

47.—THE STRIPED BASS OR ROCKFISH INDUSTRY OF ROANOKE ISLAND, NORTH CAROLINA, AND VICINITY.

BY S. G. WORTH,

Field superintendent.

Large quantities of striped bass are caught here, the industry being perhaps the largest anywhere to be found. I arrived on the island, at Manteo, the last week in December, when operations had been terminated, but upon inquiry of many persons, nearly all inhabitants being fishermen, I obtained a fair outline of the industry from its origin. The fishery is of recent establishment, having been put on foot in the year 1872. Little else is captured other than the rockfish, and nearly the entire product finds its way in ice to the Northern cities, via canal to Norfolk. The establishment and continuance of the pursuit accounts fully for the decrease or disappearance of the species at the fisheries higher up on the Albemarle Sound, as the Roanoke Island fishermen remove thousands of fish from the waters each fall season upon their entrance into the fresh-water sounds from the sea in search of food. About Roanoke Island, in the spring time, the shad fishery produces about 500,000 shad, valued at \$110,000, and the fall "rocking" is considered by the fishermen to be equal to two-thirds of the value of the shad catch, or about that.

At Roanoke Island, and immediately around there in the Pamlico, Croatan, and Albemarle Sounds, from September 5 to December 25, there are operated 1 seine, 9 purse seines, 25 drag-nets, and 17 pound-nets or traps in capturing rockfish.

In the Albemarle Sound, near Alligator River (mouth), 21 pounds or traps; at Durant's Island, 5 pounds; in Alligator River, 13 pounds; and near Edenton Bay and Rockyhook Creek, 7 pounds. In Pasquotank River, 3 pounds; a total of 9 purse seines, 1 haul seine, 25 drag-nets, and 66 pounds or traps. Besides, there is considerable twine used in gill-nets to capture this species in Alligator River in fall and winter.

Netting employed.

Device.	No.	Fathoms.	Size of mesh (stretched).
Seine	1	800	Wings, 2½ inches; bunt, 2 inches; depth of net, 300 meshes, or 7 to 10 fathoms.
Purse-seines	9	900	
Drag-nets	25	2,500	Mesh as in purse-seines.
Pounds or traps	66	6,600	
Crops gill-nets (estimated)	5	750	Leads, 2½ inches; pocket or trap, 2 inches. 6-inch mesh.
Total	106	11,550	

Boats employed.

Devices or nets.	No.	Boats.	No.
Haul-seine	1	Flats	2
Purse-seines	9	(Sloops and schooners of 9 to 10 tons	9
Drag-nets	25	(Small boats	18
Gill-nets	5	do	25
Pound-nets	66	do	5
do		do	22
Total	106		81

Value of outfit (as found).

1 haul-seine, boats and net complete (estimated)	\$1,300.00
9 purse-seines, boats and net complete	10,800.00
25 drag-nets, boats and net complete	8,125.00
66 pound-nets, boats and net complete	13,000.00
5 crops gill-nets, boats and net complete (estimated)	875.00
Total	20,100.00

Persons employed.

	Men.
1 seine (estimated)	12
9 purse-seines	63
25 drag-nets	75
66 pounds or traps	50
5 crops gill-nets	12
Total	212

The chief part of the catch is taken in Croatan and lower Albemarle Sound, near Roanoke Island.

Ownership and fishing localities.

Device.	No.	Owner's name.	Locality.
Haul-seine	1	Mrs. L. Brinkley	Croatan Sound.
Purse-nets	1	T. M. Guard, Elizabeth City ..	(?)
Do	1	John Pinner, Elizabeth City ..	(?)
Do	1	John H. Midgett	Croatan Sound.
Do	1	T. M. Guard, jr	Do.
Do	1	T. M. Walker	Do.
Do	1	W. B. Alexander	Alligator River.
Do	1	Geo. C. Daniels	Roanoke Sound.
Do	1	T. W. Daniels & Bro.	Do.
Do	1	Spencer Daniels	Do.
Drag-nets	25	.....	Vicinity Roanoke Island.
Pound-nets	17	.....	Do.
Do	3	Ike Hettrick	In and near Alligator River.
Do	2	Hook Swain	Near Alligator River.
Do	4	Meet Smith	Do.
Do	2	Joe M. Pledger	Do.
Do	3	Wash. Bland	Do.
Do	4	S. S. Barnett & Sons	Do.
Do	3	Harrison Hayman	Do.
Do	5	Spruill & Woodley	At Durant's Island.
Do	5	.....	At Frying Pan, Alligator River.
Do	8	.....	At Newport News, Alligator River.
Do	7	.....	In and near Edenton Bay.
Do	3	.....	Pasquotank River.

ANNUAL CATCH.

During 1886, which was an average year, the catch at Roanoke Island was about as follows (in boxes of 200 pounds each):

1 haul-seine (estimated)	40
1 purse-net (George C. Daniels)	170
8 (other) purse-nets	600
25 drag-nets	*500
17 pound-nets	†510
Total	1,820
Or 364,000 pounds fish of all kinds.†	

Of the 1,820 boxes, 1,398 were rock, equal to 279,600 pounds, or 186,400 fish (of 1½ pounds weight each). Above Roanoke Island and to be added, there were caught (estimated) as follows (in boxes of 200 pounds each):

49 pound-nets caught	490
5 stands gill-nets caught	200
Total	690

Of the 690 boxes, about 500 were rockfish, representing 100,000 pounds, or 68,000 fish.

The aggregate catch, therefore, based upon careful estimates, was 253,000 fish of 380,000 pounds weight.

CONDITION OF FISHERY.

In 1887 this fishery experienced a failure, the second failure since its establishment fifteen years before. The catch of 1887 about Roanoke Island was as follows (17 pounds between Roanoke Marshes and Roanoke Island, Old Dominion Wharf):

Caught by—	Pounds.	Boxes.
L. Cudwith	2	40
Forbes	3	25
Baum Bros.	5	200
Somers C. Baum	2	50
Meekins	2	10
Davis Bros.	1	10
R. S. Midgett	2	15
Total	17	350

One-half of these, or 175 boxes, were rock, and represent 23,333 fish, or 35,000 pounds, a decrease, compared with 1886, of 33 per cent. The catch of the purse and drag nets was very much poorer than that of the traps, and their catch being about equivalent to or less than board of men, the failure was very decided. One purse-net crew were far behind on board, and several firms shipped less than one-tenth the usual

* Two-thirds rockfish. † One-half rockfish.
 † Other kinds are food-fish; no guano works.

number of boxes. In 1886 George C. Daniels's purse-net yielded 34,000 pounds of fish, and in 1887 only 1,000 pounds.

CAUSE OF FAILURE OF SEASON.

Though nearly all engaged lost their work for two months, and some money besides, every one, without exception, declared that there was no decrease in the run of fish, but a mere absence of "top bait" or young menhaden. The rock were feeding on "bottom bait," croakers, spots, young trout, etc., contrary to custom, and fishermen were unable to locate the schools so as to lay nets around them. In 1886, and other regular seasons, a dozen schools could often be sighted at one time, but the "slicks" or "signs" in 1887 were very infrequent and were generally deceptive, as they came from the bottom and appeared on the surface at long distances from the true source. In support of argument they stated that whenever it was calm or smooth enough to fish outside, near the ocean inlets, drag-nets caught an abundance, proving that there was no decrease in the species, but for inside work there was no guide, gulls and slicks being alike unreliable. In the spring season of 1887 a very large number were caught in the Hettrick pounds near Pear Tree point (above), and in May of the same season L. R. Tillet caught outside the inlets, with 80 fathoms of seine, at one haul, 4,000 pounds of 5 to 60 pounds weight each.

I could find no fishermen, among 20 consulted, who would admit that the species was at all on the decrease, all maintaining with a uniformity that strengthened their statements that the fish were just as plenty now as fifteen years ago, notwithstanding that the fishery reached present proportions within three years of its establishment, and has been steadily kept up to its present volume. Two, Messrs. Godwin and Etheridge, claimed that it would be a benefit if they could exhaust the stock, as the shad and herring fishery would be greatly enhanced. They and all others admitted that the rock fish frequented these waters for the sole purpose of eating the millions of small fry which were collecting in the lower sounds prior to leaving fresh water for the sea. They spoke of the rock as a "popping" or "snapping" species.

There is no doubt that a smaller number of the species is caught by the shad and herring fishermen in the spring time on the Albemarle and other waters above, as my 1887 shad statistical report shows. There seems really to be no diminution but rather a transfer of the catch from the upper area in the spring months to the lower in the fall months. The only objectionable feature in the transfer, in a commercial way, so far as could be learned in a rather brief examination, is the lower price realized for the fish caught in autumn. If any considerable number of unmarketable fish are caught at Roanoke Island and destroyed or wasted, I was unable to learn anything of it by numerous inquiries. Great improvement is going on among the people of Roanoke Island, and this industry has doubtless been a contributor of some im-

portance. They have excellent shipping facilities, and ice is used liberally in preparing the standard (200-pound boxes) for market, in New York, Philadelphia, and Baltimore.

Mr. S. C. Baum, who is regarded as one of their best citizens and fishermen, informed me that he had many times weighed the fish purposely to ascertain the average weight, and that he had found them to average, all through, $1\frac{1}{2}$ pounds. While he was speaking of the great bulk taken below, I am satisfied, from my recollection, that with those taken in the few scattering pounds near Edenton, the size was not so great as a pound and a half, but nearer a pound each. I am very sorry that I could not reach Roanoke Island till the end of December, for the fishing was then over and I had not the advantage of personal examination. Inquiry led to the belief that the catch about Roanoke Island is not affected with lice on the gills, as it is about Edenton, where *all* specimens seen by me were parasitic. In quality I was told that the rock were poor in September, improved in October, and fat in November. I was surprised to learn from Mr. W. B. Alexander of the success of the gilling business in Alligator River. He informed me that Mr. J. H. Cooper had just taken \$600 worth in that stream, the smaller specimens weighing 50 pounds each. The nets are 12-inch mesh and are made fast to stakes, and catch throughout the winter months in water 6 to 8 feet deep, 25 miles up the stream. This species of gilling had been in vogue for three years.

The results of my photographing on Roanoke Island, as incidental to my trip, were very satisfactory, and comprised the "building of boats there" (very superior small craft), and also represented a very fine seine steam-flat, the property of Mrs. Brinkley.

WASHINGTON, D. C., *June* 1888.

48.—INFORMATION BEARING UPON THE ARTIFICIAL PROPAGATION OF MULLET.

By W. de C. RAVENEL.

The following is the result of a trip to investigate some of the mullet fisheries of North Carolina and Florida, made in accordance with directions from the Commissioner. The instructions were to obtain all available information concerning these fisheries, particularly such as would be of practical value in entering upon the artificial propagation of this species with the view to arresting the rapid decline in the value and production of the South coast fisheries.

The inquiry was particularly addressed to determining the following points:

- (1) The localities where the fish are now found in greatest abundance.
- (2) The habits of the species as to seasons of migration from salt to brackish or fresh water and their return.