder seek employment on the shore. About the middle of August the mullet seines are "set in," and most of the fishermen, with a good many farmers, are employed in the capture of mullet till the 1st of November, while others continue to fish with drop-nets and drag-nets for mullet, trout, hogfish, and spot till the middle of December. At this time the fish become scarce in the sounds, and most of the fishermen turn their attention to oystering and clamming, while others go to Cape Lookout and fish along the outer shore with seines for red drum, which are quite abundant at this season. Those living at a distance from the markets are engaged, to a greater or less extent, in farming. They fish but little during the early summer. When the mullet arrive in August, however, they engage extensively in their capture, and after the season is over they turn their attention to oystering and clamming till time for the spring trout fishing.

A DESCRIPTION OF THE MULLET FISHERIES.—The mullet fisheries of this region are very important, and the fishermen of Carteret County put up more salt mullet than those of all the other counties of the State combined. In fact the shipments of salted mullet from this region exceed the total shipments from all other portions of the Atlantic coast. The small mullet first appear in June, the number gradually increasing till August. At this time they begin to gather in schools, but no tendency toward migration is noticeable till the middle of the month. They then move slowly southward, and the schools follow one after another, the size of the fish constantly increasing until the middle of September, when the old or roe mullet arrive. The largest of them are said to weigh from 4 to 5 pounds and to measure from 24 to 26 inches. These gradually work southward, and at the approach of the first cold storm usually disappear. A school of smaller individuals called "frost" or "winter" mullet follow in their wake, and by the 1st of January the greater part have left the region, though a few may be taken at any time till the following spring.

In the early summer a few are taken in drag-nets, but the fishermen soon lay these aside and provide themselves with gill-nets, locally known as drop-nets, those of larger mesh being used as the fish increase in size. The mullet are surrounded by these nets, four or five of them often being set together in the form of a circle, after which the fish are driven into them by splashing.

This method of fishing continues till the middle of August, when the fish start south. The fishermen then take their large seines and boats, and, after providing themselves with salt and barrels, start for the Banks, where they build small shanties, one for sleeping and cooking, and another for storing the fish. Schools of mullet follow each other in rapid succession through the sound or along the outer shore, and large hauls are often made. The fishing begins about the middle of August and continues till November. In the fall of 1879 there were thirty-seven crews, averaging fifteen to twenty men each, engaged in the mullet fisheries of the region with haul-seines, in addition to a large number that fished with drag-nets and gill-nets at different points. The catch averaged about 300 barrels of salted fish to the seine.

THE FISHERY FOR SALMON TROUT.—Next to the mullet the salmon trout is the most important fish of the region, and Carteret County has the largest fishery for this species also of any county on the Atlantic seaboard. Trout are present in the waters of the sound during the entire year, but they are most abundant in the spring and fall. They are taken most extensively in the deeper channels of the sounds, though large hauls are occasionally made along the outer shore. The fishing begins about the middle of March and continues till late in May, when the fish are thought to retire into the cooler water of the ocean. In September they are again quite abundant in the sounds, and many of the fishermen fish for them in preference to the mullet that are also very plenty. The fall fishing lasts till late in December.

THE DRAG-NET AS USED IN THE TROUT FISHERY.—The fish are taken chiefly in seines locally known as "drag-nets," though a few are caught in gill-nets in the fall. Drag-nets seem to have originated with the fishermen of this region about the beginning of the present century, and they are now in use only in the northern portion of North Carolina. These nets are 80 to 110 yards in length, of 3-inch mesh, and about 12 feet deep. The method of hauling known as "footin' 'er up" is quite different from that employed with the ordinary seine. Two men go in a boat, and after reaching a shoal bank on the edge of the main channel with 2 to 4 feet of water, one of the fishermen jumps overboard and holds one end of the net, while the other "shoots" the seine in the form of a semicircle so as to include as much of the channel as possible. When the net is out he brings a line to the shoal, and jumping into the water draws the net and boat toward his companion, who in turn is advancing toward him. They soon meet, and, after firmly pressing the staff of one end into the bottom, begin hauling in on the line, and later on the net, care being taken to have it constantly against the staff. When the area inclosed by the net has been sufficiently reduced, the captain takes his position beside the staff and passes the lead-line under his left foot, thus keeping it close to the ground, as he continues to haul it in; the other man is pulling in the cork-line at the same time. The fish are thus gradually brought together at the end of the net, and by a quick movement they are lifted from the water and thrown into the boat.

AVERAGE DAILY CATCH OF TROUT.—The catch varies considerably from day to day. The wind is said to have considerable influence on the movements of the fish, and porpoise drive them about from place to place. At one time the trout may be abundant near the inlets, and the next day a school of porpoise may enter and drive them to the shoal waters at the farther end of the sound. Thus a man may fish a number of days without catching a trout, and again he may catch several hundred or even a thousand at a single haul. The average catch is fifty to sixty fish daily to the net.

THE DIFFERENT MARKETS FOR TROUT.—The trout average 1½ pounds each, and find a ready sale at 2 to 4 cents apiece in Beaufort or Morehead City. The fishermen living at a distance from the market are obliged to salt their catch, while fish taken at the southern end of Bogue Sound and at New River go fresh to Wilmington. When the supply is large the surplus of those purchased by the dealers is salted; but it is difficult to overstock the market, as there is an outlet for a large quantity in Baltimore, which is the best trout market in the country. The shipments to this port are so large at times that, according to the dealers, the transportation companies have been obliged to limit the daily shipment to 40 barrels.

THE VALUE OF TROUT SOUNDS.—The sound of the trout is very valuable, and at the present time not less than 4,500 pounds are handled annually in this locality, which is the only district south of Delaware where fish sounds are extensively saved. Prior to 1872 there was no market for them in the region, and none were saved beyond the few that were gathered by the fishermen's wives for use in their kitchens. None of the residents of the region knew that they were even a salable article. In the spring of 1872 Mr. D. Bell, of Morehead City, having learned that fish sounds were saved in the North, decided to ship a few by way of experiment. Those sent, though not properly cleaned, netted him nearly a dollar a pound. On learning their value, he at once went through the county and contracted with the fishermen for the sounds of the trout taken by them at 15 cents a pound. Competition soon brought them up to 25 and later to 75 cents. From this date to the present day all of the fishermen have saved the sounds when salting their fish.

THE INVENTION OF THE TROUT SOUNDER.—In 1878 the fresh-fish trade had grown to such proportions that a large part of the trout were shipped "round" in ice, and the value of the sounds was lost to the dealers. This led Mr. Bell to consider the question of removing the sound without opening the fish. Accordingly he soon invented a simple apparatus, by means of which he could draw it out through the gill-opening without injuring the looks or sale of the fish. The instrument is called a "sounder." It consists simply of a thin piece of wood 6 or 7 inches long and three-fourths of an inch wide, to which a small wire hook is attached. The stick is inserted at the gill-opening and passed along the backbone to detach the sound from the body. When it has been loosened the sound is easily drawn out through the same opening by means of the wire hook. At the present time all of the trout are "sounded" before shipment. Boys are usually employed for this work, and many of them have become so expert that they can sound forty fish in a minute. The sounder is at present used only at Beaufort, Morehead City, and New Berne. The fishermen of Wilmington, the next most important trout market on the coast, have never used it. The general use of the sounder throughout the State would result in an annual saving of many thousands of dollars to its people.

THE INTRODUCTION OF POUND-NETS INTO THE REGION.—The first pound-net was introduced into Core Sound in the spring of 1879, by Mr. Harrison, of New York, who was employed by Messrs. Lamphier & Haff, of that city. It was located about 6 miles north of Beaufort, but the fishermen of the region, with a characteristic dislike for any new method of fishing, especially by a non-resident, cut it to pieces before it had been fairly tested. In the fall of the same year Mr. D. Bell, of Morehead City, put one up in Bogue Sound, and another was added the following spring; but it is said that the trout, the species for which they were intended, did not enter them, and though abundant in the waters, but one individual was secured. Later they were taken up and removed to the Neuse River, where they were successfully used for herring and shad. So far as we know, this is the most southern point on the coast where pound-nets have ever been successfully used, though there was an unsuccessful attempt to introduce them into the shad fisheries of Florida, probably by men who did not fully understand setting and fishing them.

WHALE AND PORPOISE FISHING FROM THE SHORE.—The oldest residents of Beaufort state that the whale and porpoise fisheries of that region began prior to their earliest recollections. There seems never to have been any extensive fishery, and, with the exception of two vessels (the Daniel Webster and the Seychelle, of 24.15 and 47.07 tons, respectively), it has been prosecuted only from small open boats, manned by fishermen living along the shore. The Daniel Webster came to Beaufort in the winter of 1874–'75, with a crew from Provincetown, Mass., but after three months' cruising she returned to the North, having taken nothing. The Seychelle came in the winter of 1878–'79, but was lost in the summer of 1879, before taking a whale.

The shore whalers resort to the outer beach with their boats and other apparatus about the 1st of February, and after building a camp for cooking and sleeping, they establish a "crow's-nest" or lookout station on one of the highest sand hills, where some of their number are stationed to watch for the whales that follow the shore in their migrations toward the north. The season lasts till the 1st of May. A camp usually consists of three boat crews, of six men each, and while waiting for whales some of the men fish with seines for such fish as happen to be moving along the shore. A lookout is kept constantly in the crow's-nest, and when a whale comes in sight the signal is given and the boats start in pursuit. When the whale is overtaken the harpoon is plunged into it. A wooden drag is usually attached to the iron by means of a short line. This is at once thrown out, and the animal is allowed to "have its run." Harassed by the drag, the whale soon turns to fight, when the boats quickly overtake it, and one of the gunners shoots it with an explosive cartridge. When the creature has been killed it is towed to the shore, where it is cut up and the blubber tried out.

The number of men engaged in the whale fishery varies from year to year. Formerly there were two to three camps of about eighteen men each. In 1879 there were four camps, with a total of seventy-two men. Five whales were taken during the season, the products of which sold for $4,000. In 1880 there were one hundred and eight men stationed between Cape Hatteras and Bear Inlet, which mark the limits of this fishery, but the season being unusually open, most of the whales had passed before the fishermen arrived. One small whale was taken, from which the fishermen realized $408.46.

The stretch of coast above referred to is also a favorite "run" for porpoise (*Phocæna americana*), and often immense herds of them may be seen moving along within a few rods of the shore. During a visit to the region in April, 1880, they were very abundant. Droves of 50 to 100 of them were frequently seen together, and the fishermen assure us that they were even more numerous earlier in the season. As early as 1810 parties engaged in the porpoise fishery, and from one to three crews followed it quite regularly each winter up to 1860, when the fishery was discontinued. The fish were taken in heavy seines, about 800 yards long. These, on account of their weight and bulk, were in sections of 200 yards each. They were shot simultaneously from four boats, the ends being securely fastened after they had been brought together. The seine was then hauled in as far as convenient, after which the porpoise were landed with a smaller and stouter seine. The crews usually numbered from fifteen to eighteen men, and the fishing season lasted from late in December till the following April. The average catch was about 400 or 500 porpoise to the seine, each yielding 5 to 6 gallons.

There is a growing disposition on the part of the people of the region to resume this fishery, and were it not for the expense of "fitting out" (which, according to their statements, would be about $400), many would doubtless engage in the work. There seems no reason why this fishery should not be very profitable to any who would engage in it; on the contrary, there is reason to believe that, if properly managed, it would be more remunerative than almost any other fishery on

the Southern coast. In order to lessen the cost of outfit, guns similar to those used by the Passamaquoddy Indians in the porpoise fisheries of Eastport might be introduced with advantage, or, better still, the fishermen might be provided with both guns and seines.

So far as we have been able to ascertain, no one has yet attempted to combine shore whaling and porpoising. These might be combined with little inconvenience and doubtless with excellent results. The men engaged in whaling are obliged to remain constantly on the shore where the porpoise are most abundant, and there are days and weeks together when no whales are seen. At such times the fishermen, with the exception of one or two who should be kept on the lookout for whales, could devote their attention to the capture of porpoise, and when a whale came in sight they could at once leave off porpoising and start in pursuit.

NOVEL METHODS EMPLOYED IN THE CAPTURE OF TURTLE AND TERRAPIN.—Prior to the war no terrapin were shipped from the district, and the local demand was very light. The fishery was then confined to the capture of a limited number for family use by the fishermen. Recently an extensive business has sprung up and many terrapin are now taken annually and sold to the resident dealers, who confine them in large pounds until it is found desirable to send them to market. They are usually bought from the fishermen at a nominal price during the summer and kept till the market advances in the fall. The catch in 1879, if we include those consumed in the locality, amounted to 1,200 dozen, netting the fishermen $3,500. In winter they are chiefly taken by means of dredges, though we are told that the marshes are occasionally burned, and the terrapin feeling the warmth are induced to leave their bedding places in the hope that spring has come. In summer they are gathered by boys and men who wade through the marshes and paddle about in the shallow water in search of them. They are also hunted with dogs that are trained to follow their trail from the water to their breeding places in the sand.

Loggerhead and hawk-billed turtles are also present in small numbers in the sounds during the summer months. A few are taken and sold in the State at 50 cents to $2 each, but the demand is very limited. Formerly they were caught with spears, but, as they must be kept alive for the market and the wound inflicted by the spear frequently caused death, Capt. Joshua Lewis conceived the idea of diving for them, and this mode of capture is now quite common in this vicinity.

THE CRAB FISHERIES.—Crabs are very abundant in Core and Bogue Sounds. They occur in such numbers in the waters about Beaufort as to be a serious annoyance to the fishermen. There is little sale for them, however, beyond the few tubs that are sent to the larger cities of the State. Both hard and soft shelled crabs are eaten, and a few are occasionally shipped, the latter sometimes being sent to the Northern markets. The crab trade of the region is, however, in its infancy, though it is destined to become an important branch of the fishing interests. In 1879 the total value of those eaten and shipped amounted to about $450.

THE SHIPMENT OF QUAHAUGS.—Beaufort is the most southern point on the coast where quahaugs are extensively taken for shipment. It is said that they occur here in great abundance, and that a man can rake from 3 to 10 bushels at a tide. The local price is 20 to 25 cents a bushel. The clamming season lasts from November to April. The quantity shipped depends wholly on the severity of the winter. During cold seasons, when the bays and sounds farther north are covered with ice, many are shipped by steamer and rail to New York and Philadelphia, but during open winters, when clamming can be carried on in New Jersey, Beaufort, owing to the distance from the markets and the high freights, then abandons the trade. The winter of 1879–'80 was an unusually mild one and few were shipped. The average year's catch amounts to 5,000 or 6,000 barrels.

SCALLOPS TAKEN IN LIMITED QUANTITIES.—Just opposite Morehead City, in the waters of Bogue Sound is a large scallop bed. The species has been taken for local supply from this region for many years, and small quantities have been shipped north from time to time. The business reached its height in the winter of 1876–'77, when over a thousand gallons are said to have been shipped, a few going as far north as New York. Since that date the fishing has been wholly for local supply, the price realized by the fishermen being from 40 to 60 cents a gallon. It is said that one can readily secure from 5 to 7 bushels of them at a tide, and that the average yield is 5 or 6 quarts of meats to the bushel.

176. THE FISHERIES OF WILMINGTON AND VICINITY.

WILMINGTON AS A COMMERCIAL CENTER.—Wilmington, the principal seaport town of North Carolina, is situated on the fresh water of the Cape Fear River, about 30 miles above its mouth. It has long been prominent as a market for naval stores, and as a shipping point for the produce of the surrounding country, including cotton, rice, and peanuts. Its trade in lumber is of considerable importance. The city has a population of 17,000, the larger part being negroes.

WILMINGTON'S RELATION TO THE FISHERIES.—Wilmington's relation to the fisheries differs considerably from that of any other city on the coast. Its location on the fresh water at a considerable distance from the sea renders a vessel fleet impracticable, and its distance by land from the nearest salt-water bays is too great to warrant its people in engaging in the capture of marine species. The fisheries of the city are therefore confined wholly to the capture of shad, herring, sturgeon, and a number of fresh-water species in the river. But the fact that Wilmington has no men engaged in the salt-water fisheries does not prevent it from being a market for marine species. On the contrary, it receives fish, oysters, clams, and shrimp from the inhabitants along the coast for 30 to 40 miles in either direction.

A DESCRIPTION OF THE FISHING DISTRICTS TRIBUTARY TO WILMINGTON.—While the city is nearly 30 miles from the mouth of the river, the shore-line curves inward, so that a few miles north of the cape the salt water is but 7 to 9 miles distant. As in other localities, the coast is bordered by a marshy belt, which is separated from the ocean by a ridge of sand, and there are a large number of inland sounds communicating with each other through diffusely branching tide-creeks. These creeks and sounds extend for miles along either side of the cape, being larger and more numerous on the north than on the south. There are no villages of any size in the vicinity of these sounds, but the higher ridges overlooking them are thickly settled by a class of people who divide their time between the water and the land. At certain seasons, when the fishing is poor, they devote their entire attention to farming, and again, when fish are abundant and the weather is suitable for marketing the catch, they spend most of their time in fishing. At a distance from the city the fishing is most extensive during the winter months, as the catch can be sent to market fresh at this season only. Many fish are also taken in the fall and spring for salting. In the nearer bays the business is prosecuted to a greater or less extent throughout the entire year.

THE EXTENT OF THE FISHERIES.—Prior to 1870 the fishing was confined largely to the capture of mullet from August to December, and the bulk of the catch was salted in barrels, there being at this time no market for fresh fish. Within the past few years, however, Wilmington has developed a large trade in both fresh and salt fish, and the fisheries of the region have gradually increased until in 1879 there were four hundred and forty men, with seventy additional teamsters, engaged in some branch of the fisheries, exclusive of those engaged in the capture of shad, herring, and other fresh-water species, and those in the oyster fisheries.

The fish are usually taken in seines 150 to 200 yards long, in the various creeks and lagoons

above described. The spring fishing begins about the 1st of March, and a greater part of the small seines engage in the capture of trout (*C. maculatum* and *C. regale*), skip-jacks (*P. saltatrix*), thorny-backs, mullet (*M. albula* and *M. braziliensis*), croakers (*Micropogon undulatus*), jimmies (*Liostomus xanthurus*), and fat-backs (*B. tyrannus*), till June, when the water becomes so warm that most of the fish leave the sounds. In June and July there is little fishing in the bays. About the middle of August the mullet make their appearance, remaining in considerable numbers till December. During this season the fishing is at its height, and all of the small seines, with one hundred and fifty additional gill-nets, are employed in their capture in the bays and sounds, while larger seines are fished along the outer shore. Salmon-trout are also abundant at this season, and many are taken by the mullet fishermen. In some localities the trout remain longer than the mullet, and many, especially those living at New River, engage regularly in their capture. Next to the mullet the trout is the principal food-fish of the district.

ARRANGEMENTS FOR MARKETING THE CATCH.—The absence of water communication between Wilmington and the sounds renders it necessary to cart the fish overland. Accordingly, each crew of seiners must have a "marketman," who will be ready with his horse and cart at any time to carry the fish to Wilmington and to sell them to the best advantage, either at wholesale or retail, as he may think proper. For his services he generally receives from 20 to 25 per cent. of the gross sales. There are no less than seventy carts and drivers employed in this way during a greater part of the year, and when the fishing is at its height one hundred and twenty-five fish-carts may often be seen in market at one time. The captain of the "gang" sometimes owns a horse and cart, in which case he usually acts as marketman; but he must furnish a driver, as all of the crew are expected to hold themselves in readiness to haul the seine at any moment; and while one lot is being marketed they are frequently catching another.

THE SUMMER LINE FISHERY ALONG THE OUTER SHORE.—During the summer season, when the seines are laid up, quite a number of the fishermen go to the blackfish banks, several miles from the shore, and fish for blackfish (*Serranus atrarius*), grunts (*Diabasis chrysopterus* and *D. formosus*), and pig-fish (*Pomadasys fulvomaculatus*), for two or three months. It seems from their statements that the fishing banks lying along the South Carolina coast are prolonged as irregular patches and small ridges as far north as New River, and fish are reported all along the southern portion of the State. From three to six men go in a boat, starting at or before daylight, and going 1 to 13 miles from the shore. On reaching the ground, one man is employed in holding the boat in place with the oars, while the others fish, as it is a common belief among these fishermen that they would frighten the fish away by anchoring. On account of this peculiar notion the catch is considerably less than it would otherwise be, for the time of one man must be taken in steadying the boat against the wind and tide.

THE VESSEL FISHERY OF WILMINGTON.—Prior to 1860, Captain Watson, of Wilmington, owned a small smack, and visited the various fishing banks along the outer shore, selling his catch in Wilmington. From that date there were no vessels fishing for this market till the fall of 1879, when the schooner William Tell, of Atlantic City, N. J., came to Smithville, a small settlement at the mouth of the river, and began fishing on the outlying banks for blackfish and trout. She landed her fish at Smithville, and shipped them to Wilmington by steamer. The captain reports fish very plenty as far north as New River, and thinks the business could be made profitable if well followed.

THE LOCAL AND SHIPPING TRADE IN FRESH FISH.—All of the fish taken by the fishermen of the district, with the exception of a few that are salted for family use, are sold in Wilmington. No license is required of the producer for the privilege of retailing his catch. As a result, each market-

man usually backs his cart into line at the market, and disposes of his entire load a bunch or two at a time. In this way he realizes considerably more than he would by selling directly to the dealers. The city trade is thus largely controlled by the producers, and the dealers must confine themselves to a wholesale shipping business, and, when there is a local demand for the catch, it is difficult for them to get their supply at reasonable rates. There are but two firms engaged regularly in the trade, and these, with a few others who buy at intervals during the height of the mullet and trout season, control the shipping trade of the city, which, if the anadromous and fresh-water fishes are omitted, amounted in 1879 to about 60,000 bunches.

THE TRADE IN SALT FISH.—Wilmington has long been an important market for salt fish, and, next to Beaufort, it has the largest trade in salt mullet of any city on the Atlantic coast. The business reached its height about 1871, when, according to Messrs. Hall & Pearsall, 6,000 barrels were handled by the dealers. On account of a growing demand for fresh fish the trade has gradually declined, and for the past eight years has averaged only 4,000 barrels annually, while in 1879 there were but 2,800 barrels of mullet and 200 barrels of other fish brought to the city. The trade is controlled by the wholesale and retail grocers, who get their supply from the fishermen living between Bear Inlet and Little River. Over one-half of the catch comes from New River. The price realized by the fishermen ranges from $1.50 to $4.50, according to the season and size of the fish. A fair average would be $2.50 to $3.25 for packages of 100 pounds.

The city has also a small trade in salt and dried mullet roes. According to Hall & Pearsall, 6,000 dozen were handled in 1871, and 2,000 dozen in 1879; but the average annual trade does not exceed 1,500 dozen. Two-thirds of the entire quantity are brought to market in pickle and sold at 40 to 50 cents per dozen; the remainder are dry-salted and bring a trifle more.

THE TERRAPIN TRADE.—According to Mr. W. B. Davis the terrapin taken in the vicinity of Wilmington are quite small, and not more than one in twenty is large enough for a "count." It seems that no terrapin were shipped prior to 1875, when a steamboat captain began buying for the New York market. In 1878 a party living on Wrightsville Sound began buying and shipping to the Northern market. In 1879 about 500 dozen were shipped, and as many more were consumed locally.

THE SHRIMP FISHERIES.—Shrimp and prawn are said to be very abundant in the sounds and bays near Wilmington from the middle of May till October, though comparatively few are taken. Up to 1872, when the first shrimp-seine was introduced, the catch was wholly with skim-nets, and not over 100 bushels were marketed yearly. From this date the business rapidly increased, and in two or three years eight seines were fished in the locality, the catch being sold in Wilmington at 10 to 25 cents a quart. No shrimp were shipped at this time, and the market was so often overstocked that the business became unprofitable and a number were obliged to turn their attention to other fishing. The first shipment of shrimp from Wilmington, according to Mr. Davis, was in 1878; since that time a trade with the neighboring cities has sprung up that seems destined to become very important. At present (1880) there are four shrimp-seines owned by the fishermen of Middle Sound, each landing about 500 bushels during the season. In addition to these, fifty men are engaged in the fishery with either cast-nets or skim-nets during the height of the season, catching about 60 bushels to the man. Only the largest are saved, and of over 5,000 bushels taken less than half are marketed. The shrimp are usually boiled by the fishermen, after which they are brought to market where they are retailed at 10 cents a quart or sold to the dealers at about $2 a bushel. The sales for 1879 reached about 1,800 bushels, valued at $4,500.

STATISTICS OF THE FRESH AND SALT WATER FISHERIES TRIBUTARY TO WILMINGTON.—The catch of salt-water species for the district lying between New and Little Rivers was 595,000

bunches or 1,950,000 pounds of fresh fish; 3,730 barrels of salt fish; 1,800 bushels of shrimp; 1,200 dozen terrapin; 2,000 barrels of clams, and 2,000 dozen mullet-roes; the total value of these sea-products was about $82,000. According to Colonel McDonald the fresh-water products were as follows: 5,250 sturgeon in number, equal to 262,500 pounds of dressed fish, valued at $15,750; 45,500 shad, valued at $13,650; 12,000 pounds of rock, worth $720, and 25,000 pounds of mixed fish, valued at $1,000. The above figures make the fisheries of the region worth $113,120.

177. HISTORY OF THE MENHADEN FISHERIES OF NORTH CAROLINA.

CAN THE MENHADEN FISHERIES BE MADE PROFITABLE IN NORTH CAROLINA?—North Carolina is practically the southern limit of the menhaden fisheries of the Atlantic coast. An attempt was made to establish an oil and guano factory at Charleston, S. C., a few years since, but the plan was abandoned after the first day's fishing on account of the abundance of sharks in the water. Several attempts have been made to locate factories on the North Carolina coast, and some parties have prosecuted the business with varying success for several years. Thus far, however, no one has succeeded in making it profitable. It is, therefore, an open question whether this fishery can be successfully prosecuted in the State. The chief difficulties are the abundance of sharks along the shore and the shoalness of the various inlets, which will not admit a menhaden steamer of ordinary draught without risk of loss. Again, the currents at the inlets are so strong that sail vessels are often unable to enter them when the tide is unfavorable, and they are thus frequently delayed so long that the fish spoil before they reach the factory. Menhaden are quite abundant in the inner sounds, but the water is usually so shoal as to interfere seriously with the use of purse-seines, and the fish are so scattered that only a few barrels can be taken at a haul.

THE FIRST MENHADEN OIL AND GUANO FACTORY IN NORTH CAROLINA BUILT IN 1865.—It is said that the first oil and guano factory in the State was built on Harper's Island, in Core Sound, in 1865. It was supplied with kettles, and hand-presses were used for pressing the fish that were taken in gill-nets. Later a steam boiler was secured, and both haul and purse-seines were used in the fishery. The business was continued at this point till 1873, when the apparatus, valued at $3,000, was removed to Cape Lookout as a more desirable location, but the machinery was never set up and the business was discontinued.

THE ESTABLISHMENT OF THE EXCELSIOR OIL AND GUANO COMPANY IN 1866, AND THE DIFFICULTIES ENCOUNTERED.—A large factory was built about 1866 by a stock company from Rhode Island, known as the Excelsior Oil and Guano Company. We are indebted to Mr. S. H. Gray, the business manager of the company, for the following facts. The idea originated with some of the soldiers of the Northern army that were stationed in the region during the war. These gave glowing accounts of the abundance of fish in the North Carolina sounds, and a party of capitalists, having satisfied themselves from personal observation of the truth of the statements, formed a company with a capital of $50,000, and built a factory at Portsmouth, near Ocracoke Inlet. The factory was supplied with modern apparatus for cooking and pressing the fish, and had experienced northern fishermen to handle the seines. The menhaden were soon found to be less plenty than had been expected. The average school contained less than 25 barrels, and the largest haul of the season was only 125 barrels. It was also found that under the influence of the hot summer weather the fish would begin to decompose in a few hours, so that the fishing was limited to 25 miles on either side of the factory. Another difficulty was that "outside fishing" could not be prosecuted on account of the shoalness of the water at the inlets, and the frequency of sudden storms, which might come up during the hours of low water, when the vessels could not enter. Again, the fish taken in the sounds were found to be very poor, and, according to Mr. Gray, the average yield of oil was only 2 quarts to the barrel, and the largest did not exceed 8 quarts. At the close of the

third year, when it had been thoroughly tested, the business was abandoned, with a loss of the original capital and $25,000 additional. Mr. Gray gives it as his opinion that it would be impossible to make the menhaden fisheries profitable along this coast.

CHURCH BROTHERS' FACTORY AT OREGON INLET.—The next factory was built at Oregon Inlet by Church Brothers of Rhode Island, who later associated with themselves Mr. J. W. Etheridge, of Roanoke Island, North Carolina. According to Mr. Etheridge, this factory was built about 1870, and, after running two seasons, it was closed on account of the strong current that prevented the vessels from passing in and out of the inlet. The first season a menhaden steamer, the Seven Brothers, was used, and the following year the fishing was prosecuted by means of small sail vessels.

A FACTORY BUILT AT CAPE FEAR IN 1871 BY THE NEVASSA OIL AND GUANO COMPANY OF WILMINGTON.—In 1871 the Nevassa Guano Company, of Wilmington, established a menhaden fishery at the mouth of the Cape Fear River, for the purpose of supplying their factory with fish-scrap, to be used in the manufacture of fertilizers. They had two vessels that were provided with purse-seines, and two carry-away boats; but, after two seasons, the business was abandoned with a loss of $8,000 to $10,000. The president of the company says that the principal obstacles in the way of success were the scarcity of fish, and the limited amount of oil to be obtained from them. Not over 500 barrels of fish were taken in any one week, and the average yield of oil was but three pints to the barrel.

RECENT EXPERIMENTS BY CAPTAIN CAIN.—In 1878 Capt. I. Cain, of Roanoke Island, made some experiments that satisfied him that the menhaden fishery could be carried on with profit. Accordingly, in the spring of 1879, he provided himself with kettles and presses, and fitted out a small vessel to engage in the fishery, but the fish did not enter the sounds in sufficient numbers to warrant him in beginning the work. The present season (1880) he intends to purchase a steam boiler and hydraulic presses for engaging extensively in the business.

178. THE WINTER BLUEFISH FISHERY OFF THE NORTH CAROLINA COAST.

THE BLUEFISH VISIT THE SHORE TO FEED UPON THE SHAD, MENHADEN, AND OTHER SPECIES.—The winter bluefish fishing of North Carolina is confined to that portion of the coast lying between Ocracoke Inlet and Cape Henry, the bulk of the fish being taken between Cape Hatteras and Currituck Sound. The fish seem to be drawn to the shore by the large schools of shad, herring, menhaden, and other species that visit the different sounds during the summer months. The coast has but few inlets, and these are often widely separated from each other, while the water for miles to seaward is so shoal that the fish have little chance to escape, and fall an easy prey to their pursuers. At those seasons of the year when the fish are approaching or leaving the inlets—namely, in the spring and fall—the bluefish are said to gather in immense numbers to feed upon them, and the presence of a school of fish of almost any of these species is a strong indication that the bluefish are not far distant. In the fall the menhaden that have been feeding in the sounds during the summer months are gradually driven to the outer shore by the decreasing temperature of the water; here they remain in considerable numbers for several weeks before leaving for their winter quarters. At this time the large bluefish gather for the feast, and remain until the school on which they are feeding is completely destroyed, or till the fish leave for the deeper water. When the shad, herring, and menhaden return in the spring the bluefish are said to be still among them. When feeding they are often so greedy as to strew the water with fragments of the fishes that they have mutilated, and to even redden their path with the blood of their victims. They occasionally surround their prey and drive them into the surf, where many are caught by the waves and thrown upon the shore. During a visit to the region in May, 1880, the fishermen reported finding many

shad lying upon the beach where they had been driven by their pursuers, and bluefish were said to be abundant in the water.

THE FIRST LARGE BLUEFISH TAKEN IN 1842.—It seems that little was known of the presence of large bluefish in the locality prior to 1842, though small ones had often been seen and taken in the sounds. At this time Mr. Adam Etheridge, of Roanoke Island, saw and captured a school of 350 of them near New Inlet with a haul-seine. These fish averaged 12 to 15 pounds apiece. A few were taken from time to time from that date, but no extensive business was done till 1849, when Capt. J. B. Etheridge made a seine of heavy twine expressly for bluefish, and in 1850 he claims to have landed between 4,000 and 5,000 large fish at a single haul. In 1852 there were three bluefish seines in the locality. This method of capture has continued to the present day, though gill-nets are now more extensively used, as they are thought to be far preferable to seines. The first gill-net was introduced by Mr. Midgett, of Roanoke Island, in 1853, and from that date their number has gradually increased.

NORTHERN VESSELS FIRST VISITED THE REGION IN 1866.—As nearly as can be ascertained, no vessels engaged in this fishery prior to 1866; but at the close of the war the Northern fishing vessels began to visit the locality with nets and boats, carrying their catch in ice to the Northern markets. They also bought a large part of the fish taken by the residents, and within a few years the business assumed important proportions. The fishery reached its height between 1870 and 1876, when, according to Mr. J. W. Etheridge, fully one hundred crews, averaging five men each, fished along the shore between Hatteras Inlet and Cape Henry. At this time about twelve sail of Northern vessels came yearly to the region to catch and buy; while local dealers bought extensively for shipment to the Northern markets. For the past three years few fish have been taken, and the vessel fleet has been greatly reduced. In the fall of 1879 not a single vessel visited the region.

The boat fisheries have also been reduced to seventy crews of five persons each, making a total of three hundred and fifty men. Many of these are parties employed at the various life-saving stations along the shore. Such are permitted to fish within the limits of their respective districts. They fish only occasionally or at times when the fish are unusually abundant.

THE EXTENT AND METHODS OF THE FISHERY.—The fishing begins about the 1st of November and continues till Christmas, when the bluefish follow the menhaden into deeper water. During the fishing season the men remain constantly on the shore and those not employed in the life-saving service build small shanties for cooking and sleeping. Two crews, or ten men, usually occupy a camp together. Each crew is provided with a boat and two or three nets. The nets are 100 yards in length, with a mesh varying from 4 to 6 inches, and have an average depth of fifty meshes. They are set on the bottom at a distance of one quarter to four miles from the shore, and the mesh is so large that the small fish pass easily through them, while the bluefish are "gilled" in attempting to follow. The catch varies considerably from year to year and also from day to day during the season. At times very few fish will be seen, and again they will be so plenty that a crew may secure a large part of their season's catch in two or three days. In 1850, as has already been stated, between 4,000 and 5,000 fish, averaging 12 pounds each, were landed at a single haul of the seine, and on December 28, 1874, the crew of one boat took 1,700 in three gill-nets. During the height of the fishing an average catch was 3,000 to 4,000 fish of 10 to 12 pounds' weight to the boat each season. In 1879 bluefish were more plenty than in either 1877 or '78, but they were so small that many passed through the meshes of the nets; and the average of those taken did not exceed 6 pounds. The total catch for 1879, according to Capt. J. W. Etheridge and others, was about 40,000 fish, valued at $6,000.