

more cordial delight. The fishing season, of course, dissipated all fears, and the dim eye was soon exchanged for the glance of joy and the sparkle of pleasure, and the dry, sunken cheek of want assumed the plump appearance of health and plenty."

**REMARKS ON THE SCARCITY OF MALE AND GRILSE SALMON IN THE RIVERS OF ONTARIO, CANADA.**

**BY SAMUEL WILMOT.**

[Letter to Prof. S. F. Baird, U. S. Commissioner, Fish and Fisheries.]

**DOMINION OF CANADA—PISCICULTURAL ESTABLISHMENT, FOR THE ARTIFICIAL PROPAGATION OF SALMON, WHITE-FISH, TROUT, BASS, ETC.**

NEWCASTLE, *October 30, 1880.*

DEAR SIR: I desire to acknowledge with many thanks the receipt of some 50,000 California salmon eggs. They arrived here in first-class condition, and are now all hatched out. I also notice with much pleasure the arrival at New York, and shipment to Europe, of a very large lot of these ova, all of which were reported to be in very fine condition. This success in your efforts in connection with fish-culture, whilst it must be very gratifying to yourself, is likewise pleasing to me, and no doubt to all others engaged in the industry of artificial fish culture.

I have to record a most peculiar circumstance in relation to our Ontario salmon this autumn. I speak more particularly of those which have come into my stream here. The same falling off in numbers is felt here as has been the case in all the rivers and streams on the Atlantic coast. My reports received from the several officers in charge show a wonderful falling off. At the Saguenay, where formerly our requisite supply of some 300 parent salmon were easily obtained in a few weeks in June and July, only some 75 could be captured during the whole season; on the Restigouche, the most famous salmon river we have, only some 600,000 salmon ova could be gathered, whereas in former years no difficulty was experienced in getting one and a half to two millions. At the Miramichi and Halifax nurseries the result is not known; no reports have as yet come in, but I fear a similar falling off will take place there as well. In connection with the reduced numbers of salmon at this hatchery, strange to say, only three males have yet been found in the stream; all that have been captured or have entered the reception house are immensely large females. We have enough of these on hand at present to give us 250,000 eggs, but we have not, nor can we find in the whole stream, a single male fish to impregnate these eggs with, should we strip them. What we shall do puzzles me very much; add to this the fact that the season is about over for fish to enter the stream. Today I went down the creek with one of my men and caught some 18 magnificent female fish on the beds in the open stream in broad day-

light, but could not find one male. This has been the case since the first entrance of the salmon this fall. There are any amount of beds; in fact, on many of the gravel beds the bottom of the creek is literally ploughed up with the workings of these salmon. Another peculiarity is that not a single grilse has been seen (with the exception of one California grilse taken last night). In the fall of 1878 salmon of both sexes and grilse were very numerous, quite equal to the olden times some thirty-five or forty years ago. In 1879 they fell off very largely in numbers, and this season they are very much reduced from last year, with the peculiarity of all being large females, and no grilse. I mention these circumstances for your information, and they will, no doubt, appear to you as being very extraordinary. I can hardly venture to ask you for a cause, or even the theory of a cause, for this peculiarity with my fish. My only hopes are that when Professor Hind hears of it he, with his love in relation to salmon (particularly the biennial and summer-spawning ones), will, no doubt, incubate some theory why, and how, these phenomena have occurred.

I am also getting puzzled in mind about your California salmon; they are also turning a cold shoulder to me. The record, this season of 1880, is as follows: In April last my son caught a very beautifully formed one in the stream here whilst fishing for some suckers. He was about three pounds in weight; I have him yet. He has been kept in a small tank of spring water along with some trout, but we have never seen him eat anything yet. He is looking a little thin just now. One small trap-net was set out in the lake this season nearly opposite my stream, and during my absence the fishermen reported that about half a dozen small Californias were taken, from four to six pounds. About ten days ago a female California was caught in this creek (spent); length, 28 inches; she was terribly battered up; and last night I caught a small grilse; they were the most miserable specimens of fish I ever saw. Judging from what I have read of the "Quinnat" (having never seen a full sized adult), these two last mentioned specimens cannot belong to that class. I should say they must be more like the "*Salmo scouleri*," hooked-nosed salmon, or "*Salmo canis*," dog-salmon, as each of them has three sharp hooked-like teeth at the extreme end of both the upper and lower jaws. I have never seen fish with teeth so strangely shaped, nor so peculiarly placed in their mouths as these two fish have them.

Before closing this letter, might I ask as a favor, whether it would be possible for me to obtain from you a few carp. I have some ponds which were originally made for nursery ponds for young salmon, but finding that the temperature of the water rises so high in them in the summer, that the salmonoid family all die, I have thought of using them for carp. The water, to any extent, can be supplied from the main creek; the ponds cover some three acres or more, ranging from 2 to 4 feet deep. Should I succeed in getting a few carp, I would sink wells some 8 or 10 feet deep in them, in which the carp could sleep during the extreme cold in

winter. The water gets pretty warm in them in summer and a good deal of vegetable matter is produced in them, which I think would be well adapted for the growth of these fish. I have raised the gold fish or golden carp in one of them somewhat successfully. Being desirous of trying the German carp, I shall feel greatly indebted to you if I could get a few pairs through your kind instrumentality.

P. S.—If you would like a specimen of our Ontario salmon in the gravid state, I shall be greatly pleased to forward one or more to you. I can only promise you two females from the causes mentioned herein. Should you also like to have one of the *lacerated, emaciated* specimens of "Canadian Californias," I will send it also.

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### FISHERY NOTES FROM GLOUCESTER, MASSACHUSETTS.

BY S. J. MARTIN.

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

The net fishing is almost done for this winter. There are only three boats fishing with nets. Those that have nets are doing well, and those who have lost them in the storm will not get any more this winter, as the time is getting short for net fishing. The nets which the boats had in the first part of the winter are used up. Nets will not last more than three months when they are down all the time; if they were taken up every morning, as they are in Norway, they would last two winters.

We have no news from the four missing vessels—schooner Edith M. Pew, Captain Corliss; schooner Paul Revere, Captain Bently (these two vessels were haddocking); schooner Bessie W. Somes, Captain Wright, one of the halibut catchers; schooner Charles Carroll, one of the vessels that went to George's. These four vessels are given up as lost; they had 51 men. I hope that is all. The halibut catchers have done poorly. The last three vessels that came in did very well; they got 40,000 pounds each. The George's vessels bring in small fares. The fish so far on George's are very large—the largest that have been caught for eight years. There are no school fish yet. Herring are abundant—five loads are in the harbor, selling at 75 cents a hundred. All the Newfoundland vessels are home; they all brought full loads. The three fish\* mentioned were caught in a cod gill-net in Ipswich Bay. They were busters—three female fish with no spawn in them.

I have not much news to write. The fishing business looks well for Gloucester the coming year. Very few fish or mackerel in the market.

GLOUCESTER, MASS., February 27, 1882.

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\*Copy of extract (from newspaper) accompanying Captain Martin's letter.—"Three mammoth codfish were landed at Rockport last week by schooner Alabama, weighing respectively 97, 93, and 70 pounds."