

**9.—PROSPECTUS OF STRIPED BASS OPERATIONS FOR THE SEASON OF 1885.****By S. G. WORTH.**

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

To conduct a season of entirely successful work at Weldon, N. C., in propagating striped bass, the following list of employés would be required: A captain in charge of force who is conversant with the general methods in detail, two hatchery experts, and an ordinary person to help them, and, in addition, four good spawn-takers, who should attend daily the fishing canoes and slides on the falls immediately at Weldon. The hatchery should be located at the mill premises of Maj. T. L. Emry, of Weldon, where there is plenty of water, and fall to the amount of 15 feet, available above hatching tables. Although the water is furnished by a canal making out of the Roanoke River 8 miles above, it does not settle well, and at times is liable to be very muddy; and yet such a small relative amount is required that the necessary filtration can be easily accomplished.

If there is an insufficiency of hydrostatic pressure precluding the application of the new filter with which experiments are being made at the Armory, I believe that no serious difficulty will be encountered from excessive mud if the method used by me last spring is adopted. As the results were satisfactory, I think it is well to mention the manner of extracting the bulk of mud. The method was extremely simple. I had wooden frames made of inch-square stuff, which, finished, were 30 inches square, to the number of about two dozen. On a third of these frames I tacked coarse horse blanketing, and on the remaining number I nailed equally common domestic cloth and canton flannel, and taking half of each kind placed them one upon the other, the coarser ones above, and turned the supply stream of water immediately upon the uppermost one. While the process did not clear the water by any means, it answered well; but at the same time it is highly desirable to have clearer water. The hatchery used last spring has only about 7 feet of available fall, and unless the automatic filter is required (which for any work done there next year I would not consider necessary) there is no apparent need of building any other hatchery. I am confident that it fills all immediate requirements, and that the board of agriculture would cheerfully enter into any arrangement with the United States Fish Commission to further its purposes there. Of course, a larger establishment might be required after better fishing and greater experience in collecting ripe fishes have been secured.

At Weldon the McDonald automatic jars were used in hatching the eggs, and, as stated in my report, to secure good results it is only nec-

essary to cut down the water, reducing the supply to each jar to about one quart each period of three minutes.

In doing work at Weldon, the difficulties attending the development of the eggs being removed, there remain two important points which should be carefully borne in mind, the one being the actual collection of the ripe fishes, and the other, the successful collecting and retaining of the fry. Of course, in using the word "collecting" a second time in the sentence above, it is readily understood that I have reference to the transfer of the embryo fishes from the jars to collectors in the form of aquaria. To collect the ripe fishes requires diligent labor on the part of the party in charge, which I could make very clear in a more lengthy communication.

If the United States Fish Commission should institute measures for conducting work at Weldon next year, I am confident, after mature reflection, that it would be wise to offer a premium to the fishermen for ripe fishes to the amount of \$2 each on delivery. I have good reasons for saying this. In ordinary seasons not more than fifty ripe fish could be expected, and these could be delivered only at expense to the fishermen, owing to the character of the Weldon fishing, where paddling through swift currents for miles is required on each drift.

As to collecting the embryo fishes the best effort will be required; for the available water at Weldon, even after the most successful filtration, will contain sediment which will quickly obstruct any screen of sufficient fineness to hold the fry. The fry are very small, and in muddy water are extremely difficult to retain. I must frankly confess that I do not know what method of retaining them is really best.

Ordinarily, indeed each year, April 15 and May 15 may be considered the correct opening and closing days of work there; and I consider the short time in which work may be done worthy of special consideration, if it is contemplated to establish an extensive hatchery there and in time for next spring's work.

RALEIGH, N. C., *August 30, 1884.*

#### 10.—HOW TO DISTINGUISH THE SEX OF CARP.

By CHAS. W. SMILEY.

When the adult fish is nearing the spawning time the ripening of the ova produces a broadened appearance in the female, which is sufficient to enable most any one to distinguish the sex. It is necessary, however, to be able to distinguish them at a much earlier age, and this, although not generally understood, is declared by experienced fish-culturists to present but little difficulty. Dr. Hessel, superintendent of the United States Government ponds, scarcely ever fails to identify the sexes, although he declares his inability to describe in words the man-