FIFTY-FIFTH LEGISLATURE.

HOUSE. No. 28.

MEMORIAL.

To the Senate and House of Representatives
in Legislature assembled:

The natural facilities existing in the State of Maine for the cultivation and maintenance of fisheries and other aquatic industries, are unequalled by those of any other State in the Union. The open sea bordering our long extent of coast, our deep bays and estuaries, our numerous rivers and inland lakes determine the natural destiny of our people to draw in various ways a large part of their sustenance from the waters. The bays and the sea float our ships; the rivers drive our machinery; the lakes are our reservoirs; and, without detriment to either of these industries, lakes, rivers, bays and sea may teem with fish.

It is a well attested fact that in their original condition, all the rivers of Maine were frequented by salmon, shad and alewives in vast numbers. With the exception, perhaps, of a few rivers, the date of their disappearance or decadence is within the recollection of men now living.

It would be very interesting and instructive could we compare the present with the former yield of the fisheries from exact date, but unfortuately the statistics preserved are so meagre that we can make but a rough approximation to the truth. A single calculation of this sort we will condense from the report of the Commissioner of Fisheries for 1868: "From the town records of Orrington, it appears that between 1826 and 1835 the town sold its fisheries in the Penobscot river for an average of $351 62-100 yearly, but that thirty years later it had declined to $72 62-100 yearly. Knowing the yield of salmon in the Penobscot in 1867 to

have been about 7,320, and assuming the recent average to have been 5,000 yearly, by a single arithmetical calculation the commissioners reach the conclusion that the former yield of the whole Penobscot bay and river must have been equal to 100,000 salmon and 2,000,000 shad, which would at present prices be worth not far from *half a million dollars*. But let us deduct one half from the above estimate, and we have still the large number of 50,000 salmon and 1,000,000 shad, (or their equivalent in other fishes) worth, at present prices, say $250,000. No one at all familiar with the history of the fisheries of the Penobscot will think this too large. Their present gross yield is probably not over $50,000. The difference, $200,000, represents the annual loss by the diminution of fish in the Penobscot alone."

Abundant support for these conclusions is found in the known history of certain rivers of Ireland and Scotland, whose fisheries were private property and therefore managed on business principles. The river Corrib, in Ireland, yielded in 1853 only 1,603 salmon, but an enterprising owner coming into possession and introducing proper management, the yield increased in twelve years to 20,512. The Corrib drains 1,200 square miles of territory. The Penobscot drains 8,200 square miles, and by proportion should therefore yield nearly seven times as many salmon as the Corrib, which would be 140,000 annually.

The salmon fisheries of the river Tay, in Scotland, have for many years yielded to the riparian owners a large rental. During the seven years ending with 1864, the average was about $75,126 in United States currency, yearly. The basin of the Tay is 2,250 square miles. Comparing it with the Penobscot, we have the following proportion: Tay, 2,250 square miles, $75,126; Penobscot, 8,200 square miles, $273,745.08. There is no natural reason why the Penobscot should not yield as well as the Tay, and produce yearly an amount of fish equivalent to a rental of $273,000 yearly. Nor are the conditions of civilization at all inimical to the fisheries. The two instances just mentioned, of rivers in the thickly populated countries of Ireland and Scotland, sufficiently prove this point.

Other comparisons might be made, but the above are sufficient to illustrate the immense yield these fisheries might attain under successful cultivation and management.

But their importance is not yet fully stated. The prosperity of the coast fisheries for cod, halibut and some other species, are

directly influenced by them. This fact was forcibly presented in a letter of Prof. S. F. Baird, Assistant Secretary of the Smithsonian Institution, and U. S. Commissioner of Fish and Fisheries, published in a late report of our State Commissioners. As an authority in such matters, Professor Baird stands at the very head of all scientists. He says:

"It is therefore perfectly safe to assume that the improvement of the line fishing along the coast of Maine is closely connected with the increase in number of alewives, shad and salmon; and that, whatever measures are taken to facilitate the restoration of these last mentioned fish, to their pristine abundance, will act, in an equal ratio, upon the first mentioned interest. The most important of the steps in question are the proper protection of these spring fish, and the giving to them every facility needed for passing up the streams to their original spawning grounds; this is to be done of course by the construction of suitable fishways and ladders. The real question at issue in regard to the construction of these fishways is, therefore, after all, not whether salmon shall become more plentiful, so that the sportsmen can capture them, with the fly, or the man of means be able to procure a coveted delicacy in large quantities and at moderate expense. This is simply an incident; the more important consideration is, really, whether the alewife and shad shall be made as abundant as before, and whether the cod or other equally desirable sea fish shall be brought back to our coast, so that any one who may be so inclined, can readily capture several hundred weight in a day."

The fish that has thus far received the greatest share of attention is the salmon, and among the agencies employed to recruit its numbers and restore it to rivers whence it has been driven out, the foremost is that of artificial breeding.

In a state of nature fishes lay immense numbers of eggs in order that a very few may hatch and produce young. In order to keep up the supply of fish in a river, it is only necessary for each pair of fish, male and female, to produce young enough so that there may be another single pair to succeed them when they die. A salmon lays 9,000 eggs in a single season, and were she to lay no more in her life-time, it would be only necessary that two out of the whole 9,000 should survive, come to the adult age and take the place of herself and mate. The rest of the litter, 8,998, may all perish at some stage of their growth without diminishing the supply. It is capable of arithmetical demonstration, that if all the eggs were to hatch and all the young grow up, the progeny of a single pair of salmon would, in sixteen or twenty years, be numerous enough to cover the whole State of Maine 100 feet deep.

Now the purpose of the enormous fecundity with which nature has endowed the salmon and other fishes, is simply to allow for the immense destruction to which they are liable when young and defenceless. Left to nature, nine-tenths of all the eggs laid by a salmon perish, by the voracity of predatory fishes or other means, before they hatch, or very soon after. Only ten out of each hundred hatch. But artificial breeding takes all the eggs from a salmon, impregnates 95 per cent., guards them from their enemies, hatches 85 or 90 per cent., and brings 80 per cent. of them to the age of six weeks, when they are turned loose to feed and grow up. Thus this process produces eight times as many young salmon as the natural method.

But has this wonderful process of fish culture ever accomplished anything toward the restoration of depleted fisheries? Yes, it has! It was one of the main agencies employed in the rivers Tay and Corrib, mentioned above, and its employment there was followed by an increase of the fish. We can come nearer home and find a notable instance in the Connecticut river. In 1867, the States of Massachusetts and Connecticut began to hatch shad by the artificial method. Shad, like salmon, leave the rivers when very small, feed and grow up in the sea, and when grown return to lay their eggs in the same rivers where they spent their infancy. From such observations as had been made on the growth of shad, it was supposed that they grew up in three years, and 1870 was the year set for the return to the Connecticut of these artificially bred fish. The result surpassed the hopes of the most sanguine. The shad came into the river in far greater numbers than for many years. They glutted the New York market, and the poor fed on them and were glad; while the fishermen of the Connecticut actually complained of the Commissioners because they had made shad so plenty that they would not sell.

But why have we not seen some of these wonderful results in our own State? A very pertinent inquiry, but one for which there is a most satisfactory answer. When the commission on fisheries was first appointed in Maine, the art of fish culture was a new thing. Not a man in the State knew anything about it practically. The Commissioners had to spend the greater part of two seasons in preliminary investigations. After that they had to experiment, and try to find a source from which a supply of salmon eggs might be obtained. They could not get them. They repeatedly gave orders to parties operating in New Brunswick for salmon eggs,

but each time failed to get the order filled. They could not buy at the only establishment in Canada where eggs were for sale, because the price was too high ($40 in gold per thousand). It was not until, conjointly with the Commissioners of the General Government and of several States, they established the collection of salmon eggs at Bucksport, in 1872, that any adequate number of eggs could be obtained. Before that year not over 21,000 eggs of sea-going salmon had been used to stock all our rivers. This was a mere drop in the bucket compared with what has been done since. In the three seasons of 1873, 1874 and 1875, there were turned loose by the Commissioners, a total of over 1,200,000 young salmon, and there are now several hundred thousand eggs, in addition, developing at Bucksport. The very first of these were not put into the rivers until 1873, and cannot be expected to return from sea until 1877. The best English authority on the subject, the owner of the Corrib fishery, estimates the age of a seven pound salmon at four years. Our salmon, when they first return from sea, weigh 10 or 12 pounds, and it is not at all likely that they attain this weight in less than four years, and it may take them five. Consequently the food planted in 1873 will not be grown until 1877, and perhaps not till 1878. In one of those years they must come.

Meanwhile there are not lacking traces of the very few salmon planted before 1873; they have been seen in the Androscoggin and Medomak. Of the recent broods many have been seen in the rivers where they were deposited. At several points young salmon were so abundant last year that they were often caught by trout fishermen.

So much space has been devoted to the river fisheries, that we must touch briefly upon some other considerations deserving attention.

The introduction of valuable species of fresh water fishes has not been neglected. Over forty ponds and lakes have already been stocked with the valuable black bass, a very superior, large fish of the perch family, and those bodies of water earliest stocked having now begun to yield, the commissioners are in position to push the dissemination of the species rapidly. The art of capturing and multiplying the fresh water salmon, known as the "landlocked salmon," has during the past year, been brought to a higher degree of perfection than ever before, and the commissioners are prepared to take advantage of it.

The improvement of the fresh water fisheries is of importance in more ways than one. Not only will it aid in supplying the people with healthful food and recreation, but it will attract to our State great numbers of tourists from abroad. It is estimated by a gentleman who has given this matter some attention, that so large a sum as $100,000 was spent by tourists in Maine during the past year. A very large per centage of these people were sportsmen, drawn thither by our inland fisheries; and the better the fishing the more they will come. They are generally liberal in their expenditures, and leave behind them more dollars than they kill of fish. We question whether the money expended by the commission has not already been repaid to the people of the State by sportsmen who have been drawn thither either directly or indirectly by the work of the commission. Money carefully expended in this direction will assuredly not be lost.

In conclusion, we desire to testify to the zeal and fidelity with which the present commissioners have discharged the onerous duties imposed on them by law. The salary of $500 is no adequate compensation for the services performed, and should the present incumbents go out of office it would be difficult to find competent successors who would devote an equal amount of time and energy to the discharge of the duties of the office.

To interrupt the work of the commission at this time, when fully equipped and in position to carry it on at greater advantage than ever before, would, we sudmit, be unwise in the extreme. We trust, then, that your honorable body will see sufficient reason for continuing it.

Very respectfully submitted.

JOHN H. KIMBALL, *President.*

WM. S. BADGER, *Vice President.*

J. W. CLAPP, *Secretary.*

AUGUSTA, Jan. 21, 1876.

STATE OF MAINE.

In House of Representatives,
January 26, 1876.

Presented by Mr. HAYNES of Augusta, and on his motion, laid on the table and ordered printed.

ORAMANDAL SMITH, *Clerk.*