

SHAD-HATCHING AND CARP CULTURE.

By S. G. WORTH.

(Monthly report, Department of Agriculture, North Carolina, February, 1882.)

The chief feature of the present month in fish culture is the refitting of the shad hatchery on the Albemarle Sound. Such changes and improvements are now being made that we hope to do a work double that of any previous year. The hatching capacity, which is now four million, will be increased to nine million a week. The additional space added will be occupied by hatching vessels on a new and improved method, the eggs being hatched in glass bottles. Fifty thousand eggs are to be hatched in a bottle of one gallon capacity, and during the process everything can be seen, and every dead egg removed without removing the stopper. For this improvement the country is indebted to Col. Marshall McDonald, of Virginia.

The method heretofore followed consists in placing the eggs in large cones, three feet high (the large end turned upwards), and applying a constant jet of water in from below. The apparatus of this kind being yet on hand and in good order, will still be used, the glass bottles being added to afford greater capacity. This addition, with such other improvements as are now being added, will place North Carolina on a par with any State, and I hope that results will prove us even in advance. We shall be more completely equipped than we have ever been, and with a stronger purpose. We confidently expect to double the catch in our waters in a few years with native fish, introducing at the same time such other fish as are considered of value.

No hatching of the land-locked salmon or California trout was undertaken the past season, owing to the fact that they were adapted to a rather restricted class of streams, while the German carp will prove more valuable in the same localities, and in the whole State besides. The German carp will suit the western counties, and will at the same time do equally well in every other quarter of the State. While the land-locked salmon and California trout already introduced are most excellent game fish, we have considered that but a secondary matter. While they suit the cold mountain streams, they do not suit the middle or lower streams; and while the carp cannot be recommended especially for mountain *streams*, there is not a mountain farm that does not possess every facility for raising them, and in quantities to supply a family. We therefore deem it better to suspend the salmon and trout work for one season, at least, and make necessary arrangements to propagate the carp at home, and in larger quantities than we could hope to procure them from the United States Commissioner at Washington. During the past three months 2,500 have been received and shipped by express to all parts of the State.

The demand for carp in the State is far beyond our present ability to supply. This is not surprising when it is known that they grow from minnows to three and four pound fish in one summer. And this is not all. They do this without being artificially fed; and if it should for any reason become desirable to feed them, they will eat grain and vegetables freely. Names are daily added to the list of applications. It is a great pleasure to note this fact, but we beg all those who applied later than January 20 not to expect any fish before October or November, for it is impossible to supply them.

The board of agriculture, at the last meeting, favored the construction of suitable ponds for breeding the carp at home. Much care has been taken in the selection of a site for the ponds near Raleigh. We propose to build breeding ponds and hatch sufficient quantities annually to supply many ponds throughout the State.

From many sources I learn that dams have broken, and that the carp have escaped, and as a general thing the application is renewed. Now, it cannot be expected that we should furnish such ponds with another shipment the present season, until we have sent each applicant one lot. This we have to refuse, for we cannot get fully around the first time with the short stock at our command.

The dams should be packed down and built at least two feet above the level of the water, and as a rule, the waste water should be carried around one end of the dam, through the hillside.

No time should be lost during the present spring season to introduce water plants into the ponds containing the carp. For this purpose the water lilies and cresses are excellent, and in no case should the ponds be left unprovided.

SPAWNING OF CARP IN A SMALL BASIN AT BRENHAM, TEXAS.

By T. W. MORRISS.

(Letter to Prof. S. F. Baird.)

Two years ago I procured of your department some carp. The largest are now about 2 feet long. This spring I constructed a small basin in my yard in which I placed five of them—a haphazard move, for I did not know the male from the female. About the 10th of this month I discovered a large number of young fish, which are now about 2 inches in length. My object in this arrangement is to hatch them in my small pools and, when large enough to take care of themselves, to place them in my ponds, of which I have four separated by dams. The ponds altogether are about 400 yards long, from 50 to 60 feet wide, and varying in depth from three to ten feet, with muddy bottom.

BRENHAM, TEX., *May 17, 1882.*