

Our biggest haul with the seine was four shad. Usually we caught nothing. I doubt whether any but gill-nets will ever be used here by professional fishermen. The fyke-nets might be used here successfully in place of the bow-nets. The latter are fished in the deep water close to the bank and the fish seem to follow the shore close at certain places, probably look for spawning-beds. A fyke set in these spots would probably take a large number of fish.

A firm of Northern fishermen, engaged in shipping shrimp and fish from Fernandina, asked me to let them know if it would be possible to haul a seine in the Saint Mary's. If so they would fish one next year, but, as stated above, they would not be justified in attempting it.

So far we have not been fortunate enough to secure a single impregnated egg, and for the reasons given above I do not think this river will ever be a favorable locality for shad propagation. Since the first two days we have taken no sturgeon. The only other fish taken have been one small rock, several gar, a few bream, and some catfish.

KING'S FERRY, FLA., *March 26, 1884.*

I have just returned from Jacksonville, where I went to see if there was any chance for shad work on the Saint John's. There was no chance there for shad propagation. I consulted the principal fish dealers, and they told me that very few shad are now coming in. Much longer nets are fished in the Saint John's than here, but the heaviest catch for the season, from January 1 until now, for one boat, was only 1,100 shad. Mr. Mervin, the largest dealer, spoke vaguely of some lakes way up the Saint John's, where he thought enough spawning fish could be taken in the height of the season to make it an object. He also said that the Saint John's shad are smaller fish than those taken elsewhere. The Saint Mary's shad run as large as those taken North.

I have nothing to add to my former report. We have kept up our operations steadily, and have caught about the same number of shad, but still have not been able to get an impregnated egg.

KING'S FERRY, FLA., *March 27, 1884.*

132.—RECONNAISSANCE OF THE SHAD FISHERIES OF WINYAW BAY AND ITS TRIBUTARIES BY THE STEAMER FISH HAWK.

By Lieut. W. M. WOOD, Commanding.

After leaving Fernandina, Fla., I proceeded in this vessel to Georgetown, S. C., to investigate the shad fisheries there, and have the honor to submit the following report:

We arrived on the afternoon of the 5th instant. The shad season was found to be about over and most of the fishermen had left. I was fortunate enough to find Mr. E. Barnes still in town. Mr. Barnes is the largest owner of nets and bags, and ships all the fish caught in the vicinity. Accompanied by him I took the launch and went up the

Waccamaw and Peedee Rivers. I also went up the Black River, a tributary of the Peedee, but only on the two former rivers and Winyaw Bay, into which they empty, is any fishing done.

On account of the character of the bottom and banks no seine hauling is carried on, and the fishing is entirely by gill-nets. This year about thirty nets were fished, averaging 150 fathoms long, $5\frac{1}{2}$ to $5\frac{1}{4}$ inches mesh, and 16 to 18 feet deep. They are not allowed to reach the bottom on account of snags. The average catch this year was about 800 shad per net. Many of the gillers live in flat-boats, moored at convenient localities.

Mr. Barnes's flat is at the junction of Jericho Creek and the Waccamaw. He fishes three nets, employing nine men, viz., a superintendent, two for each net, a cook, and a marketman, who carries the fish in a small boat to town, 10 miles below. Mr. Barnes says they catch very few ripe fish of either sex, but take a good many "down runners," or spent fish. He believes all the fish go long distances above the highest fisheries, which are only a short distance from salt water, to spawn.

On the headwaters of these rivers, owing to the natural difficulties and the absence of market facilities, the only shad caught are taken with bow-nets and short pieces of gill-nets, as on the Saint Mary's, and used for home consumption alone. A great many shad are taken in Winyaw Bay before they leave salt water.

The best of the season here is February and March. On the day of my visit to Mr. Barnes's flat, the 7th instant, his total catch was three shad, and he quit fishing that day. He was paying 30 cents each at first hand for the fish he bought, and I see by the quotations in the Star of the 8th instant that they are being sold in Washington at \$25 to \$32 per hundred.

It is possible that some little work might be done here before the opening of the season further north. There would certainly be more chance of success than in Florida, as far as my experience goes. I do not think much can be done where the catch of shad is taken by gill-nets, especially as fished in Southern rivers.

As a rule comparatively few shad are taken at a drift, and of these the proportion of males and females is rarely equally divided. Still more rarely are the two sexes in the proper condition for spawning. Especially is this true where by force of circumstances these nets are fished only in the long, deep reaches of the river and never allowed to fish *near the bottom*. Consequently it seems to me most of the fish taken are those running up or down from the spawning-beds near the headwaters, where they cannot be caught except in limited numbers by the bow-net, &c.

We left Georgetown on the evening of the 7th instant, arriving off the Chesapeake early on the morning of the 9th, touched at Norfolk for a couple of hours, and then proceeded to Washington, D. C., arriving on the evening of this date.

WASHINGTON, D. C., April 10, 1884.