

# MAINE STATE LEGISLATURE

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# Public Documents of Maine:

BEING THE

ANNUAL REPORTS

OF THE VARIOUS

PUBLIC OFFICERS AND INSTITUTIONS

FOR THE YEAR

1876.

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VOLUME I.

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AUGUSTA:

SPRAGUE, OWEN & NASH, PRINTERS TO THE STATE.

1876.

NINTH REPORT

OF THE

COMMISSIONERS OF FISHERIES

OF THE

STATE OF MAINE,

FOR THE YEAR

1875.

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AUGUSTA:

SPRAGUE, OWEN & NASH, PRINTERS TO THE STATE.

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# REPORT.

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*To the Honorable the Governor and Executive Council :*

Your Commissioners of Fisheries have the honor to lay before you the report of their department for the year 1875 :

Never before, perhaps, within the memory of any citizen of our State, has our country been visited with so severe a business depression. While our politicians have been ever ready to ascribe it to the non-adoption of this or that policy, with as much wisdom as our other quacks to the non use of their patent medicines, Europe has felt the same pressure, and Germany and France and England each indulge their own favorite theories as to cause, and their respective remedies as to cure. It is not our business, had we time or inclination, to seek a diagnosis for patients outside of our own special "clientala." The late war called thousands from the field of labor to the field of battle. The excitement of the camp, whether of the tented field or the forest, is a blight upon all future patient, solitary, self-sustaining labor. Is it strange, that after the storm of battle had passed away so many preferred fighting wordy battles at the bar, where even when beaten they got their rations and their pay? Is it strange that so many were anxious to insure the lives of others, whose own was not worth a dime : or property, whose own was not worth a dinner? The late Shepard Cary, of Houlton, was wont to say, that no young man who had worked one winter in a lumber camp, would ever again contentedly work on a farm. Place twenty young men on farms, and the same number in mills or factories ; let a severe business "reaction," or "pressure," or "hard times," from whatever cause created, visit our country ; the twenty farmers have food and clothing, and warm, comfortable homes, while the others are outcasts and wanderers—or in the melancholy language of the day, "tramps." Legislators, deal fairly with your farmers ; let us have less special legislation for other interests, and more for the men without whom your fleets or your armies could not move. Have

you ever thought of the fate of cities, of our banks and traders, were our farmers to strike? Princes Shoddy, and Sawdust and Scoots would all starve were the plow and hoe to stop. Do more for agriculture and the problem of our emigrating population will be solved. If we have fewer colossal fortunes, we shall have a greater average of contented, happy homes. Fewer villages of contract-built cottages for "*operatives*," presided over by the shingle palaces of the owners. Legislation and lumber have sacrificed the rights of the masses and degraded labor. Every barrel of potatoes, every chicken, every egg of hen, has now to pay its tax for the support of some dozen greasy loafers or forestallers, before the consumer is allowed to receive it from the hands of the producer. Do something to abolish this crying evil! Do something that will allow the farmer, the producer, to meet and deal with the consumer, and receive the honest profits of his own toil. The producer and consumer are now both robbed! We have abolished slavery, let us *manumit* the poor farmer, and the poor consumer!

People are now turning their attention to the production of food; they are now beginning to realize the mighty wrong that was perpetrated when our rivers were obstructed by special privileges, granted to individuals and corporations, and the rights of the people sacrificed. This need not have been. There need be, there is no natural antagonism between fish and factories; between the full use of every pound of water-power and the perfect protection of every pound of fish. There was no excuse for exterminating in a single year, by one act of legislation, a greater amount of food value, that cost the State not one cent in its production, than all the lumber of Maine was worth! The fish of the Penobscot or the Kennebec was worth, *is* worth more than all the lumber on either of those rivers. And yet we might have had the whole, with the increased prosperity of both, and the greater aggregate wealth of the State. Let it ever be borne in mind by all our legislators and statesmen, that every natural food crop that is self-producing and self-sustaining, that interferes by neither competition or place with any cultivated crop, deserves all the fostering care and protection of the State. Our anadromous fishes, the salmon, the shad, the alewives and the smelt; the native fishes of our ponds and rivers; our wild poultry, the beautiful partridge; our moose—what have they ever cost us, and what has the State done for their protection? And yet here was, and is food of the

value of millions of dollars, self-producing, and in its production interfering with or trespassing upon no crop that is cultivated by civilized man.

The privation and want of the year have called the attention of the people to these facts. Never before, since the establishment of this department, has there been so wide an interest taken by all classes of our citizens in our work. The demands made upon us for surveys and plans for fishways by wealthy corporations and mill owners, the continued and never ceasing applications for black bass and land-locked salmon, and sea salmon, to stock rivers and ponds; the claims upon our time to reply to letters of inquiry for information and instruction as to fishways and fishes; to give advice, and modes and elevations for hatching houses; all these have occupied the whole of our time, and show no signs of diminishing, even now, at the close of the year, when we are inditing our report.

#### SALMON.

The present year has been as marked for the scarcity of salmon along the whole northern Atlantic coast, as was the previous year for its productiveness. These seasons of plenty and scarcity seem to alternate as do the seasons with our fruit crops. Probably in the earlier days of the State, when fish were more plenty, these alternations were not noted. The same fishes do not evidently return every year to spawn, at least so it would seem from the fact, that certain fishes that were marked at Bucksport two years since after being spawned, and then turned back into the Penobscot, did not again make their appearance until this year, when they were again caught in the weirs, and are at this time of writing, in the pound awaiting their turn to be relieved of their treasure of ova. It has hitherto been a very prevalent opinion among ichthyologists, that the salmon returned to the ocean soon after depositing their spawn, to recuperate. This is seemingly contradicted, by our having caught several of our marked fishes at Veazie, some twenty-five miles above Bucksport, the spring after they were turned loose at the latter place; as also from a conversation we had the pleasure of holding with Mr. Lewis T. Lazell of New York, on his return from a salmon fishing excursion into Canada. He informed us that the rivermen were unanimous in the statement, that the spawning fish stayed in the river the whole winter, and did not go down until the breaking up of the ice, on the spring flood.

It is a curious sight, worth travelling far to witness, standing on the shores of the pond where the salmon are confined until they are ripe for spawning. Some six hundred fine large salmon are here penned within a few acres of water. When the water is smooth, on a still, calm day, their motion may be seen by the elevation of a ridge of water shooting along with the rapid movement of the fish just beneath the surface. Again they may be seen throwing themselves into the air, the sun flashing upon their sides, and lighting every drop and spray flung from their shimmering bodies, into myriad gems. A salmon is an object of beauty at all times; but to realize their real intrinsic beauty, one should behold them at their spawning season. If the female fish has not then the bright silvery dress she wears when fresh run from the sea, she still retains the small beautiful head,—the symmetry of form; with her dark gray dress, she has taken on some bright crimson spots, to relieve its sombre hue. But the male is now as formidable a monster as the prize-fighter, with tucked up loin and spare hard flesh, in full training for battle; he has put on as gorgeous paint as an Indian chief going on the war-path. No enamel worker, no water color painter, can imitate the beautiful tints of the male salmon at this season; and the huge projecting hook on the under jaw, no one would recognize the fish as a yearly visitor, bred in indigenous to our waters.

These fishes in the pound rise readily to the fly, are very game, and make a long and vigorous fight. At the request of our esteemed friend, Supt. Atkins, we captured many for him, while experimenting as to the best form, attachment and durability of tag to be used. We resorted to the same old favorite colors for our fly, as on the Miramichi, viz: yellow body, with gray mallard or wood-duck wings. One evening at twilight, when so dark we could not see our fly when it touched the water, on a long cast, we used a white miller, and with it landed a fine thirteen-pound female salmon.

We this year distributed in the waters of Maine some 700,000 salmon fry. We received from the United States, through Mr. Livingston Stone, 100,000 eggs of the California salmon, (*Salmo quinnat*) from these were hatched about 30,000 healthy young fry. These eggs were a free gift to us from the U. S. Fishery Commissioner, we paying the freight on the same from the Pacific; the whole expenses of freight, transportation, hatching and planting, would be about \$125. As these eggs reach us very early in the



season, they are hatched and ready to plant in mid winter, when all our streams are bound up in ice; this compelled us to avail ourselves of the only accessible place where we could find water that would afford requisite shelter and food. Craig's pond, nine miles below Bucksport, presented all the requisites, saving, that while they could readily escape thence to the Penobscot when ready for migration to ocean, they could never surmount the many obstacles to return. Of these fishes, placed in Craig's pond the last two years, Mr. Wm. Hayford, of Hayford's Mills, an intelligent gentleman of Orland, informed us that he had seen a school of several hundred that he judged would weigh one or perhaps two pounds each.

We commenced planting our quota of Penobscot salmon from the Bucksport Works the 25th of May. Of these, 30,000 were put into the Seboois river at and near Howland; 15,000 in the Penobscot at the mouth of Madaceunk stream; 5,000 in Salmon stream four miles from Medway; 45,000 in the Mattawamkeag river at Bancroft; 45,000 at Danforth; 84,000 at Kingman. 200,000 salmon eggs were sent to the Sebec Hatching Works; these were somewhat damaged in transportation, and did not yield so large a per centage as usual of healthy fry. Of these, 45,000 were turned into Salmon stream, a tributary of the Piscataquis river; 35,000 into Ship Pond stream, the connecting stream of Ship pond and Sebec lake; 25,000 into Wilson stream, a tributary of Sebec lake; 5,000 into Bear brook; 5,000 into Salmon brook, a tributary of Sebec river; and 5,000 into Beaver Bank cove. 50,000 eggs were sent respectively to Machias and Dobsis, to be hatched and turned into the streams at each of those places, under charge of Wardens Hanscom and Ball. 50,000 salmon eggs were hatched at Dixfield, under charge of Mr. Commissioner Stanley, and were turned into the Androscoggin river at and near the village. 50,000 were hatched at Norway, under the care of Mr. Holmes; these were intended for the Presumpscot river. 10,000 were distributed in Bear brook, Harrison, through the kindness of Messrs. John Mead and R. D. Ritson, who will please accept our appreciation of the valued courtesy. The balance was turned into Crooked river at Byfield Bridge. 200,000 salmon eggs from Bucksport, were consigned by U. S. Commissioner Baird to the Messrs. Coffin of the Pembroke Iron Works, for the streams emptying into Lubec and connecting waters. These eggs were successfully hatched under the intelligent treatment of Mr. Superin-

tendent Whitman of the Pembroke Mills, and were distributed in the Penmaquan and tributaries by Mr. Whitman, and in Denny's river by Mr. Benjamin Lincoln of Dennyville, and Mr. Caleb Gilman of Meddybemps.

To the public spirit, enterprise, liberality, and intelligent zeal of the above gentlemen, are we indebted for a great change in public feeling in that part of the State. Men who formerly murdered salmon on the very aprons of the dams, and were ready to assault any warden who attempted to enforce the law, are now the foremost in affording voluntary aid and giving pledges to protect the fish, and evince the deepest interest in the work of re-stocking their rivers.

As usual, we are indebted to President Jewett, and the gentlemen of the E. & N. A. R. R., for much of the success, economy, and rapidity of work, in transporting our young fishes over that road. The leaven of the genial, generous, kindly nature of their president has extended down to every brakeman and employee on the road. We owe them all for innumerable acts of kindness, the gratitude for which we cherish, but cannot express in words.

#### FRESH WATER SALMON.

*Salmo Gloveri*, *Salmo Sebago*, Silver Trout, Silver Salmon, Schoodic Trout, Lake Shiner, Black Spotted Trout, Land-locked Salmon, Winnanish! Our beautiful *Salmo Gloveri* has had another name added to his list of aliases, Winnanish! One would as soon think of calling our glorious Anna Louise Cary a land-locked Siren, our magnificent Maine girls land-locked Mermaids, as our beautiful Silver Salmon, whether of Sebago, or Sebec, or St. Croix, land-locked Salmon. Hear what our distinguished friend Boardman the Naturalist has to say on the subject:

CALAIS, Me., Sept. 8, 1874.

EDITOR FOREST AND STREAM:—

I have compared the winninish of the Saguenay with the land-locked salmon of Maine, *salmo gloveri*, and think them the same. Some years ago, some of the Saguenay fish were sent to Cambridge. Prof. Agassiz, Mr. Putnam and myself compared them, and Agassiz thought them the same. I have no doubt that the *salmo gloveri* is quite common in most of the rivers about the Bay of Fundy, as well as along the State of Maine, and when taken have been called the young of the sea salmon. Unless you have both to compare, it is not easy to tell the difference. They have been examined as to all their measurements so scientifically, their markings, etc., which I have no doubt you have seen, that it is not hard to tell the *S. gloveri* from the true salmon. The number

of vertebræ differ—fifty-nine in the salmon to fifty-seven in *S. gloveri*, a double row of small teeth in the vomer of the young salmon, a single row in the smolt of the *gloveri*. Some of our English fishermen thought our fish the same as the European *S. trutta* and *S. cambricas*. Some specimens were sent to Dr. Gunther, F. R. S., of England, who pronounced them different, and nothing to do with the sea salmon. I do not understand how they ever got the name of land-locked salmon, as they always had access to the sea, and in my boy days *S. gloveri* was common to the tide waters, and more often taken as far down as there were fish weirs. They have been identified in several of our Maine rivers, also in Loch Lomond and Mespeck, N. B., in Nova Scotia, in St. John's Lake, Grand Lake, Salmon River, and Pockwock Lake, and I have no doubt it will be found in many of the rivers of clear water coming into the St. Lawrence, and when caught are called young salmon. I have seen specimens of *S. gloveri* caught in our rivers that weighed ten to twelve pounds. The large fish seldom take fly or bait, but keep in the deep water.

GEO. A. BOARDMAN.

In the multitude of counsellors there is wisdom. Let our friend Mr. B. F. Bowles, of the Springfield Republican, be heard on the same subject. He is an Oquassoc Club man. What they don't know is not worth knowing.

SPRINGFIELD, Mass., Sept. 7, 1875.

EDITOR FOREST AND STREAM:—

I have killed the Schoodic salmon at Grand Lake stream for three seasons. When I was not actually fishing or killing 'skeeters, I was pawing over and admiring these fish, which so delight the eye and the heart of the angler. I killed the win-o-nish—I like this orthography better than yours—at the head-waters of the Saguenay this season for the first time. I have never seen the two fish side by side; I have never articulated either, except with a knife and fork on my plate. My examination of the two fish, therefore, has been nothing more than a critical one as to their place of habitation, their manners and customs, their action, as relates to the sport of killing them, and a careful scrutiny of their external features. Now, if you deem these grounds sufficient to enable me to give an opinion, you have it for what it is worth. I believe them to be one and the same fish. On comparison side by side, very slight variations may be discovered, but I do not think there will be sufficient to construct a different variety.

I have sent to a friend at the head-waters of the Saguenay for specimens of the win-o-nish, to be sent to Prof. Baird, and confidently expect they will reach him soon, and then we shall know in full what we know now in part.

Yours,

B. F. BOWLES.

In connection with the opinions expressed by the above gentlemen, allow us here to repeat from our report of last year that of Prof. Agassiz, in response to a question put by us. "Thirty years since I supposed it to be a *demoralized salmon*, that some cause

had prevented from access to ocean; but since then I have changed my opinion, I now think it a distinct species. I have found it in Sweden." Some time afterwards, in a book entitled "Sporting Sketches, by author of Ten Years in Sweden, London, 1866," we found a reference to the same fish. That the reader may judge for himself we quote the passage in full.

"Much confusion still exists about the classification of the Wenern trout, or as they are erroneously called here, salmon, and without entering farther into the subject, I will only observe that, in my opinion we have two distinct species, and only two of the great lake trout in these waters—the common lake or great grey trout (*salmo ferox*), identical with the British lake trout, and another species, which we call here the 'silfver-lax,' or silver salmon, (from its bright silvery appearance), at present not identified in British waters. The real *salmo ferox* is taken in these waters up to thirty-two pounds; the 'silfver-lax,' (I give no Latin synonym, seeing that none of our ichthyologists can decide what species this really is), from seven to twenty pounds and even larger, but generally, especially in the South of the Wenern, under twelve pounds. The real lake trout are caught, when taken on a hook, invariably by spinning bait, a bleak or small roach; whereas the other species rise freely to the fly."

May it please His Excellency the Governor, and you, gentlemen of the Council, your Commissioners have presented to you the case of our famous fish. Call it now what you please. To use a parallel taken from the pages of honest Old Isaak Walton, where he quotes Dr. Boteler as saying of strawberries, "Doubtless God could have made a better berry, but doubtless God never did." So if we might be judges, God never did make a better fish than our so-called land-locked salmon of the Old Pine Tree State.

We have spoken of the superior flavor of this fish. We were fishing with a party of gentlemen last summer in the rapids below the dam at the foot of Sebago Lake. We had taken among us several of these fishes, when the question was asked by some one, if they were equal in flavor to the "*Salmo Salar*?" Some one of us indignantly denied that they were. As two of the gentlemen present were to have guests, the one at breakfast and the other to dine on the following day, it was agreed to submit the question to their decision. The result was an unanimous verdict in favor of the "*Salmo Sebago*," in which we cordially united. There is a degree of enthusiasm and interest indulged by anglers and pisci-

culturists in this fish at this time, that amounts to what theatrical critics delight to call a "*furor*."

We think it as well here to explain, for the information of the public, that the State of Maine, through her Commissioners of Fisheries, can have no traffic in her fishes. All that we have in our power to do for our sister States, or any of our citizens, is to grant permits to take the spawn of our fishes at the proper time, upon the conditions that they put back the parent fish alive after being used, and that they hatch and put back into the waters whence the parent fish were taken, twenty-five per cent. of the spawn taken from them. We rigidly obey this rule, even where we take ova for distribution in our own State. This keeps up the stock of the pond used, indeed, increases it largely, at the same time allays all local jealousies.

We last year purchased of Messrs. Crockett & Holmes of Norway, 14,000 ova of the Sebago Salmon. One of the fishes whose eggs we purchased weighed seventeen (17) pounds. We have this year erected a small hatching-house of logs, of about 15x20 feet. We have given Mr. Dillingham the use of this house, paying him a stipulated price per thousand for 100,000 eggs, he to be allowed to sell for his own benefit all over this amount. This is an experiment with us, much crippled by our want of means, but if it succeeds we shall then enlarge, and if we fail we shall meet with a loss so trifling as not to feel it deeply.

Our famous Mr. Atkins of Bucksport, is taking spawn of this fish at Grand Lake stream for the United States and Massachusetts and Connecticut. Mr. Evan Gerrish is taking spawn of the same fish at Sebec Lake. It is to be hoped from all these sources this fine fish may be distributed throughout our country. But allow us here to warn gentlemen that this is not a mere pond fish. It must have access for breeding, as well as health, to running, broken water. But above all, an abundant supply of feed such as smelts, blue-back trout, the whole tribe of cyprinidæ, chub, red-fir, minnie, etc., etc. Fine blooded stock cannot be bred by simply purchasing the animals and turning them into pastures. *There must be plenty of feed to produce fine stock.*

We distributed our small stock of these fishes this year as follows: Our twenty-five per cent. of the eggs taken at Sebec hatching works by Mr. Hiram Leonard, was distributed in Ship pond stream. 2,000 of the Sebago salmon fry were turned into Weld pond, Franklin county. The remainder into Rangely and

Mooselucmaguntic lakes. These eggs were hatched at Dixfield by Mr. Stanley. Of the remaining 7,000, a part were turned into Mattapacock Pond in Lincoln, by Mr. Newt of our Revenue Service, and the remainder consigned to the care of Mr. Cushman, at Lee, who kindly gave us the aid of his energy and public spirit.

To Postal Clerks Haynes and Buck, we are indebted for many acts of kindness. Mr. Newt of Lincoln, volunteered his services, and accompanied us to Bancroft, and assisted us in depositing 30,000 young salmon. Postal Clerks Haynes and Buck accompanied us to Kingman and afforded us timely and valuable aid. Mr. Shaw will please accept our thanks for much kindness.

We had at Alna a small lot of fish that were placed in the care of Mr. Pottle by Mr. Atkins, for experiment, six years since. These fishes had been kept in a very small artificial pond, whose water was at the very low temperature of 40°; this, added to a rather low diet, mostly of curds, seems not to have conduced much to their vigor or growth. We kept them thus long, to see if in this confined state they would develop spawn; this has never taken place but in the case of one fish that was put into a pond with many hundreds of young trout; this one developed spawn, but we are sorry to say that the trout population of the pond so rapidly diminished as she flourished and waxed fat, that the experiment was abandoned. We removed these fishes this year to Rangely; the average weight was only about three-fourths of a pound. Six of them were placed in a galvanized iron can, the rest in our ordinary tin cans. The six in the iron can began early to show signs of distress, and although at once removed, soon died. Undoubtedly from some cause, sulphur or sulphuric acid was developed and poisoned the fish.

We had heard so much of the migration of the fish about their spawning time up the Songo and Crooked rivers, to their favorite grounds where they make their *vids* and deposit their eggs, that we requested Mr. Dillingham to write us when the "hegira" took place. About the middle of September their arrival was announced to us. It was really a wonderful sight. As we stood on the greensward on the banks of the river at Mr. Dillingham's place, the deep pool at the junction of Crooked and Songo rivers seemed literally alive with these fishes; some of them, if we were to judge of their size as they threw themselves out of the water, or showed their back fins and broad flukes above the surface as they rolled out seemingly in play, indicated fish of upwards of

twenty pounds. We set up our rods and cast over them, but with faint hopes of success, as we have never known salmon to rise at a fly when making these demonstrations. For two days, under a leaden sky and cold chilly atmosphere, we whipped the waters in vain. In two or three instances, large fish followed our flies up to the shores so that we could see them, but they would not strike. On the third day our time was up, and duty called us away. We have no doubt but that could we have stayed until a change of weather, we should have had good sport, for we have experienced this same state of things on the best salmon streams before.

The great size and excellence of flavor of the *Salmo Gloveri* as found in the Sebago waters, and its great excellence as found in the St. Croix and Sebec waters, have led many of its enthusiastic friends to propose substituting it for introduction to our New England rivers in place of pushing further the experiment of restoring the sea salmon. It must ever be borne in mind that the sea salmon is an anadromous fish, and does not feed when it comes into our fresh water streams.

The salmon, the shad and the alewife, come into our rivers to throw off their excess of fat, and get ready to spawn. They *compete* with none of our native fishes for *food*. They *cost us nothing*. We repeat this from year to year, and intend to, until we compel our people to realize the crime they have committed in their past legislation. The *Salmo Gloveri* is a large feeder, as is also the trout, the white perch, the yellow perch, the pickerel, the chub, the togue. *The presence of the anadromous fishes in our rivers to breed, not only does not infringe upon the supply of the food of our native fishes, but largely increases it, and upon it depends the existence of our coast fisheries, as our cod, our haddock, and our pollock. There is, there can be no substitute in our rivers for our anadromous fishes!*

#### BLACK BASS.

Six years since several ponds in our State were stocked with this valuable fish. It was intended at the time that these should be depots of supply from whence the people should be able to stock such waters as they desired, and relieve the State of the expense. Last year being called upon for some of these fishes to introduce into waters in a remote part of our State, where the pickerel had destroyed all the trout, your Commissioners deemed

it advisable to transport these fishes themselves, rather than incur the risk of loss from inexperienced hands. We hired persons to catch the bass for us, at their own named price of twenty-five cents apiece, the result was *one* fish. We then raised the price to fifty cents, the result, nothing; and we were obliged to disappoint our good friends, Mr. Caleb Gilman of Meddybemps, and others, of stock for their ponds. This year we went to work ourselves, so soon as we got a leisure moment, and the result has been about one thousand bass taken from Phillips pond in Dedham, and Duck pond in Falmouth.

Induced by our success at the first part of the season, when we got to work, viz., in August, we carried all our fish to the most accessible points by rail, supposing at a later period when the weather was cooler, we would be able to get as many fish, and should then incur less risk in transportation to more remote points; this proved not to be the case, for when the weather was suitable for our long routes, we could not get all the fishes we required, and we were compelled to disappoint many of our good citizens whom we were anxious to oblige. As three other ponds in the State were stocked at the same time as Phillips and Duck ponds, viz., Newport pond in Newport, Cochnewagan pond in Monmouth, and Cobbosseecontee pond in Winthrop, we here state for the information of our fellow-citizens, our own experience as to the best mode of angling for black bass. These fish, from their habits, might well be called *rock fish*, for their favorite haunts are always about rocks, probably they there find much of their feed, caddis worms, &c. We do not deem the bass more destructive to the young of other fishes than the trout, much less so than the white perch or the yellow perch, for both the trout and the black bass feed largely on flies. There is a small, worthless fish that infests New England ponds, known under the various names of breme, pumpkin seed, roach, &c. It never attains to any size; is so full of bones and is so thin and flat, that as an edible luxury, it is about as tempting as a *paper of pins*. It is a very beautiful little fish, and a most persistent, inveterate and exasperating biter at fly, spoon, or aught else. This fish, the black bass feeds on largely. We know it; we have found them in his mouth, in his throat; we have had him seize them from off our line, as we have been reeling them in with uncomplimentary and personal remarks against the whole breme family. We hope this will commend our black bass to every good Christian Sportsman.



On calm, bright, hot sunny days in August, when the heat was so great that the water was almost tepid, we could always get black bass by making for the rocky places with a good lively angle worm, nice tackle, with barely lead enough to sink our bait into the deep holes between and among the rocks. When there is a ripple on the water, or when there is wind enough to throw a little wave towards the shore, or even when there is quite a swash, then anchor your boat some few yards out from the rocks, and with a scarlet fly for a stretcher,—and the droppers, the one, red body and gray wing, and the other, yellow body and gray wing,—cast towards the shore, and you will have good sport and take some big fish. They are frequently taken by persons fishing for pickerel. They will strike at a spoon; they will more readily seize a troll baited with a good large angle worm. In trolling, the best ground is the water on the outer edge of the lilly pads.

For stocking ponds infested by pickerel, we know of no fish equal to the black bass. It breeds more rapidly than any other fish, from its habit of watching its nest until its eggs are hatched, and then for a week or two until its young settle down to their feeding grounds. Their nests are simply little basins scooped out from some clean sandy bottom. The young grow with wonderful rapidity. We have seen spring hatched fish in August that we should judge would measure three inches in length. Their flesh when cooked has the same intense white color as that of the halibut, is very juicy and sweet in flavor. It is a very hard fighter when hooked, and from its habit of jumping out of the water when it feels the hook, our farmer boys and novices with the rod, are apt to loose most of their fish, unless so careless in their style of angling that the hook is gorged.

The following ponds have been stocked from Phillips' pond in Dedham, viz: Himes' pond in Brewer, Eddington pond in Eddington, Stewart's pond in Corinna, Pushaw pond in Glenburn, Madigan pond in Houlton, Long pond in Lincoln, China pond in China, Snow pond in Belgrade, East pond in West Waterville, Wilton pond in Wilton, Long pond in Belgrade. From Duck pond in Falmouth, we have stocked Goose pond in Hartland, Lovewell's pond in Fryeburg, Trip pond in Poland, Bryant's pond in Woodstock, Sabattus pond in Wales, Taylor's pond in Auburn, Crotched pond in Bridgton, and the Reservoir pond in Augusta. We have doubtless made some omissions from the above list, as the work was hard and incessant, and the fish had not only to be

caught, but afterwards came the care and anxiety of transportation. The weather was hot, and frequent change of water and use of air-pump was required to keep our charges alive.

William Donald, Esq., of Houlton, kindly took charge of some black bass for Hon. James C. Madigan, which he delivered without the loss of a fish. The weather was intensely hot. It is an achievement that a veteran pisciculturist might well be proud of. Postal Clerk Buck took charge of a can of black bass, and transported them to Dover, and planted them in suitable waters entirely at his own expense. Mr. Charles Haynes accompanied us on several excursions, and much lightened our care and labor. Capt. Charles Sandford and Loomis Taylor, Esq., have always been active, practical and firm supporters of the objects of our department. They this year afforded us material aid by receiving our black bass at Bangor on our return from Phillips' pond, and themselves personally transporting them to Pushaw pond at Glenburn, thus enabling us to catch and transplant our fish on the same day.

#### BLUE-BACK TROUT—(*Salmo Oquassa*.)

We gave a slight sketch of this charming little fish of the Rangely waters, in our report of last year. It is an excellent table fish, most persons deem it equal in flavor to the brook trout. We think it important that this fish be introduced into all ponds that are stocked with either trout or fresh water salmon. Its fecundity is remarkable. It is never seen but once a year, when it comes up from the depths of the pond where it lives, to spawn in some sandy, pebbly-bottomed brook.

Many of our Maine lakes also breed a valuable species of smelt of very delicate flavor, that will average a half pound each in weight. These are found in Belgrade, Sebago, and several other ponds in the State, we are informed. It is a prevalent opinion with the inhabitants living in vicinity of these ponds, that there are two distinct varieties of smelts in each, the large variety, and a smaller one somewhat resembling the Anchovy; that they ascend the brooks to spawn at different periods, and in distinct bodies. We recommend these fishes to the attention of pisciculturists for introduction to ponds, not only as affording an abundant supply of food for other fishes on account of their remarkable fecundity, but also on account of their valuable qualities as an acquisition to the table.

In our own State we have this year introduced the blue-back trout into the following waters, viz: Weld pond, 2,000; Wilton pond, 1,500; Songo lock, 500; Bear brook, (Long pond, Harrison) 1,000; Whitney pond, Canton, 1,000.

#### FISHWAYS.

Early in the season a petition signed by citizens of Cherryfield, distinguished for their intelligence, public spirit and wealth, the prominent mill owners in the van, was received, asking that surveys might be made and fishways be constructed over the dams on the Narraguagus river. The initiatory legal steps were taken, notices served, hearings held, surveys made. The unusual press of business, the lateness of the season at which we were able to make the surveys, the necessary delay in deciding upon and making the plans, all combined, brought it so late in the year that it would have been unjust to the parties to have ordered fishways at so short a notice. We shall serve the orders to build these five fishways, this winter, upon the respective parties, giving them a broad margin as to time, extending to the autumn of 1876, for construction.

Three very ingenious fishways have been constructed by Dr. Everleth of Waldoboro', on the Medomac. There is an arrangement by which a stated amount of water is always admitted, without regard to the height of water in the stream. We regret that we have no drawings by which we can demonstrate the importance of this improvement, and how admirably it has been attained, and by what simple means. Dr. Everleth will please accept our thanks for the important assistance he has afforded, not only in achieving the results in these fishways, but in the great aid he has rendered us in the cause of Pisciculture.

Two new fishways are required at Warren. The old ones are now almost entirely worn out, and will hardly admit of sufficient repairs to make them serviceable the coming spring. Such improvements have taken place since these were constructed, that new plans and drawings will be required, and a new site for each is proposed. We hope to reach this work early in the spring; possibly this winter. Mr. Wetherbee, the Warden at Warren, is so efficient and energetic, and has rendered us and our department so much service that we are anxious to give him all the aid in our power.

The first fishway on the Presumpscot was built by the Cumberland Mills, and finished this last spring. The plan of the fishway was by Mr. Charles G. Atkins, after a design by Robert G. Pike, Esq., of Middletown, Conn. Of its success, one may judge from the following extract from a letter of our genial friend, Mr. Hammond: "I had supposed yqur fishways were intended for fishes in the upper walks of life, such as salmon, trout, &c., &c.; but I find our new fishway is used by the mudsills, the suckers, the chubs, the pouts, even the lampreys. What is to be done about it?" Our reply was, that the 15th Amendment admitted all!

Our esteemed friend, Hon. George Warren, who is something of what Harriet Martineau defined Daniel Webster, viz., "a steam engine in breeches," has given us an admirably built fishway at Saccarappa. Two have been constructed at that village; an excellent one by the "Westbrook Manufacturing Co." A fishway after design and plan by Mr. Atkins, has been promptly built over the dam at their works, by the Oriental Powder Mills, at Windham. Four others on the Presumpscot will be completed by the month of May, by Mr. Lindsey and Messrs. Holland & Law. Messrs. Dennison & Brown are building a factory at Little Falls. These gentlemen have assured us that the fishway ordered for their place shall be completed by next spring. The people of Hampden are applicants for several fishways on the Sawadabscook stream. The project is entirely feasible, as this was once a favorite resort of salmon, shad and alewives. We think a large and valuable return of alewives might be realized. Unfortunately, there are paper mills on the stream, and the chloride of lime and other chemicals poisonous to fish, are emptied into the stream; and unless some law is passed restraining the emptying of poisonous matter into rivers by manufactrners, all efforts of the State to restore the anadromous fishes to our rivers may be rendered null and void. We are already in receipt of a petition asking that a law may be passed to restrain a proposed tannery at Houlton from poisoning the fish of the Meduxnekeag, by emptying their waste, &c., into the river. All our factories should be restrained from either poisoning the waters to fish, or obstructing streams to their free passage. Every charter for a dam should carry with it a peremptory obligation for a fishway, a failure to comply with which should void the charter and impose a heavy pecuniary penalty.

Three fishways have been constructed at Surry, after plans and designs by Mr. Atkins. Surry has awakened to a very lively

interest in fish culture, and among the red-letter days of our year we number our very pleasant visit to Surry in ordering her fish-ways. At request of the gentlemen connected with the Pembroke Iron Works, we visited that beautiful village, with engineer Atkins, and made surveys for several fish-ways on the Penmaquan river, which will be constructed during the coming year. Fish-ways are petitioned for from different parts of the State faster than your Commissioners can find time to attend to them, in connection with the pressure of the large amount of other work, that the enthusiasm of the people in the restoration of fish to our ponds and streams, has precipitated upon them. A fish-way will be built over the dam at Treat's Falls in Bangor the coming spring, so soon as we are able to decide upon the site and plan. Two fish-ways will be required, one at Milo and one at Sebec, the coming year. These will be required not only for the salmon, but will much improve the trout and land-locked salmon fishing of those villages, and as an investment to draw visiting sportsmen to their hotels and boarding houses will pay for themselves many times over.

We have delayed speaking of the desired fish-way over the dam on the Kennebec, at the Sprague Manf'g Co.'s mills, until the last. It is a subject that we approach with the greatest reluctance. We give a simple statement: At the expiration of the statute by limitation exempting the owners of the Augusta dam from the execution of the law enforcing fish-ways, the inhabitants of the towns on the Kennebec, both above and below Augusta, promptly solicited the Fishery Commissioners for an immediate enforcement of the law. A notice was served upon the owners and occupants of the dam at Augusta, of a hearing, and a hearing was duly held. When the survey was made by Mr. E. A. Brackett, the engineer, whose patented fish-way it was proposed to use, the Hon. James W. North, mayor of Augusta, and Col. De Witt, the representative of the Spragues, were present. The intended fish-way, its location, place of entrance into the canal, all was talked over and met with no dissent. So soon as the plans could be got ready, they were served by an officer, with an order requiring the fish-way to be built according to plan and specification, by the first day of September, 1874, upon Col. DeWitt, as agent of the mill owners. On the 28th day of October, 1874, the fish-way not being constructed, and no apparent design of complying with the order of your Commissioners, the matter was placed in the hands of Wm. P. White-

house, Esq., County Attorney, and the mill owners were indicted by the Grand Jury. The response to this indictment was, that the property belonged to Zachariah Chaffee, of Providence, R. I. At our various meetings and intercourse with the persons representing this property, the tenor of the conversation would admit of no construction or inference other than that the property belonged to the Spragues. No word was ever breathed that would warrant the supposition that a transfer of it had been made between the service of our notice of a hearing and the service of our order to build. The property had been transferred to Zachariah Chaffee. Although business was still transacted, and goods and merchandise received under the old name of Sprague Manf'g Co., we thought it not worth while to contest the validity of the transfer, but commenced "*de novo*" against Chaffee, and served a notice of a hearing at the Augusta House, both upon Zachariah Chaffee at his office in Providence, R. I., and upon Col. De Witt the agent of the mills at Augusta. No one appeared at the hearing, where they would have been consulted and heard as to site, plan, time, &c. We then served upon Col. De Witt an order to build the Brackett fish-way, according to plan and specification annexed, on or before the 1st day of September, 1875.

In proof of the friendly feeling that has governed your Commissioners and their desire to avoid the possibility of any litigation, we annex the following correspondence :

OFFICE OF THE A. & W. SPRAGUE MANUF'G CO.,

AUGUSTA, Me., August 5, 1875.

E. M. STILWELL, Esq., Commissioner of Fisheries, Bangor, Me.

DEAR SIR:—Judge Libbey of this city informs me that at an interview with you in Bangor sometime since, he inferred that you might be willing to modify the plans of the fish-way required by you at Augusta, so as to materially simplify its construction. If this be the case, I would be pleased to hear from you on the subject.

Yours respectfully,

H. A. DeWITT, Agent.

STATE OF MAINE, DEPARTMENT OF FISHERIES.

BANGOR, August 6, 1875.

MY DEAR MR. DeWITT:

In reply to your esteemed favor of the 5th inst., I will make such changes or modifications in the plan of fish-way ordered as our Engineer, Mr. Atkins, will permit, up to the point where it will not be incompatible with its utility as a fish-way. We will allow him to make such changes in plan and location as

you may desire, up to that point, and as you and he as Engineers can agree upon. You are to be at the expense of his services, and are to give such a bond to Mr. Whitehouse, the County Attorney, as he may require, that the changes in plan, &c., shall not vitiate the legal proceedings we have taken, but that you shall go on and execute and build according to any plan you and Mr. Atkins shall agree upon, according to the terms and within the time specified in the present order to build the Brackett fish-way that has been served upon you.

Yours truly,

E. M. STILWELL.

(Copy)

H. A. DeWitt, Esq.

Let it here be noted, that they had utterly refused all opportunity offered to consult their wishes as to sites or plans, by denying us the courtesy of their presence at our hearings. No response has ever been made to our letter of reply. No attention has been paid to the order to build, and the wishes of the people of the State have been met only by evasions and quibbles. Zachariah Chaffee the putative owner of the property is now under indictment by the Grand Jury of Kennebec county.

In the estimation of every citizen of Maine, there are certain moral obligations attached to all property, which are deemed inalienable and sacred to our mother State. Are these to be repudiated, when in the generosity of our hearts the property has been made a free gift to dwellers in a sister State? The continued absence of the respondents in both of the above indictments, has thus far prevented a successful prosecution of their cases, and the dam at Augusta still remains without any passage for fish.

#### PROPOSED LEGISLATION.

A law similar to one at present in force on the Penobscot river below Medway, is required for the St. Croix Grand Lake stream, with this amendment, viz: that the officer or Warden shall be appointed by the Governor and Council. If the purity of our Bench requires that no judge shall be allowed to sit and try a cause where even the most remote pecuniary interest is entertained, how utterly absurd is it that the County Attorneys should be allowed to appoint officers and try causes where the defendants are notoriously their best clients! Elective County Attorneys are as subversive of justice as an Elective Judiciary. We require the services of a good, efficient and well paid officer on the St. Croix river. He should receive a per diem allowance and travelling ex-

penses when on duty, and one-half of all penalties. The amount of capital employed on the St. Croix is so great that it is very difficult to find a workingman who can afford to faithfully execute the law, for with him employment and bread are synonymous. We cut the following slip from a *Calais Times* of recent date :

“In the *Times* of the 16th inst., you state that the Government had a dredging machiae at Camden, and say that they should send it to the St. Croix, where it is needed more. There is no doubt that a dredging machine is much needed on the St. Croix, but it would be of little use to get it here while the mill owners put all their sawdust and mill rubbish into the river every day. Moreover, no citizen of Calais or Baring will raise his voice to stop this deliberate blockade of the river, which is now filling up so rapidly that in a few years vessels will be unable to get to the wharves.

The authorities on the New Brunswick side of the river for several years tried, and succeeded in a great measure in stopping every kind of rubbish going into the river, except sawdust; but on our side it was dumped indiscriminately. The Bluenoses, despairing of securing combined action, have now ceased to prosecute violators of the law in this respect; and if you wish to see the result, it would be profitable to take a trip to Milltown and cast your eye on the Union Mills boom. Having done so, instead of wishing for a dredging machine, you would try your persuasive powers on our mill owners, and urge them to cease filling the river. If you succeed, I think the Milltowners on the other side will at once apply their part of the remedy. It would be a shame to ask the Government to send a dredge here under the circumstances.

CALAIS.”

The following letter, addressed to our friend William H. Boardman, Esq., of Calais, was written last spring. All the statements then made are strictly applicable now. No improvement in the execution of the law has taken place. We earnestly suggest that this proposed law be passed. It would be well that the officer appointed should unite the duties of Fish Warden with the other requirements of his office :

BANGOR, June —, 1875.

DEAR MR. BOARDMAN:—

We have received an earnest request from the Inspector of Fisheries for New Brunswick and Nova Scotia, that the authorities of Maine should cooperate with those of New Brunswick in enforcing the law forbidding the throwing of edgings, waste, &c., &c., into the St. Croix river. Had we not the incentive of good faith in preserving those kindly relations that exist between Maine and New Brunswick, it seems to us that common honesty dictates that we should impartially preserve the rights of the owners of timber lands on the St. Croix head waters; the rights of our merchants and mercantile marine; the rights of our citizens in the property of the fish propagated and grown in St. Croix waters, against the unwarranted encroachments of mill owners. We had occasion in our last report to call attention to our own personal inspection of the



obstruction of the river at Princeton, by shingle waste thrown into the river by the manufacturers of shingles. At Baring, Milltown, &c., &c., we saw exhibitions of equally selfish disregard of this law by the lumber manufacturers.

The Report of Lieutenant Thom, an extract from which we copied into our Report of last year, shows not only how serious has become the result of this criminal disobedience to the law in obstructing the navigation of the St. Croix, but how useless will it be for the Government to extend aid unless some security is obtained for future obedience to the law. Are not the profits of the mill owners equal to those of other occupations, that they should require immunity from those laws that are equally binding upon all? By what right do they increase the expense of driving your or my logs, in order that they may get rid of the cost of burning or carting away their edgings or waste! We will not argue this matter with so clear-headed and intelligent a gentleman as yourself.

We have taken the liberty of addressing this letter to you, sir, supposing you to represent the great class of mill owners on the St. Croix. This is not a matter of personal kindness or friendship with this or that mill owner. We all equally dislike to enforce a law against a neighbor with whom our personal relations are kindly; but this has grown into a great public wrong, to relieve which the Government has been called upon to extend aid. Must you and I, and all our citizens, be compelled by increased taxation to pay the wages of our Government officers, while employed as scavengers for the mill owners of the St. Croix?

With much respect, truly yours,

E. M. STILWELL.

WM. H. BOARDMAN, ESQ., Calais.

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Chapter 346, entitled "An Act to amend chapter 581 of the Special Laws of 1868, entitled 'An Act to regulate the taking of trout in Moosehead and Brassau Lakes.'"

SECT. 2. No person shall take, catch or kill in any way, any kind of trout in the waters aforesaid, from the fifteenth day of October to the first day of March, in any year, under a penalty of five dollars for each fish so taken, caught or killed. (February 24th, 1873.)

This law is so ingeniously worded, that no one of our legislators dreamed when he voted in its favor that he was granting a monopoly of all the trout fishing of Maine to the guests of the Kineo House at Moosehead Lake, and that this privilege was to be paid for by the inhabitants of the surrounding country at the expense of their right to catch their own fish in their own lake, from the 15th day of October until the 1st of the following March, when the guests of the Kineo House were ready to come again.

Moosehead Lake abounds in togue and white-fish. It was formerly lawful to take these fish from the 1st of January until the 1st of the following October. Comparatively few trout were taken through the ice. The white-fish was taken at no other time. The togue is taken mostly in winter. It is a coarse, worthless fish, very voracious, very destructive to trout and white-fish.

It has been a favorite pastime of the people of Maine for years, to camp out in winter on Moosehead Lake, when they have a holiday, and take a few fish. Winter is their leisure time. Have they not a sort of prescriptive right? They do not desire to fish before the 1st of January, as the days are too short and cold. There are excellent hotels at Greenville, at Katahdin Iron Works, and at other places. There are excellent trout ponds in the vicinity of all these hotels. Why may not their guests, too, fish after the 1st of October?

Gentlemen, it is all wrong; the law is partial and unjust. It is an outrage upon common sense and justice. Let all, let everybody catch trout until the 15th of October, or none! We recommend one general law for the whole State of Maine, viz: Close-time for all waters above tide water, from the 1st day of October until the 1st day of January. And furthermore, that in all cases where penalties imposed are not paid, one day imprisonment at hard labor for each dollar of penalty shall be substituted.

We do not believe there is one true angler that visits Moosehead Lake, who would advocate taking trout after the 1st of October. Every good fisherman knows that the law should be 1st of September, as even then the trout begin to be slimy and lose flavor. But we are content to let it remain the 1st of October. We want no interference of hotel keepers with our fishery laws. They keep hotels, not from philanthropy, not for public accommodation, but simply for profit, the same as shoemakers or storekeepers, or lawyers follow their own callings. If hotels cannot be profitably conducted at our watering places without destroying our lobsters and our trout at spawning time, then let them give up the business, the same as other people are obliged to do under like circumstances.

Most infractions of the law are committed by men not governed by the *animus* of wrong, but from actual ignorance of what the law really is. The most obvious remedy for this evil would seem to be a wider dissemination of copies of the statutes among all classes of the people. But this want is not so much the cause, as a purposely blind wording that seeks to hide the real purport of a law from our Legislature, and thus induce them to vote for a measure or a statute that every motive of integrity and duty would impel them to crush if understood.

In the future it is to be hoped that every law that comes before the Executive for signature, that expresses not clearly, beyond

all cavil or question its true intent and meaning, will meet with a prompt emphatic veto! The people have a right to demand simple, clearly expressed laws. If a statute is to be repealed, let it be distinctly stated what that statute is, "not chapter 0, section 0 of the laws of 1492, is hereby repealed." Every inhabitant has not a copy of the statutes from the earliest to the latest date. It is simply absurd to have laws written in such an involved web of words that a lawyer is required as interpreter. As useful would be a cooking stove that required the presence of an engineer to protect the household from destruction.

Laws should be so expressed that every year's record of our Legislature should carry with it the statutes with no necessity of access to a law library before the angler or hunter dare go forth with rod or gun. Any man, be he member of the lobby or the Legislature, who interests himself in the passage of a law that requires disguise, should be promptly consigned to a tread mill.

Your Commissioners have appended to their report a transcript of such of the laws relating to game and fish as they are most frequently consulted upon, both by our own citizens as well as those of other States who visit our forests and streams.

The annexed communication from Mr. Charles G. Atkins will be read, as is everything from the pen of that gentleman, with deep interest by naturalists and pisciculturists throughout the country. The amount of money expended by the two establishments at Bucksport and Grand Lake, and distributed among our people, is about equal to three times the whole appropriation of the State of Maine for our entire department.

Respectfully submitted.

E. M. STILWELL,  
HENRY O. STANLEY,

*Commissioners of Fisheries for State of Maine.*



# APPENDIX.

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BUCKSPORT, Me., December 9, 1875.

To E. M. STILWELL and HENRY O. STANLEY,

*Commissioners of Fisheries :*

GENTLEMEN :—In reply to your request for information as to the progress of work at the two establishments under my charge, namely at Bucksport and at Grand Lake stream, I take pleasure in reporting the following facts :

## I.—AT BUCKSPORT.

The season's work at Bucksport was begun by the purchase of a smaller number of salmon than usual, while the loss in transportation, owing to various causes, was somewhat larger than during the two preceding years, though by no means as large as in 1872. This loss was partly compensated by a closer working up of the breeding stock in the fall, and the expenditures being less than usual, the general result was fully up to our average during the last three years.

As in the previous season, I was compelled to continue purchasing salmon until past the middle of July. This was owing to a general diminution in the catch, which must be the result of some natural causes of a wide spread character, since it prevailed not only in the Penobscot, but in all the other rivers in the State and the Canadian Dominion, so far as I am informed. I trust that by the season of 1877 we may begin to see the effect of artificial breeding in counteracting such adverse natural causes. The whole number bought was 481, of whom 471 were turned alive into the pond.

One of the curiosities of the season was a very apparent change in the range of the weights of the salmon. I have observed, during several seasons, that the salmon caught in the Penobscot,

when classified as to size, fall very naturally into two classes, the one including those weighing less than 16 lbs., the other those weighing more. In 1874, the great majority of those of the smaller class ranged from 11 to 14 lbs., there being a great many of 13 pounds. This year there was a notable decline in the size of the smaller class, the general range being from 9 to 11 lbs., and very few weighing 13 lbs. Among the larger salmon, if there was a similar change it was not noticeable. In general, it may be stated that salmon of 14 to 19 lbs. weight are of far rarer occurrence than those of 19 lbs. and upwards.

During the summer and fall, the number of salmon lost by death was 60. None escaped from the enclosure, for effectual measures had been taken to prevent. Instead of a net of twine, weighted with a chain, which had in previous seasons formed the outer side of the enclosure, a series of wooden racks had been built and placed in position so as to form an impenetrable barrier from the bottom to above the surface of the water, extending entirely across the pond, a distance of 640 feet. To prevent destruction by ice this must be taken out every winter and replaced in the spring; but as it will last a good many years, it will in the end be cheaper than the net, besides being more secure.

The operations in the fall, that is, the catching and manipulation of the salmon, I placed in charge of Mr. Alfred Swazey, my own presence being required at Grand Lake stream. The success attending the capture of the fish was equal to that of 1874, and better than that of any other year. The average yield of eggs was not quite up to that of other years, being only about 8,400 per female fish. But we have the handsome total of about 2,000,000 of eggs, which are now in course of incubation, and promise to be equal to the best we have ever distributed. The proportions of the sexes among the breeding fish did not differ much from the average, there being  $62\frac{1}{2}$  per cent. females against  $65\frac{3}{4}$  per cent. in 1874, and a smaller percentage in previous years.

## 2.—GRAND LAKE STREAM.

The operations on the Schoodic lakes were conducted in the interest of the Fishery Commissions of the General Government, and of Massachusetts and Connecticut, for the purpose of collecting spawn of the Schoodic salmon, a variety of fresh water salmon described in your report of 1874.

The finest breeding ground of this variety, as well as the favorite water for angling for them is Grand Lake stream, the outlet of Grand Lake, the largest and purest of all the Schoodics. At this stream I therefore decided to fix my headquarters.

For several reasons operations with this fish must be conducted in a manner quite different from that applicable to the Penobscot salmon. In common with such other fresh water salmon as I have any acquaintance with, these fish feed through the summer season, and can be caught with baited hook close up to the time of laying their eggs. It would therefore be a dangerous experiment to confine large numbers of them in small enclosures long before the spawning time. I therefore decided to put off the actual capture and confinement of the breeding fish to the latest practical date.

There being no positive evidence that the fish enter Grand Lake stream from below, that is, from Big Lake, I relied solely upon catching those that should descend into it from Grand Lake. Though scattering individuals may be found in the stream at any season, there appear to be properly only two "runs" yearly from the lake, namely, the *Spring* run and the *Fall* run. The spring run commences in May and continues well into the summer, slackening, however, as the heat increases, and finally ceases altogether, all or nearly all the fish returning, as it appears, to the lake. In September the fall run begins, but it consists at first of but small detachments of fish compared with those that descend in October and November. Nothing was done towards capturing fish until October 4th, when a temporary net was placed across the stream above the dam to check the descent of the fish until the time should arrive when it would be safe to impound them. On the 10th of October this net was removed, and a more permanent one stretched across the stream below the dam, opposite the point where it was decided to construct the pounds. It was not, however, until October 25th that the pounds were constructed, so as to enclose fish. On the 28th they had begun to collect.

It being of great importance to preserve the lives of the breeding fish, those modes of fishing which endangered them were all discarded. Not only spears, but gill-nets, jigs and hooks of all sorts, were rejected. I relied solely upon "weirs" or pounds, constructed of nets of too small mesh to ensnarl the Schoodic salmon, and on small sweep-nets.

The most convenient point for constructing the pounds was found on the west side of the stream, several hundred feet below the dam at the outlet of the lake. A series of enclosures were formed here, of various shapes and dimensions, such as experience and invention dictated, and a leading net about 250 feet long was stretched from these obliquely across the stream to lead all descending fish into them.

The enclosures were no sooner in place, than we found (October 28th) that the fish were nightly attempting the descent of the stream in considerable numbers, and now, of course, they were getting entrapped in our enclosures. From this time forward, a close watch was kept upon their movements, and every night added to the number enclosed, which, however, could only be guessed at, as our principal enclosure, about 40 feet by 60, was too deep and had too dark a bottom to enable us to count or closely estimate them.

To avoid the necessity of handling over a great number of unripe fish, the work of taking spawn was delayed until Nov. 6th. At this time some smooth board pens had been built, in such fashion that fish trying to escape from the large enclosure would enter them and be entrapped, and thence we could dip them at our leisure. From this date until the 19th, the fish that entered the pens were daily handled and spawn taken from such as were ripe. During this time we caught, mainly in the manner last described, 1,537 Schoodic salmon, 699 males, 837 females, one of unknown sex.

On the 20th of November, it was found that the salmon in the large enclosure no longer showed the same eager desire as before to escape, and therefore fewer of them entered the small pens. Moreover, some of them had begun to spawn on the gravelly shores. A seine was resorted to, and several draughts, made between the 20th and 26th, brought in 1,089 more fish, of whom 734 were females, 354 males, and one unknown.

Thus the total number of fish taken was 2,626, and the proportion of the females to males as 59 to 41. I am doubtful whether this ratio can be depended upon. Mr. Bicknell, one of the men engaged in taking eggs at Grand Lake stream for H. L. Leonard, in 1874, says the proportion then was about 3 females to 5 males, and Mr. Leonard himself has expressed the opinion that the proportion of females was smaller than that. Their estimates are,



however, to be received with great caution, since their fish were not counted at all.

I had nearly every fish measured, and a large number weighed, but as I have not the tally by me, I cannot state definitely the range or average of size. The most frequently recorded length was 17 inches, and the average would probably exceed that a little. Fish of more than 20 inches in length were rare, and not one of this species reached two feet.

The spawning of these fish extends much later in the season than I had supposed. On the 8th of November, only about one-half the females handled were ripe. On the 15th, one-fourth of them were unripe, and as late as the 26th, there still remained a few that were not ready to yield their eggs.

The whole number of eggs obtained will reach pretty near a *million*. More than half of these are developing in a small hatching house at a spring half a mile from the spot where they were taken. The remainder are in the hatching house of the Dobsis Club, fifteen miles above Grand Lake stream, in charge of Mr. G. L. F. Ball, the foreman of the Club. I had made arrangements to place them all there, but the fish were so late in spawning that the lakes closed with ice and prevented transport (on the 19th of November), before half the eggs were taken. This would have been a calamity, but for a lot of hatching apparatus which I had provided against emergencies, arranged in so compact form that 40,000 eggs occupy but little more than a cubic foot of space. This consists of very shallow wire-cloth trays, placed in stacks of twenty-one (more or less) in a frame of wood and metal, light but stout, which confines them securely at the corners, but which can be readily opened so that the trays can be taken out separately and examined. A narrow but sufficient space for circulation of water, is left on each side of every tray, the several trays resting on each other only at the corners. When placed in the frame these stacks of trays can be set right into a gentle stream, and the eggs on them keep in perfect order for days together, and with care they can be conveyed by water long distances without re-packing, and without loss, if enclosed in a tight box and kept from drying up or freezing. When the emergency came it was simply necessary to make a pigmy hatching house, two little troughs, one 15 and the other 11 feet long, and set the frames into them. Fitted with this apparatus, the Bucksport hatching house, originally calculated for a capacity of  $4\frac{1}{2}$  millions of salmon eggs,

would have a capacity of 25 millions or more. This apparatus is not patented.

It may interest you to know that among the Schoodic salmon we caught one fine *Salmo salar* female. She gave us eight or ten thousand eggs, which were milted with the milt of the fresh water species. This is proof positive that salmon do ascend the St. Croix and Schoodic as far as Grand Lake stream. I was told of some very large fish being seen on the lower part of the stream, and I think it likely that quite a number of *Salmo salar* were there.

Very respectfully yours,

CHARLES G. ATKINS.

## SMELTS.

## 1874—CHAPTER 248.

*Sect. 58.* No smelts shall be taken or fished for in any other manner than by hook and line or dip-net, between the first day of April and the first day of October of each year, under a penalty of not more than fifty nor less than ten dollars for each offence.

*Sect. 59.* No net other than a dip-net, the meshes of which are smaller than one inch in the clear, shall be used in any waters frequented by migratory fishes, between the first day of April and the first day of October in any year, under a penalty of not more than twenty nor less than ten dollars for each offence.

*Sect. 2.* All acts and parts of acts inconsistent with this act are hereby repealed.

[Approved March 3, 1874.]

## CHAPTER 592.

An Act to extend the close-time of land-locked Salmon, Trout and Togue, in the St. Croix river and its tributaries.

*Sect. 1.* The close-time in which it is unlawful to catch, take or kill any land-locked salmon, togue or trout, in the St. Croix river and its tributaries, is hereby extended from the fifteenth day of September to the first day of March, during the five years beginning with the fifteenth day of September, eighteen hundred and seventy-four.

*Sect. 2.* The provisions of chapter forty of the revised statutes shall apply to all violations of this act.

[Approved February 28, 1874.]

## 1874—CHAPTER 247.

*Sect. 1.* No person shall catch, take or kill any land-locked salmon, togue or trout, in any waters of the State of Maine, by means of any grapnel, spear, trawl, weir, net or seine, or in any other way than by line and hook or fly.

*Sect. 2.* The penalties provided in chapter forty of the revised statutes for illegal fishing shall apply to all violations of this act.

[Approved March 3, 1874.]

## 1874—CHAPTER 550.

*Sect. 1.* The yearly close-time for the taking of trout in the tributaries of the Androscoggin river above the outlet of Umbagog

lake and Sturtevant pond, in No. 5, Range 1, shall be five months, commencing on the first day of October and ending on the first day of March, during which time no trout shall be taken or killed in any manner, under penalty and fine as prescribed in section thirty-eight, chapter forty of the revised statutes.

[Approved February 24, 1874.]

CLOSE-TIME FOR SALMON.

CHAPTER 40, REVISED STATUTES.

*Sect. 37.* There shall be a close-time for salmon from the first day of September of each year to the first day of April following, during which no salmon shall be taken or killed in any manner, under a penalty of not more than fifty nor less than ten dollars, and a further penalty of ten dollars for each salmon so taken or killed.

1873—CHAPTER 346.

An Act to amend Chapter 581 of the Special Laws of 1868, entitled "An Act to regulate the taking of trout in Moosehead and Brassau Lakes."

*Sect. 2.* No person shall take, catch or kill, in any way, any kind of trout in the waters aforesaid, from the fifteenth day of October to the first day of March, in any year, under a penalty of five dollars for each fish so taken, caught or killed.

[Approved February 24, 1873.]

1872—CHAPTER 40.

*Sect. 36.* No salmon, shad, alewives or other migratory fish shall be taken within five hundred yards of any fishway or within five hundred yards of any dam or mill-race, nor shall any structure or implement, except single hook and line be used for taking any fish within the above limits, between the first day of April and the first day of November, without the written permission of the wardens of the district in which it is situated, and approved by the commissioner of fisheries; nor shall hook and line be used within fifty yards of any fishway. The penalty for the violation of this section shall be a fine of not more than fifty nor less than ten dollars for each offence, and a further fine of ten dollars for each salmon, one dollar for each shad and twenty cents for each alewife so taken.

1872—CHAPTER 4.

*Sect. 38.* There shall be a yearly close-time of land-locked salmon, trout and togue, during the months of October, November

and December, during which none of the fish mentioned above shall be taken or killed in any manner, under a penalty of not more than thirty nor less than ten dollars, and a further fine of one dollar for each fish so taken or killed; but this section shall not apply to the taking of blue-back trout in Franklin and Oxford counties, nor to any person taking fish on his own premises for the purpose of cultivation.

[Approved January 29, 1872 ]

#### WEIRS.

##### CHAPTER 40, SECTION 40, REVISED STATUTES.

No weir, hedge, trap, trawl, or any net other than a dip net, shall be used for the capture of any fresh water fish, under a penalty of not more than fifty nor less than ten dollars, and a further penalty of one dollar for every fish so taken. And such structure or implement used in any fresh water above the flow of the tide, shall be deemed to be used in violation of this section, unless it shall be shown to be authorized by some special act or to have been used in a bonafide fishery for salmon, shad or alewives.

##### CHAPTER 239.—GAME LAWS.

An Act to amend chapter thirty of the Revised Statutes, relating to Game.

*Be it enacted by the Senate and House of Representatives in Legislature assembled, as follows :*

*Sect. 1.* No person shall kill or have in his possession, except alive, or expose for sale, any wood-duck, woodcock, or English snipe, commonly so called, between the first day of January and the fourth day of July following, or kill any quail, grouse or partridge between the first day of January and the first day of September following, or have the same in possession or expose the same for sale, except alive, between the first day of February and the first day of September following, under a penalty of not less than five nor more than ten dollars for each bird so killed or had in possession or exposed for sale.

*Sect. 2.* No person shall at any time or in any place within this State, with any trap, net, snare, device or contrivance, other than the usual method of sporting with firearms, take any wild duck of any variety, quail, partridge, grouse or woodcock, under a penalty of five dollars for each bird so taken.

*Sect. 3.* No person shall kill or have in his possession, except alive, any of the birds commonly known as larks, robins, swallows,

sparrows or orioles, between the first day of January and the first day of September following, under a penalty of five dollars for each bird so killed or had in possession. This section shall not apply to any person who shall kill on his own premises any robin during the period when summer fruits are ripening.

*Sect. 4.* No person shall at any time maliciously take or destroy the nest, eggs, or unfledged young of any wild bird of any kind, excepting crows, hawks and owls, or take any eggs or young from such nest, except for the purpose of preserving the same as a specimen, or of rearing said young alive, under a penalty of not less than one nor more than ten dollars for each nest, egg or young so taken or destroyed.

*Sect. 5.* All penalties imposed under the provisions of this act may be recovered, with costs of suit, by any person or persons, in his or their own name, before any municipal or police court, or trial justice, in the county where the offense is committed, or the defendant resides, or such penalties may be recovered by an action in the superior court of the county of Cumberland, or in the supreme court of this state, which actions shall be governed by the same rules as other actions in said courts, except that upon a recovery by the plaintiff or plaintiffs in such suit in said courts, full costs shall be allowed to such plaintiff or plaintiffs, without regard to the amount of such recovery; and any judge of the supreme court, superior court of Cumberland county, or of any police or municipal court, and any trial justice, is authorized, upon receiving sufficient security for costs on the part of the complainant, and sufficient proof by affidavit of the violation of any of the provisions of this act by any person being temporarily within his jurisdiction, but not residing therein, or by any person whose name and residence are unknown to the complainant, to issue his warrant and have such offender committed or held to bail to answer the charge against him. Any penalties when collected shall be paid by the court before which conviction shall be had, one half to the overseers of the poor for the use of the poor of the city or town in which conviction is had, and the remainder to the prosecutor. On the non-payment of the penalty, the defendant shall be committed to the common jail of the county for a period of not less than five days, and at the rate of one day for each dollar of the amount of the judgment, where the sum is over five dollars in amount; and it shall be the duty of any county attorney in this state, and he is hereby required to commence actions for the recovery of the penalties allowed and imposed in this act, upon receiving proper

information; and in all actions brought by such county attorney, one half of the penalty recovered and collected shall be paid to the person giving information on which the action is brought, and the other half to the overseers of the poor for the use of the poor of the city or town in which conviction is had; this clause, however, not to preclude any person from bringing suit to recover or enforce any of the penalties named in this act without the aid or intervention of any county attorney.

*Sect. 6.* This act shall not apply to any person who shall kill any bird or take any egg for the purpose of having the same set up as a specimen.

*Sect. 7.* Sections sixteen, seventeen and eighteen of chapter thirty of the revised statutes of eighteen hundred and seventy-one, and chapter ninety of the public laws of eighteen hundred and seventy-three, are hereby repealed.

[Approved March 3, 1874.]

#### MOOSE, DEER AND CARIBOU.

##### CHAPTER 103.

An Act to amend section nine of chapter thirty of the Revised Statutes, relating to Moose, Deer and Caribou.

*Be it enacted, &c.,* as follows:

*Sect. 1.* Section nine of chapter thirty of the revised statutes is hereby amended by striking out in the fourth line of said section the word "February," and inserting therein the word 'January;' also by striking out the word "so" in the seventh line, and all after the word "caribou" in the same line of said section, so that said section shall read as follows:

'*Sect. 9.* No person shall hunt or kill with dogs any moose, deer or caribou, on any lands in this state under a penalty of forty dollars for every such moose, deer or caribou so killed; and no person shall, between the first day of January and the first day of October, in any manner hunt or kill any moose, deer or caribou, under the same penalties as above provided. Any person may lawfully shoot or otherwise kill any dog found hunting moose, deer or caribou.'

*Sect. 2.* This act shall take effect when approved.

[Approved February 17, 1873.]

##### CHAPTER 12.

An Act for the protection of Moose.

*Be it enacted, &c.,* as follows:

*Sect. 1.* No person shall, before the first day of October, in the year of our Lord eighteen hundred and eighty, take, kill or destroy

any moose in this state. Any person violating the provisions of this section shall forfeit the sum of one hundred dollars for every moose so taken, killed or destroyed. Every person who in any way aids or assists in the commission of the aforesaid crime shall be liable to the same penalty as the principal.

*Sect. 2.* Any person who shall, before the first day of October, in the year of our Lord eighteen hundred and eighty, have in his possession, keep or sell any moose meat or moose hide, shall be liable to the penalty provided in section first, unless said meat or hide shall have been in his possession at the time this act takes effect.

*Sect. 3.* The penalties under this act may be recovered by indictment or action of debt, in any county where said offence may have been committed, or where such moose, moose meat or moose hide may be found, one-half for the benefit of the prosecutor, and the other half to the county in which said indictment or action may be commenced.

[Approved February 16, 1875.]

## INDIANS.

Page 270 REVISED STATUTES, 1857—CHAP. 30, SECT. 13.

“No Indian of the Penobscot or Passamaquoddy tribe shall be liable to the penalties hereof, while hunting moose and deer on his own account and for his own use, unaccompanied by any person herein forbidden.”

This section was originally enacted March 29, 1853, and is expressly repealed by laws of 1869, chapter 48, page 31.

“*Sect. 1.* Section 13 of chapter 30, of the Revised Statutes, is hereby repealed.”

The repeal is repeated in Revised Statutes, 1871, page 935, section 1.

MINK, SABLE, BEAVER, OTTER, &c.

### CHAPTER 30.

*Sect. 15.* No person shall in any way destroy, between the first day of June and the fifteenth day of October of each year, any mink, beaver, sable, otter, fisher or muskrat, under penalty of ten dollars for each animal so destroyed, to be recovered on complaint, one half thereof to the use of the county where the offence is committed and one half to the prosecutor.



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