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BIENNIAL REPORT

—OF THE—

FISH COMMISSIONER

—OF THE—

State of Colorado,

—FOR THE—

Term Ending December 31, 1884.

1884.

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DENVER, COLO. :
THE TIMES COMPANY, STATE PRINTERS.

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REPORT.

STATE OF COLORADO,
OFFICE OF FISH COMMISSIONER, }
DENVER, December 1, 1884.

To His Excellency

JAMES B. GRANT,

Governor of Colorado :

SIR:—I herewith submit to you my sixth report as State Fish Commissioner of Colorado.

The value of the fishery interests of the State has improved in a marked degree since the date of my last report. Many improvements, suggested at the time, have been made, and others are in progress. The grounds have been fenced and placed in much better order, and the nursery ponds, which were then in progress, have been built. On the whole the condition of affairs at the hatchery is quite satisfactory, and the State has been amply repaid for the limited outlay. The results secured will, when the cost is considered, compare very favorably with those of any State in the Union.

There are still a number of important things to be done, however, in the way of general improvements. Prominent among these is the enlargement of the facilities for hatching and the erection of a dwelling house for the resident Assistant Commissioner, also the erection of a stable. The necessity for the enlargement of the hatchery is imperative, as the demand for the young fish for the streams and ponds of the State is greater than can be supplied by the present troughs. The number of fish hatched can be easily doubled by a reasonable

expenditure. A dwelling house is needed; because the State interests at the hatchery have become so important that they require constant attention. The Assistant in charge should reside upon the grounds.

I have received a great many reports from different parts of the State about the trout placed in the streams in past years. The reports are generally of the most favorable character. Most of those placed three years ago are now of from ten to twelve inches in length. This year I have received fewer trout eggs than usual. Of one hundred and seventy thousand eggs received in one lot, fully ninety per cent were successfully hatched, and the fish have been distributed to the various streams. I also received a lot of three hundred thousand eggs from Iowa, but they were very badly handled in transportation, and the number hatched was below the usual average. The fault in this case lies with the railroad company.

I regret to say that the law to prevent the use of explosives in streams is positively a dead letter. I have called attention to this matter in every report, but it seems that nothing can be done. It is apparently impossible to enforce the fish law. Trout are caught out of season with impunity, and the more barbarous destruction by the use of explosives is freely practised. I have had many reports from different portions of the State about this open violation, but there have been few prosecutions and no convictions. People living along the line of the streams will not inform on the guilty ones for fear of becoming the victims of their revenge. I can suggest no way in which the law can be put actively into force.

The carp at the hatchery are doing well. I have distributed about fifteen hundred young carp this year, and have about two hundred of the young on hand. There are also in the ponds sixteen of the four-year-old carp, weighing from twelve to fourteen pounds each, and about twenty of the one year-old. The importance of this food fish is not fully understood in this State. I quote from a report made by Chas. W. Smiley some interesting facts concerning it:

"If the water is warm, the summer long, and there be plenty of food, either natural or artificial, the growth of the carp will be surprisingly rapid. There are well authenticated reports of its reaching three pounds in one year and six pounds in two years. If no artificial food is furnished, and there is also a scarcity of natural food, or if the climate be cold, the growth will be much less rapid. Indeed, when the water becomes quite cold it will partially bury itself in mud and lie in a dormant state through the entire winter and until spring fairly sets in. In the southern part of Texas it is probable that the carp will not be forced to hibernate at all except in case of an unusually severe winter. In the northern parts of Maine and Minnesota it may be expected to hibernate nearly half the year. As it cannot grow during its hibernation, it is easy to see why so much more rapid growth is obtained in Texas than in Vermont. There is little danger, however, of its freezing to death, for carp have survived in tubs of water over which a thick film of ice has accumulated.

"Carp usually spawn in cool latitudes the third year, in temperate latitudes the second year, and there are well authenticated instances of its having spawned in southern Texas at the age of one year. These cases, however, are where carp are supplied with an abundance of food, well cared for, and protected from their numerous enemies.

"The enemies of carp are legion, and in many cases exterminate the fish. Not only do all kinds of carnivorous fish prey upon its young, but nearly all kinds of fish will eat its eggs. Frogs, snakes, and turtles will eat both eggs and young in numerous quantities. A snake was recently killed at the carp ponds in Washington in which was found over twenty-five young carp and numerous undigested skeletons of the same fish. One medium size snake, if furnished the proper facilities, can be depended upon to eat forty carp per day, one thousand per month, or five thousand each summer. Divide your number of young carp by this figure and you can find out how many snakes it will require to exterminate your young. Various birds, such as kingfishers, bitterns, cranes, herons, and fish-hawks understand catching carp

much better than the average farmer. About the 17th of July last a marsh hen was shot at the Washington carp ponds whose stomach contained thirty-eight young carp, and a night heron whose stomach contained the heads of seventy-eight young carp. In many cases where the carp have been left to the mercies of these enemies they have succumbed. The only proper method is to furnish protection to the carp until they reach such an age as to be able to cope with these enemies. It is, therefore, best to separate the spawning carp from all other animals, and carefully protect the eggs of the young for as long a time as convenient.

"In regard to the food qualities of carp, it ranks somewhat above the ordinary native fish, such as buffalo, mullet, suckers, mud-fish, croakers, mill-roach, perch, sunfish, etc., but it is hardly equal to the high-priced delicate class of fish which includes the bass, trout and shad. And yet many persons who are cultivating carp declare them equal to any fish they ever tasted. If carp are grown in muddy or polluted water their flesh, like that of any other animal, will be impregnated thereby. But the carp may be removed to pure water for a week, during which the system will be purified, and at the end of which even these will be good eating. Some have alleged that salting such over night will greatly improve the flavor. During and immediately after the spawning season, adult carp, like all other fish, become soft and unfit for eat. Some persons have ignorantly tasted of them at this season, and have therefrom very unjustly condemned them. Carp contain bones, of course, but in the adult the flesh flakes off from the bones very nicely. Even in the small ones the bones are no more objectionable than in the average fish."

One of the most gratifying results so far achieved is the supply of trout eggs we have obtained at the hatchery. Five hundred thousand of these eggs have been placed in the hatching troughs, and the hatching will begin immediately. This will save the State the expense and risk of sending east for eggs, and is ample proof of the success of the effort to give Colorado a hatchery. The books of the institution will show that

during the years 1883 and 1884, four hundred and seventy-two thousand young fish have been placed in the streams of Colorado in all portions of the State, and a hundred and twenty-one thousand, sold to owners of private ponds.

The following is the report of amounts collected and disbursed :

For 60,000 fish sold at \$4 00 per 1000, .	\$240.00
For 61,000 " " 3.50 "	213.50
For 700 lbs. fish sold at 60 per lb.	420.00
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Total,	\$873.50
Disbursed by Supt. of Hatchery	\$237.50
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To credit of State	\$636.00

There is at present the following property at the hatchery which belongs to the State:

Hatching house and furniture.
 Horse, wagon and harness.
 Eighteen cans for transporting live fish.
 Scraper, plow, whiffle-trees, shovels, picks.
 Fence, nets and gun.
 Ice house, water closet.
 Seven ponds for trout and six for carp.

We have an ample supply of young trout on hand for breeding purposes.

In closing, I would suggest that as the Fish Commissioner is the only State officer who has no office at the State House, that quarters be provided for him.

W. E. SISTY,
State Fish Commissioner.