

certain share of the total yield, generally \$9 to \$10 per thousand fish. The boats of the fishermen, 14 feet long and 3½ feet broad, can, in favorable weather, carry about 320 fish each. By sudden storms the fisherman risks the loss of his whole cargo, as the only way to save himself is to allow the boat to upset and drop the entire cargo in the water. The light boat will of itself again stand upright.

A skilled fisherman can catch 1,000 fish a day. He stands erect in his little boat, on both sides of which he casts a line furnished with a lead and with two hooks. If fish are very plentiful, he is kept busy all the time, hauling in alternately the right and left line, taking the fish off the hooks, stunning them either by a blow on the head or by violently throwing them against a piece of wood, and baiting his hook afresh. The lines, which have the thickness of a quill, are invariably let down to the bottom, and thereupon hauled in 1 fathom. As, from our vessel, we fished at a depth of 50 to 70 fathoms, the hauling in of the lines was no easy work, especially if we take into consideration that we were not properly equipped for this kind of work. In order to protect their hands, the fishermen use so-called "nippers"—rings made of good wool, which are drawn over the hand, and secure the lines merely by friction.

For want of better bait, we used pieces of salt bacon; as soon, however, as a fish had been caught, portions of it were cut out and used as bait. The fishermen prefer to use as bait the fresh red flesh of the salmon, or the glaring white flesh of the cuttle-fish, which is said to attract the cod more than any other bait. Even pieces of fish taken from the stomach of a cuttle-fish did excellent service as bait.

The average value of a pound of salt cod in San Francisco (fresh cod is not brought into the market there) is 10 cents. We did not allow the opportunity to pass of enjoying some good fishing. It is true that our drag-net apparatus was not well suited to great depths, but we nevertheless succeeded in bringing up from the bottom considerable booty, the floating net moreover supplying us with a good many objects of interest from the surface-water, particularly in the line of Medusæ.

A PROPOSED POND FOR REARING STRIPED BASS (*MOXOSTOMA LINEATUM*) IN DELAWARE BAY.

By E. R. NORNY.

[From a letter to Prof. S. F. Baird.]

I send you by mail an eel-skin, not on account of its size, but on account of its color. The lower part, or tail part, was a shiny black when alive, shading to a dull black towards the head, and a dark lead color on the belly. We caught two of these in December after other eels had buried; the other one was a fourth larger than this one. All eels that we have ever seen here have been either green or pale yellow on the back and white on the belly. Is this a distinct species or a sea variety?

I am sorry that you do not feel justified in making the appropriation of about \$250 to complete the pond I wrote about a year ago for the propagation of the striped bass in Delaware Bay.

I think my experiment last spring fully showed the feasibility of doing it. Having had a large female in captivity for 14 days, in which time it had nearly finished spawning, and that under very unfavorable circumstances, as it had no fresh water in the pond in all that time, and for the last three days the water was very warm.

I think if it is not attended to this spring the opportunity will be lost here. My fishermen have not made any money fishing for these fish the last three years, and this season will not fish as large a seine as usual expecting to fish pound-nets, in part, which will not be likely to take these large fish. After the bass fishing they expect to go into the sturgeon fishing, which has become very important here.

This pond is embanked on three sides, and next the bay is open, but it requires an extra tide to put water in the pond. It covers an area of over one-half acre; portions of it are from 4 to 6 feet deep, and other portions shoal. We now use it for getting ice. It should be deepened in the shoal places and have a trunk leading to the bay to admit fresh water every high tide and keep a uniform depth. It would also, on portions of the bay front, require a dry stone wall to keep the fish from escaping at extra high tides. I don't think the whole expenditure would be over \$250, and if we were to put in from 30 to 40 fish, male and female, they would be sufficient to hatch many millions of young fry. And I think the hatching could all be done between the 25th of April and 20th of May. There would be plenty of time to get it ready in March, after we are done with it for ice, as we are able to drain the water from it when we wish to do so.

ODESSA, DEL., *January 9, 1882.*

SHAD FISHERIES OF THE SUSQUEHANNA RIVER FIFTY-SIX YEARS AGO.

By H. WILLIS.

[From a letter to Prof. S. F. Baird.]

A brief account of the shad fisheries of the Susquehanna River fifty-six years ago may be somewhat interesting, as you have charge of so large a government enterprise in fish-culture.

In the spring of 1827 Thomas Stump owned and operated the largest shad fishery in the United States, immediately below the railroad bridge on the opposite side from Havre de Grace. At the mouth of the river his seine was laid across the river and down for miles along the shore below the village of Havre de Grace. A violent wind commenced, which put a stop for four days and nights to any further action with the seine,