

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,

the wind blowing constantly down the river, and no shad could get past the seine. The wind at one o'clock on the fourth night changed and blew directly up the river, and by daylight the outer end of the seine had reached the windlass, one and a half miles from the railroad bridge. At eight o'clock one hundred wagons and carts that had congregated from Lancaster and Chester Counties were loading shad at \$4 per hundred. Herring, rock, and other fish, were thrown in without charge. Mr. Stump sent word for miles around in Cecil County to farmers to get herring to manure their lands. It took three and one-half days to get the seine inshore; hundreds of wagon and cart loads of fish were put on lands as fertilizers from that one haul. Shad are not caught at this shore at the present. Mr. John Stump now lives on the property, and, perhaps, can give a more detailed history of that wonderful catch of fish. If my memory serves me right, Mr. Stump, computing the wagon and cart-loads, made the amount, in round numbers, 15,000,000 caught at that one haul. At that time nearly every family put down one to three hundred shad annually in Chester, Lancaster, York, and Dauphin Counties before dams were made. Shad were caught 200 miles up the Susquehanna River, and if proper fishways were made and government would establish hatcheries on this river, and put a heavy fine on all fish-baskets, during the fall, when young shad return to the ocean, millions more shad might be taken, and every family have the benefit of fresh and salt shad, even as they did half a century ago.

Permit me to show what I think of the profits of shad culture:

1,000 shad from the hatchery put into the river cannot cost over	
\$5. Suppose 33 per cent. return, then 333 shad, at 20 cents,	
each, would be.....	\$66 60
Add four years' interest on \$5, at 6 per cent.....	6 20
	<hr/>
The net profit would be	60 40

Even if only one-fourth returned, the benefit to the masses may become incalculable in the way of food. All animals produced on land require vast outlays, while the production of fish is a mere moiety. Nature provides the element and food for fish without cost, and when man will truly see his interest and comfort and give his influence in behalf of the production of fish by artificial culture, which was wholly unknown in our country forty years ago, he will, as in thousands of other cases, wonder why the discovery of fish production was not known at an earlier period.

142 A STREET, N. E., Washington, D. C.

After sealing my letter I found I had omitted any allusion to the planting of fish in Michigan. So far as I can judge our State will soon be amply supplied with whitefish, eels, salmon, speckled trout, grayling, and carp. Most of our inland lakes have outlets to the various rivers. I believe the carp will become our standard fish, as we have

thousands of shallow lakes and streams that this fish may do well in, while such fish as bass, pickerel, perch, and flesh-eating fish seek deeper and colder waters. Whitefish are caught varying in size from 3 to 6 pounds in lakes where they were planted four years ago. When bass and pickerel shall be got out carp and whitefish will become our standard fish. Eels, I think, will inhabit all our waters. I have opened hundreds of eels in Pennsylvania, but never found a fish in one of them or in a catfish, as I have in bass, pickerel, perch, and some other kinds. Hence fish that live on vegetable matter are the kind for us to propagate. I hope to see fish culture encouraged by national and State bounties. Michigan will ere long have fish to export to other States if properly encouraged.

NOTES ON THE GLOUCESTER FISHERY.

By S. J. MARTIN.

[Letter to Prof. S. F. Baird.]

The most of the netters have put their nets ashore. Could not get fish enough in them to make it pay. The fishermen that put their nets down in November have used them up. No fault with the nets. They don't get any fish, because there are no fish inshore. I think if one of the boats had gone out to Long Island it would have done well. There have been plenty of fish at Coney Island and Rockaway this winter. I think some nets would have done first-rate. They fish there with hand-lines, two men in a boat. They don't fish more than three miles from shore. There are plenty of herring this winter at Grand Manan and Newfoundland. Some vessels have made three trips this winter to Grand Manan, five vessels at Newfoundland, coming home full. Two have arrived with full cargoes. Herring are selling at 75 cents a hundred. The vessels are doing well on George's. The vessels get more halibut this winter than they have the past ten years. They fish on the eastern part of the bank in 40 fathoms water. They get as high as 8,000 pounds. In catching 20,000 pounds cod, that makes a good trip. There are six vessels getting ready to go to the western bank after codfish. It is early for vessels to go the western bank. What started them off so early? The haddock vessels (one of them was on the western part of western bank) found plenty of codfish; more cod than haddock. All kinds of fish bring a high price. Fresh halibut sold yesterday at 7 cents a pound; fresh cod, 3 cents a pound; haddock, 3½ cents a pound; salt cod out of the vessel, 3¼ cents a pound. Dried George's cod sold yesterday at \$5 75 a quintal. Everything looks prosperous for the coming year. The most of the old stock is out of the market.

GLOUCESTER, MASS., *January 22, 1882.*