

# 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

1874.

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VOLUME I.

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AUGUSTA:

SPRAGUE, OWEN & NASH, PRINTERS TO THE STATE.

1874.

SEVENTH REPORT

OF THE

COMMISSIONERS OF FISHERIES

OF THE

STATE OF MAINE,

FOR THE YEAR

1873.



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 have the honor to report, that the most marked and gratifying feature of the present year, has been the increased interest taken by the people at large in the efforts of the State and government to restore the former productiveness of our streams and lakes. Factories, with their poisonous and deadly refuse thrown into the streams; mills, with their impassable dams and obstructions, these are obstacles to be overcome, and yield under the friendly aid of the owners, to our fishways and other devices to help the fish on their way to their old spawning grounds, whenever their assistance has been sought.

## FISHWAYS.

A fishway has been constructed through the lower dam at Brunswick, and was duly reported to your Commissioners for inspection and acceptance in early autumn. One had already been built of stone in the most substantial manner, at the upper dam, by the prompt energy of the Cabot Manufacturing Company. Salmon having made their appearance for several seasons below the dam in the village of Brownville, on Pleasant river, the Brothers Nason volunteered a fishway. A survey was duly made and plan furnished by E. A. Brackett, Esq., patentee and inventor of a most valuable fishway, received with much favor by the public. The fishway was duly reported as complete and in working order the 1st of September. Fishways have been volunteered at Dover by Mr. Brown the mill owner, so soon as plans shall be furnished by your Commissioners.

A fishway is required through the North Twin dam, on the West Branch of the Penobscot. Large numbers of salmon collect there every spring, awaiting the opening of the gates to "sluice the logs through" of the great West Branch drive. Sometimes considerable numbers of salmon are taken; we have heard of one being killed with an axe. Occasionally they are disabled by the

running logs. The great difficulty is, that when the logs are all sluiced, the water falls away so rapidly as to leave the passage no longer accessible to the fish, owing to the height of the apron and the shallowness of the water. We think a fishway can be constructed to answer a good purpose at this stage of the water, on the eastern shore, and at a trifling expense. There is now a clear path for salmon as far as the North Twin dam, on the West Branch, and on the East Branch as far as the Grand Falls. The fishway at the Basin mills, Orono, by the friendly and liberal action of James Walker, Esq., has been much improved, and is now deemed accessible to shad and alewives. So soon as a satisfactory plan can be devised for the alteration of the fishway at Veazie, we shall have this once great highway of our Anadromous fishes again practicable for shad and alewives, as well as salmon. A fishway is called for at Gordon's Falls, at Sluegundy, and at Kingman, on the Mattawamkeag. A new and commodious fishway has been constructed through the dam on the St. Croix at Vanceboro', by the Messrs. Shaw, after a design by Brackett. Fishways are called for at Baring and at Forest City, as also at Princeton. These points will all be visited, decisions made and acted upon as early in the coming season as circumstances will permit. Surveys have been made and plans given for two fishways at Waldoboro', as also for three at Surry.

The people of Hampden have become deeply interested in a project to restore shad and alewives to Sowadabscook stream running through their town. One hundred and fifty alewives were transported alive to Hermon Pond and other localities connecting with the stream. The result was a fine run of young fry down to the Penobscot in the autumn. Applications for surveys and plans for fishways were made. The refuse from paper mills on the Soudabscook will prove fatal to any fish coming in contact with the poisoned current. But we are led to hope from the well known liberality of the parties interested, that some satisfactory adjustment of the difficulty will be made. We shall decide upon no fishways, until some plan for withholding the mill refuse at such periods as the fish shall be passing the fatal point in their migrations, shall be made. Owing to the cutting away of forests, &c., &c., the volume of water in the Sowadabscook will never again be such as when it was the resort of the salmon. But we think the plan to restore the shad and alewives feasible.

On the 22d of February, 1874, the act of the Legislature which has debarred the inhabitants on the Kennebec of their share in participation of the bounty of the United States and the State of Maine, in restoring the migratory fishes to her waters, expires by limitation. We are prepared to stock the river with salmon, shad and alewives, so soon as the opening of the spring shall afford us the opportunity. Some few salmon escaped the vigilance of the gate keeper of the flume at the Sprague Mills, last summer, and were seen trying to pass the falls at Waterville.

#### SALMON.

The united testimony from all sources exhibits a very large run of salmon on the whole Northern Atlantic coast. In Maine they have made their appearance in localities where they had long been considered extinct. Quite a large one was captured at Waterville, out of several that were observed trying to make their way over the falls. A number were seen in Pleasant river at Brownville. Many were seen below the dam at Vanceboro', and one rose at a fly and was hooked on a trout rod by Mr. Commissioner Stanley, an occurrence, as we are informed by Hon. William H. Venning of St. John, (Inspector of Fisheries) unprecedented on the St. Croix for the last fifteen years. We are well satisfied that a large number of salmon succeed in reaching the sources of the Penobscot and spawning there.

Mr. Manley Hardy of Brewer, one of our largest fur buyers, who has an extensive acquaintance with all our guides and trappers, informs us that a smolt or salmon in its second year was taken on the West Branch this last autumn, thirty-five miles above Chesuncook lake. A careful inspection of the East Branch this summer, as far as the Grand Falls, showed an unusual number of yearling salmon. They rose continually at every cast of the fly, in almost every pool from the intersection of the two branches at Medway, up to the very base of the falls. We brought back with us several specimens which we presented to Prof. Baird of the Smithsonian Institute. At a previous visit which we made to the West Branch—Grand Falls—we were shown at Medway, specimens of what the inhabitants called young salmon trout. We at once identified them as yearling salmon; we were informed that in fishing for trout many were daily caught. We cannot but remark upon the singular ignorance of our people of the fishes of

our waters. We do not know that in one single instance we have met a dweller on any of our rivers, who could identify a young salmon in any of its stages, as parr or smolt, before it had been to the ocean, or grilse after its return. If they had taken notice enough to form an opinion, it would be to call the one "young salmon trout," and the latter salmon trout, or land-locked salmon. Allow us here to state for the benefit of our readers that at the age of six months the young salmon attain a length of about three and one-quarter inches and are called parr. They are then identified by their silvery scales and by bars of a dusky gray color, crossing the lateral line. They remain in the fresh water at least one year, not going down to the sea until the second spring after being hatched. They are very eager at both fly and bait, and great numbers may be destroyed in either wantonness or ignorance, for their dark bars and small red spots deceive many into the belief that they are trout. Many were caught and brought into Calais this last spring and sold as trout. It is to be hoped that every good citizen will unite with us in putting a stop to the destruction of the salmon at this early stage of their growth, as otherwise our labor in trying to restock our waters must be in vain. The growth of the parr is very slow, but when it has attained the length of seven inches a complete change takes place in its color. The dark cross-bars disappear, as also the small red spots, and the fish assumes a brilliant silvery appearance. It then bears the outward semblance of its race, a young salmon, and is termed a smolt. We regret to be obliged here to state that in our exploration of the East Branch of the Penobscot, we found at the Hunt farm a substantial weir under construction and nearly finished. To our questions of ownership the tenants of the farm denied all knowledge. We destroyed as much of the fence as the coming on of night and approaching storm would permit, but that was not much. We presume the owner of the farm might be held responsible if done with his knowledge or consent. We must appeal to all our river men and explorers, all the local magistrates to aid us in abating this kind of nuisance, in checking the lawless acts of these squatters and vagabonds who hang around the sources of our rivers and trap and destroy our spawning fish. We hope that every man will constitute himself a volunteer warden to put a stop to any but lawful, fair and honest fishing. To plead that their acts result from necessity of food, is but loafers' logic, for if they would but accept the wages offered for honest work



they would not need to fish by unlawful means or feed on the filthy carrion of fish killed on the spawning bed.

We have expressed our opinion that a large number of salmon have made their way to the sources of the Penobscot the last two years. This is owing we think to a number of causes combined,—a good and efficient warden on the river,—a very high stage of water in early spring and summer,—the friendly sympathy and coöperation of our mill owners in stringing booms and otherwise aiding in keeping the fishways clear; and we may add, an improved state of public opinion and increased interest of the people generally, making them all more vigilant and watchful.

The testimony of Warden E. M. Paine of Orono, as to the number of salmon caught between Bangor and Oldtown, is as follows: "At Great Works, thirty-one; average weight, nineteen pounds. Orono, ten hundred and twenty; average weight, fifteen and one-half pounds. Veazie, nine hundred and thirty-three; average weight, eighteen pounds. Whole number taken up to July 23d, nineteen hundred and eighty-four; average weight, sixteen pounds ten ounces. The average price of these fish for the whole season was sixteen and three-fifths cents per pound. Weight of fish caught thirty-three thousand one hundred and ninety-eight pounds; equal to fifty-five hundred four dollars and sixty cents.

Mr. Spencer, an experienced fisherman, does not vary materially from the estimate of Warden Paine. He states "that one net caught thirty in one night; that he caught four in one night whose gross weight was one hundred pounds. Largest caught that he heard of, was thirty-two pounds. First fish of the season all large, average twenty-two to twenty-eight pounds. Next run large and small mixed about equally; should say none smaller than eight pounds. Thought he could tell a West Branch from an East Branch salmon. "West Branch salmon come later, are big scaled, round and not deep body—coarse head." Mr. Spencer here mistakes the male salmon for a West Branch salmon. Early in the season when the fish first begin to run up from the ocean, the distinctive marks of the sexes are not sufficiently developed to enable a casual observer to distinguish readily between the male and female fish. Later in the season, the body of the male fish begins to lose its depth; the hook on the under jaw begins to develop, and the whole proportion of the fish is so altered as to make him appear by contrast a new and distinct species.

Charles G. Atkins, Esq., the well-known superintendent of the Bucksport Salmon Works, places the catch of salmon on Penobscot bay and river, below Bangor, at fifteen thousand; average weight of six hundred and forty, purchased for the use of the works, thirteen and one-fourth pounds.

We were not able to obtain a correct estimate of the salmon fishery on the Kennebec, although we consulted some of the most intelligent fishermen and dealers on the river. To Mr. S. W. Cushing of Bath, we are indebted for the following interesting data: "Thought the catch for 1873 was more than double that of any year during the last fifteen, excepting 1872, when the catch was more than half that of this year. The fish have averaged larger than usual. The first of the season the fish are always larger than in the latter part. The largest fish caught was thirty-three pounds; smallest six pounds. The greater part of them were between twenty and twenty-five pounds, till about the tenth of June, when the "school salmon" come, weighing from eight to fifteen pounds. Should say the average weight for the whole season was about eighteen pounds. Thought the cause of the great increase in the salmon catch the last two years was this: The Kennebec dam across the river at Augusta was down flat about four or five years ago, which gave the salmon a chance to go up to their old haunts and spawning grounds in the small rivers and brooks, and we are just receiving the benefit in full-grown salmon. A suitable fishway in the dam is what is needed to keep the salmon fishing from being entirely destroyed."

#### SALMON FRY.

The same adverse fortune which so often mars the projects of both "mice and men"—the same uncertainty of result which attends the egg of hen, follows the spawn of fish. An unavoidable casualty somewhat reduced our anticipated return from the Bucksport Salmon Works. But accidents included, the dividend of hatched fishes was very large, and adds to the already high and deserved reputation of Superintendent Atkins. The net return of the investment of Maine was some three hundred thousand salmon fry, which were divided between the waters of the Penobscot and Androscoggin rivers. On the Penobscot, with its numerous tributaries, the work of transportation was laborious and difficult, involving much time and fatigue, and requiring the continual presence of both commissioners and an assistant, apart

from the care and anxiety and responsibility in keeping our precious freight alive; for the ground was all new and untrodden by us, neither was there any written reliable guide unless weighted down by the purchase of patented cans, &c. Every path had a toll gate on it, with no surty that if we could afford the toll, it would lead us safely on our road. We are happy to have it in our power to state, that after a little experience, we were able to reduce the transportation to so exact a system as to convey our salmon fry in the hottest weather, with the loss of scarcely a fish. But the fatigue and care remained the same and were only compensated for by the interest expressed by all with whom we came in contact, in our success, and desire and effort to aid us in achieving it. The work on the Androscoggin was comparatively easy, from our being able to hatch the portion of salmon "ova," to be there distributed, in a hatching house directly upon the river and high up towards its source, and involving no transportation but by land carriage, and with the exception of the experimental trip to Rangely lake, but few long routes.

Our first consignment of young salmon was to the Mattawamkeag river at the railroad bridge; another of the same number, ten thousand, higher up and near Gordon's Falls. Twenty thousand were turned into Salmon stream, emptying into the Penobscot about four miles below Medway. Our next point of attention was Dover, on the Piscataquis, where we conveyed ten thousand in fine health and condition. Brownville was visited next with ten thousand that were turned into the Old Tannery brook, emptying into Pleasant river about a mile from the village and above the dam. Some thousands were turned into the Passadumkeag at points from the railroad bridge to Cold Spring and Burlington. At Howland, we planted a colony in the Sebocis river about a mile from its junction with the Piscataquis, and another at the bridge on Whitney's Ridge.

We must avail ourselves of this opportunity to express our sense of appreciation of the many acts of courtesy and valuable assistance extended to us by Hon. Wm. Hammatt of Howland, and Col. Porter of Burlington. To President Jewett and Superintendent Angell of the European and North American Railroad, words alone can not convey our deep sense of obligation. The liveliest interest was taken in our operations by all the officials of the road, and our labors very much lightened by the kindly facilities and aid extended to us on all sides from every employee.

To Superintendent Eaton and the polite officers of his road, we are indebted to much of our success. At the request of United States Commissioner Baird, we conveyed a lot of ten thousand young salmon to Vanceboro', and turned them into a small brook emptying into the St. Croix; Frank B. Bailey, Esq., who has ever evinced the deepest interest in our labors, having made the exploration and selected the site for us.

Our relations with New Brunswick on all waters common to us both, are of the most friendly character, and we cannot but convey to Hon. Wm. H. Vennings, Inspector of Fisheries for New Brunswick and Nova Scotia, and to Deputy Curran of Baring, our deep sense of obligation for the most generous and energetic coöperation. We hope to be able next year to add a still larger contribution of young salmon to the waters of the St. Croix.

On the Androscoggin river, your Commissioners thought it advisable to distribute the first lot of salmon fry at the highest possible attainable point. With this view ten thousand were taken thirty-seven miles by land carriage and turned in at the head of Rangely lake. Thirty thousand were put into Swift river about five miles from Dixfield, emptying into the Androscoggin at Rumford Falls. The remaining ninety thousand were distributed in various tributary brooks and streams at and in the vicinity of the village of Dixfield.

#### PROPAGATION OF FISH.

Numerous applications for license to take the spawn of land-locked salmon at the various localities where these fish are found in our State, many of them from irresponsible sources and for purposes of speculation, suggested the necessity of adopting some system, that while it would insure to our sister States an adequate supply of the stock of this invaluable fish, and in the most reliable and economical form, through the direction and management of their respective commissioners, would at the same time protect us from having our fisheries destroyed by unprincipled and ignorant adventurers. We made the proposition to the United States' Commissioner of Fisheries, and to our brother Commissioners of the New England States, to found an establishment within our borders at such place as they should select, similar to the one at Bucksport, and naming Sebec lake as combining the important requisites of abundance of fish and facilities of access. Our recommendation was most cordially received, and early in August,

gentlemen representing the interests of the United States, Massachusetts and Connecticut, visited Sebec, and after a careful examination, organized and decided to establish the works there. In due course, the necessary lease of land and water privilege was secured, money subscribed, a superintendent chosen, buildings erected after plans furnished by E. A. Brackett, Esq., Commissioner of Inland Fisheries for Massachusetts, and ponds, dams, penstock, &c., &c., constructed. Everything promises favorably for the future usefulness of this association, so rich in elements of ability and experience.

It may be appropriate here to state, that this system of taking the spawn from the fishes of our lakes, would very soon tend to their utter extermination, were it not that as a protection and safeguard, we exact that all the fishes after they have been stripped shall be returned to the waters whence taken, and twenty-five per cent. of the spawn when hatched. These conditions we observe, even within our own State, in transferring stock to our own lakes.

Your Commissioners have to acknowledge the receipt of a consignment of ova of the California salmon, through Livingstone Stone, Esq. These are a gift to our State from Prof. Baird, U. S. Commissioner of Fisheries. They are now all hatched ready for distribution to our waters. We propose putting them into some stream or lake connecting with the Penobscot near Bucksport. The accompanying sketch of this valuable variety of the salmon family from the pen of Mr. Stone, will enable the public better to appreciate this new acquisition to our food resources.

“The Sacramento salmon is suppose to be the ‘*salmo quinnat*,’ or the common salmon of the Columbia river, but it has not yet been fully identified. When full grown, these salmon vary in weight from six or seven pounds to about sixty pounds, the largest of which I have any certain knowledge, weighing fifty-nine pounds. They run up the Sacramento every month in the year, and are caught in drift nets (gill nets) chiefly below Sacramento City. They are in the best condition when the fresh run first comes in from the sea in November, but they remain good from November to June, after which time they deteriorate rapidly. By August they are a coarse and comparatively unpalatable fish. During the spawning season they are infected with parasites and unfit to eat. When in season, in the winter and early spring, they are firm,

delicate, rich and delicious fish, and compare, I think, very favorably with the eastern coast salmon in respect to the quality of their flesh. I am aware that they have not so good a name as the Columbia river salmon, but I think this partly owing to the fact that they have been caught and marketed at all seasons of the year, whether in condition or not, the consequence of which has been to lower their average reputation: If Sacramento salmon were not eaten except in the winter and early spring, I am satisfied they would have a good name enough.

“In appearance, these salmon when the fresh run first comes in from the sea, resemble the Atlantic salmon very much. As the spawning season approaches, however, they do not take on the beautiful colors of the eastern fish, but are of a dark olive on the back, shading off to a silvery white below. The males often have a broad and deep red band across their whole length from head to tail, which gives them a very brilliant appearance.

“The salmon are spawning in different places in the Sacramento six months of the year. They begin to spawn first at the very head waters of the river, where the tributaries are small brooks heading in the mountains. Here they begin to deposit their eggs the latter part of June and the first of July. Fifty miles below they spawn in July and August, and so on down the river. At the U. S. Salmon Breeding Camp, on the McCloud river, they spawn in August and September. Lower down, at Tehama, on the main Sacramento, the spawning season is in October and November. In the smaller rivers north of the Sacramento, as the Eel and Russian rivers, the salmon spawn even during the winter months.

“The Sacramento salmon resemble the Atlantic coast salmon in their habits of spawning, but their eggs are larger, the young fish when hatched are more active, and there are fewer eggs to the same weight of parent fish. A Sacramento salmon does not yield much more than half as many eggs as a Penobscot or Miramichi of the same weight.

“These salmon are readily caught in fresh water with a hook and line baited with salmon spawn. One man caught fourteen salmon in this way at our camp on the McCloud river, in an hour. The salmon were jumping every moment in front of our camp this summer, and I presume they could be taken with a fly, but this has not yet been positively tested. I have, however, often counted eighteen salmon jumping in a minute, in the little open

place in the stream in front of our home on the McCloud. This is at the rate of a thousand an hour, and if their jumping is a favorable indication of their taking a fly, there is certainly a *presumption* that they will do so."

#### SHAD HATCHING.

The first experiment in this State in shad hatching was made by us this year. The amount of business demanding the attention of your Commissioners was so great, that they hardly had time to make the necessary preparations, before the shad spawning season had commenced. Time was consumed in preparing the necessary hatching boxes of a pattern that would not render us liable to attack from a legion of patentees. After we had succeeded in this, we found always some new feature in practice that had not presented itself in theory, or demonstration on paper; however, we had secured the services of an able, clear-headed and intelligent assistant in the person of Mr. John L. Brown of Bowdoinham.

We hatched with good success about 100,000 young shad. It was discovered, when too late, that the wire cloth of our hatching boxes was so coarse as to let the little fishes through the mesh as fast as hatched, but as they were all intended for the Kennebec and as our hatching works were on the river, this was no loss. A careful exploration by Mr. Brown for the spawning ground of the shad at Topsham and Brunswick, discovered that they had been driven from their old haunts by the refuse turned into the river by the Perkins paper mill. When their new resort was found the fish taken by the net had all spawned. We have met with decided success in this experiment, not only in the number of fishes hatched, and contributed to the wealth of the Kennebec, but in valuable experience that will insure us a larger harvest next year. One hundred thousand young shad, in charge of Prof. Milner of the Smithsonian Institute, were forwarded to us "by order of the United States Commissioner" from Holyoke. These fishes were put into the Penobscot river at Mattawamkeag.

#### PROPOSED LEGISLATION.

We had the honor last year to call your attention to the fact, that by any cause that should diminish the food-producing resources of Maine, the price of labor was enhanced with no corresponding increase of profit to the laborer. When the table of the

laborer is supplied with fish, an equivalent lesser amount of flesh meat is called for at the market. The butcher who now sells his beef for twenty-five cents, makes no greater profit than when in the olden time he received only seven cents. As our resources of fish fail us, we make up for the absence of the ration of fish by substituting a ration of flesh meat. The supply of our home meat product is not equal to the increased demand, and must be supplied from other States, and at increased cost; this increased cost of food must be added to the wages of the laborer or the laborer cannot live. Driving the salmon and shad and alewife from our rivers, was driving the food fishes from our coast. Every article of food that can be cheaply produced is of vital importance to a State that seeks to institute manufacturing enterprises.

We would call your attention to the thousands of acres of wild lands in Maine that for centuries, will be incapable of tillage. These once, in the product of moose and deer, equalled the entire product of the flesh of our domestic stock. The carcass of a moose at four years of age, is equal to that of a steer. The deer equal to that of a yearling. Shall we speak of our partridge, the cheapest of poultry, that never trespasses upon the farmers' grain fields, or consumes aught that is food for our domestic fowls? The moose that once supplied our lumber camps with all their requirements of fresh meat; the moose, most harmless and frugal of all living quadrupeds, not even excepting the camel; consuming the rough herbage of the forest, feeding upon no single plant or tree that is of use in any of the industries or economies of civilization; requiring no shelter, needing naught but your protection from merciless slaughter during the breeding season? Has any farmer ever calculated the cost of the ox or steer when fit for the shambles? His shelter bears the price of the interest on the capital invested in the barn, and the value of the labor in his care. His food is all at the cost of fences and labor and cultivation. The want of protection, the reckless waste of our wealth of resources, the same careless, blind system or want of system, the same ruinous course which has given a home among us to the proverb "What is everybody's business is nobody's business," has left the moose almost extinct, and our forests a silent waste, barren of animal life; our streams no longer the pathway of ocean's richest bounty and carrying food to every country home. The wise economy of the Creator which there placed such creatures as were self-supporting, adapted to our climate and our wants,



we turn from with neglect and contempt, and leave poverty and starvation in their place.

No good law, however popular, can ever be enforced without the sympathy and interest and aid of the whole people. The masses must assist or our laws will never be obeyed. The people must be and act in sympathy and in interest with the officer or he is powerless. Legislation on moral sentiments may make a book of most becoming and improving reading, but the body of the people must be the executive or no principle on our statute books can be ever be enforced. We are now in the correct line of duty with our fisheries, and if appropriations corresponding to our requirements are made, we shall soon be able to show that we have mines of wealth that we have allowed to be almost annihilated, by recklessness, neglect and waste, again ready to pour out a hundred-fold return for every dollar expended in restoration and protection. Our department has now, from the increased and growing interest of the public in fish culture, an amount of business that demands all its time, attention and energy, and yet so earnest are we in our belief of the wealth-producing resources of Maine to be found in the protection of our game and fur animals, as well as our fishes, that if the Legislature will pass an act by which we shall be constituted Commissioners of Fisheries and Game, with corresponding powers extended to our Wardens, we will accept the trust.

We have spoken with just severity of the crime of the vagabonds who hang around our river sources above our settlements, to trap and net and destroy our fishes by illegal methods, both in and out of season. If poverty pleads that it here seeks food, it is poverty the result of ignorance and its consequent intemperance. But what shall or can be argued in extenuation of a large class of our summer visitors, who destroy in mere wantonness, or for the empty boast of the number killed; sparing not even the yearling barred trout. A guide, indignantly describing the unsportsmanlike and soulless conduct of one of these parties, remarked: "Sir, at one time we buried more than 200 lbs. of trout that they had killed; they would have killed the last trout in the river if they had known where to find it, and if we would have held the canoe for them." No legislation can meet the requirements of this shameless abuse of the hospitality of our State. We must look to our sportsmen, our guides, our hotel keepers, at all our summer resorts, and to our newspapers, to aid us in putting these sorry

burlesques of true anglers to shame. It is a class of men unworthy to bear a rod, fit only to handle a *fish-pole or drag-net!*

In our report of last year, we had occasion to remark under the head of Proposed Legislation, "Legislation is required to prevent the introduction and sale in our State, of fish, that our laws forbid to be either caught or sold here, during certain months, called close months. They are caught in violation of the laws of the State where they are captured, and sold here, and *vice versa*. It leads to much litigation, perjury and crime, makes it very difficult to effectively execute our laws, and in a sanitary light allows fish to be sold here as food, that our physicians have condemned as unwholesome and even directly promotive of disease. We hope that the legislatures of neighboring States may be induced to unite with us in passing laws that will effectually put an end to this criminal traffic." We would respectfully repeat our recommendation of last year in substance, that during the close time of any class of fishes such as salmon, trout, land-locked salmon, &c., none of those fishes shall be allowed to be sold here, regardless of whence or where they may be taken, and that possession shall be evidence of guilt, or the same rules of evidence apply as in cases of stolen goods.

Complaints have been received from Anson and other towns in the State, of lawless individuals in taking trout during the close time and on their spawning beds, and shipping them in large quantities to the Boston and New York markets. Acquainted as we are with the class of men who commit these crimes, we indulge no surprise at their acts, for they would pawn their own parents for pelf or whiskey. The wonder is that in any christian community stomachs can be found to consume the vile carrion. Who and what are the beings who can eat such food? Surely a brain sustained by such unclean feeding, can think but treason, and the hand work cleverly but in theft! From the number of complaints continually received by us, to prosecute for infractions of the law, people seem not to be aware that constables and police officers have full power to act as wardens, and that any private individual can make a complaint and is entitled to one-half the fines and forfeitures resulting from conviction.

A change is required in the smelt law. As at present constituted no fishing is allowed after the 15th of March but with a dip-net or hook and line. The dip-net is used with fearful slaughter and at times and seasons when the fishes can be only

used as dressing for land. We would suggest that the law be so amended as to prohibit all fishing, excepting with hook and line, after the 1st of March.

The very rapid falling off in the product of our lobster fishery in both size and numbers, demands your careful investigation and attention. Should the diminution continue in the future as in the past, this interest must soon become extinct. In the performance of our duty as guardians of our fisheries, we have sought the best advice and counsel accessible to us. We last year had the pleasure to lay before you a paper from United States Commissioner Baird, on the marked decrease of our coast fisheries, which was received in so flattering a manner by the public and excited so much interest and attention, that we solicited aid from the same high authority. The response and accompanying paper from the distinguished naturalist, Prof. SIDNEY J. SMITH, with the significant suggestions as to legislation from both these gentlemen, we respectfully present for your earnest consideration :

UNITED STATES COMMISSION, FISH AND FISHERIES, }  
WASHINGTON, December 4, 1874. }

*Messrs. Stilwell and Stanley, Fish Commissioners of Maine.*

GENTLEMEN :—My attention has been especially directed the past season to the subject of the lobsters on the New England coast, and I have received from numerous parties the assurance that unless something be done to regulate this branch of industry it will before long become practically worthless. I have been told by many reliable persons that, not only has the size greatly diminished, but that the numbers taken are much fewer than formerly. In view of the extension of the lobster fisheries within a few years past, principally for the purpose of canning, this result was not unexpected, although it seems to have come at an earlier period than was anticipated.

With a view of securing for you the most reliable information in regard to this species, I beg to append herewith a paper written at my request, by Mr. Sydney J. Smith of Yale College, New Haven, who is our best specialist in reference to the American crustaceans, and who speaks quite by authority in all that he states.

It is for yourselves to judge how far the reasoning therein presented will render special legislation expedient for the State of Maine.

At present there appears to be no possible remedy beyond that of restricting the catch for a greater or less period of time; and unless this be done, it is most probable that the diminution will continue at an alarming rate.

The most simple law would be one absolutely prohibiting for a certain time, the capture of lobsters, whether for immediate sale or for canning, making the penalty sufficiently severe to deter those who may be so inclined, from violating it. If the months of July and August were named as this period of prohibition, it would go far to secure the needed protection and perhaps cover the most critical portion of the spawning season.

It is not sufficient simply to protect the female, or those that have eggs, but the prohibition of capture should extend to both sexes. For the better understanding of the differences between the male and female lobster, referred to by Mr. Smith, I have caused some figures to be engraved, of which I beg your acceptance.

Very respectfully,

SPENCER F. BAIRD, *Commissioner*.

#### NOTE ON THE NATURAL HISTORY OF THE LOBSTER.

BY SIDNEY J. SMITH.

The American lobster is found upon the Atlantic coast from New Jersey to Labrador, and yet almost nothing has been published in regard to its traits and local distribution. It lives upon rocky, gravelly, and sandy bottom, from low water down to twenty or thirty fathoms and perhaps deeper, but not probably at great depths. It feeds upon any kinds of animal matter either fresh or decaying, which it can discover.

In Long Island Sound the lobster fishing begins late in March or early in April, and continues till late in the fall, although the greater part are taken in May and June. On the coast of northern Massachusetts and Maine, whence the winter supply comes, they may be taken nearly all the year round. Captain N. E. Atwood, writing in 1866, says they do not come into shallow water about Provincetown, Mass., till June, and remain till October, when they disappear from near the shore. He also says that north of Cape Cod the male lobsters are much more abundant than the female, while south of the Cape the reverse is true. As far, however, as I have myself observed along Long Island Sound and Vineyard Sound, at Portland and Eastport, Maine, the sexes are

taken in about equal numbers. As this is a question of considerable interest, it may be remarked that the sexes can be readily distinguished by the little appendage upon the under side of the first ring of the tail. These are stout, stiff, horny, and grooved on the inside towards the tips, in the male, while in the female they are smaller, slender, soft and flexible; moreover, the genital orifices in the male are on the inside of the basal joint of each of the hind pair of body legs, while in the females they are situated in similar places upon the third pair, or hinder of the pincer like legs.

In attempting to suggest means for preventing the exhaustion of the lobster fisheries, the time of spawning and the development of the young become matters of great importance. The time at which the females carry eggs varies very much on different parts of the coast, being later and later as we go further north; south of Cape Cod, in Long Island and Vineyard Sounds, they are found carrying eggs from the first of April till late in June. At Portland, Maine, they were carrying eggs till the middle of August, while in the Bay of Fundy they are found with eggs from mid-summer till September. More exact information on this point is very desirable, although this is enough to show that the period of carrying eggs covers the time during which a great part of the lobsters are taken for the market.

Soon after the hatching, the young leave their parent and live for a considerable period a very different life from the adult. At first they are not more than a third of an inch long, and have scarcely any resemblance to a lobster. They are furnished with long swimming branches to the legs and swim about freely in the water, living most of the time near the surface, like many kinds of free swimming shrimps. With each change of the skin they become more and more lobster like, until when a little more than half an inch long they appear like veritable little lobsters, but still have the free swimming habits of the earlier stages. During this period, which must be several weeks, they are constantly exposed to the attacks of fishes and all sorts of marine animals, while they themselves pursue and feed upon still smaller fry. Any attempt to rear great numbers through these stages in confined areas would probably prove unsuccessful, as the young at this time require a great amount of pure sea water and peculiar food, found only where minute, free-swimming animals congregate.

After they become a few inches long, the growth of lobsters is very slow. They increase in size only at the times of shedding the shell, which probably takes place only once a year for those of ordinary size, and the increase at each of these changes is very small, as may be seen by comparing the size of the cast-shell with the lobster a few days after leaving it. In lobsters of very large size the shell is not always changed, even as often as once a year.

How early they begin to breed is somewhat uncertain. Females not more than half a pound in weight are, however, found carrying eggs, but in these small females the eggs are comparatively few in number. The average weight of lobsters sold in New Haven market is about two pounds.

It will readily be seen that any close time which should cover the entire period of spawning, would stop the lobster fishing during the height of the season when nearly all the profit is derived from the business. During the hottest weather of mid-summer, vast numbers die while being marketed. Preventing their capture at this time would undoubtedly, after a few years, have a marked effect upon the supply during other parts of the season.

#### BUCKSPORT SALMON BREEDING WORKS.

That the importance of the enterprise so ably originated, developed and sustained in the United States, by Mr. CHARLES G. ATKINS, may be more clearly comprehended, we lay before you the report of the season's operations of the Salmon Breeding Works at Bucksport, the source whence Maine and her sister States derive the means of restocking their exhausted river :

BUCKSPORT, December 5, 1873.

*To E. M. Stilwell and Henry O. Stanley, Commissioners of Fisheries of the State of Maine.*

GENTLEMEN:—In compliance with your request, I send you the following statement of the progress of the present season's work at the salmon breeding establishment here.

The collection of breeding salmon commenced June 7th and closed June 24th. During this short space of time 652 salmon were received alive at Bucksport and transferred to the fresh water pond used as a herding ground for them. Their total

weight was 8,626½ pounds, being an average of 13.23 pounds per salmon, which exceeds the average of ordinary years, and the cost of buying and transporting them was \$2.97 each.

The accomplishment of the work of collection at so early a date had several advantages. The water was colder, and the salmon less lively than later in the season, and to these facts, in part, I attribute the remarkable success attending their transportation. Only seventeen of them were found dead under such circumstances as led to the conclusion that they died from injuries received in transit. The earlier salmon are of larger size than the later ones, and it is probable,—I cannot say certain,—that they furnish a larger proportion of females.

The enclosure prepared for the salmon in the pond contained about ten acres, and was made by running a net across the mouth of a cove, its top being tied up to stakes and its bottom held down by a chain. Here, in apparent health and contentment, the salmon remained through the summer and fall, with the exception of an inconsiderable number that escaped, late in the season, into the main pond. Though black and muddy and liable to become very warm in summer, this water appears to be admirably adapted to the use we have made of it. The salmon confined in it have each season come out in the fall in fine condition—better than those that have had a free run of the rivers, if I am to trust the evidence afforded by the few specimens of the latter that have come under my observation.

Artificial spawning began on the 27th of October, and though ninety per cent. of the whole number of eggs were obtained before the middle of November, the work continued until the 26th, and a single individual, kept for several weeks in our pens, was not stripped until December 3d. The fish did not run into the brook with so great regularity as last year, needing a deal of persuasion, which was administered with a seine. This I attribute to the low stage of water that prevailed in November. The work of the season was rendered still more laborious and disagreeable by the early advent of extremely cold weather, which covered the pond with ice several inches thick before the work of catching our spawning fish was finished.

But in spite of the disadvantages named, the result is eminently satisfactory. The crop of eggs is *fifty per cent. larger* than last year, while the total expenditure is lessened. I had the pleasure, a year since, of reporting to you that by our operations at Bucks-

port the cost of salmon eggs had been reduced from \$44.80 per thousand (the price the State had to pay for them in 1869,) to less than \$5 per thousand. I have now the pleasure of reporting a still further reduction the present season—to a figure not exceeding \$3.50 per thousand. At the rates of 1869, which were fixed by the Canadian government at its establishment at Newcastle, Ontario, the only place where eggs were then for sale, the \$700 which you have this year invested in this establishment would have produced you less than sixteen thousand eggs. Here you will receive for that sum not far from *two hundred thousand*. Nor do I suppose the limit of cheapness is yet reached. Each season adds something to our knowledge of the habits of the salmon and of the best mode of managing the business, and considerable part of the expenditure of the first two years has been for buildings and fixtures that will be good for many years' use; so that future expenditures will go more directly to the production of eggs.

This establishment now ranks, in its appointments, as in its productions, among the first in the world. Two millions and a quarter of eggs now lie in the hatching troughs, and when put to their utmost capacity, they will contain over four million. They can be enlarged to a capacity several times greater. Its patrons, the present season, are the governments of the United States, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut and Michigan. No private parties are interested. The eggs obtained are to be divided among the patrons in proportion to the amount of money furnished by each. It is a suggestion of Prof. Baird, U. S. Commissioner of Fish and Fisheries, that a small portion of the eggs be sold to private parties who may want them for private streams, as otherwise they cannot obtain the eggs of this species in the country. With this exception all the eggs obtained will go into public waters.

Though the scale of our operations is already very large I do not think it large enough. If this establishment is to furnish salmon eggs for the restocking of all the rivers of New England and other northern States, it should furnish them in larger quantities. You, gentlemen, will find yourselves hard pressed to meet the demands of the people of different parts of Maine, who want their rivers stocked with salmon, unless you can increase your supply. The sum that you have been able to devote to this part of your work is certainly a very small allowance, when we consider the magnitude of the undertaking before you. I trust the people



of the State will soon appreciate that undertaking at its true value, and will place in your hands the means of carrying on the work on a scale commensurate with its importance.

Very respectfully yours,

CHARLES G. ATKINS.

Three hundred thousand young salmon have been distributed during the present year in the St. Croix, Penobscot and Androscoggin rivers. For a part of these we are indebted to the bounty of the United States Government through her Commissioner of Fish and Fisheries. It will be proper to continue to distribute at least as large a quota to these rivers for some years, if we expect the work to be well and effectively done. Applications have been received from the towns of Sebec, Waldoboro', and Warren, to restock their rivers. The Kennebec will demand the attention of your Commissioners the coming spring, to repair the damages of the lost years of her bondage, by affording her the means of replenishing her waters. Our response, gentlemen, to these, and all other demands upon our time, attention, means and resources, must rest upon the appropriation the Legislature in its wisdom shall see fit to make for this interest.

Respectfully submitted,

E. M. STILWELL, } *Commissioners*  
HENRY O. STANLEY, } *of Fisheries.*



As advice, counsel and legislation is being continually sought on most of the points settled in the annexed decision rendered through Mr. Justice Clifford, we have thought it well to give the opinion of the Court in full, as delivered, and attach it as a Supplement to our Report.

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



SUPREME COURT OF THE UNITED STATES.

No. 42. — DECEMBER TERM, 1872.

The Holyoke Water-Power Company. Plaintiff in Error, v. Theodore Lyman and Edward A. Brackett, Commissioners on Inland Fisheries, etc.,	}	In error to the Supreme Judicial Court of the Commonwealth of Massachusetts.
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Mr. Justice CLIFFORD delivered the opinion of the Court.

Rivers, though not navigable even for boats or rafts, and even smaller streams of water, may be and often are regarded as public rights, subject to legislative control, as the means for creating power for operating mills and machinery, or as the source for furnishing a valuable supply of fish, suitable for food and sustenance.

Such water-power is everywhere regarded as a public right, and fisheries of the kind, even in waters not navigable, are also so far public rights that the legislature of the State may ordain and establish regulations to prevent obstructions to the passage of the fish, and to promote the usual and uninterrupted enjoyment of the right by the riparian owners.

Proprietors of the kind, if they own both banks of the water-course and the whole soil over which the water of the stream flows, may erect dams extending from bank to bank to create power to operate mills and machinery, subject to certain limitations and conditions, and may also claim the exclusive right of fishery within their territorial limits, subject to such regulations as the legislature may, from time to time, ordain and establish.

Persons owning the whole of the soil constituting the bed and banks of the stream are entitled to the whole use and profits of the water opposite their land, whether the water is used as power to operate mills and machinery or as a fishery, subject to the implied condition that they shall so use their own right as not to injure the concomitant right of another riparian owner, and to such regulations as the legislature of the State shall prescribe.

Where such a proprietor owns the land on one side only of the stream, his right to the land and to the use of the water, whether used as power to operate mills and machinery or merely as a fishery, extends only to the middle thread of the stream, as at common law, and is subject to the same conditions and regulations as when the ownership includes the whole soil over which the water of the stream flows.

Authority to erect dams across such streams for mill purposes results from the ownership of the bed and the banks of the stream,

or the right to construct the same may be acquired by legislative grant, in cases where the legislature is of the opinion that the benefit to the public will be of sufficient importance to render it expedient for them to exercise the right of eminent domain and to authorize such an interference with private rights for that purpose.

Lands belonging to individuals have often been condemned for such purposes, in the exercise of the right of eminent domain, in cases where, from the nature of the country, mill-sites sufficient in number could not otherwise be obtained, and that right is even more frequently exercised to enable mill-owners to flow the water back beyond their own limits, in order to create sufficient power or head and fall to operate their mills.

Concomitant with the authority to erect such dams for such purposes over the beds of water-courses, as resulting from the title to the banks and bed of the stream, is also the exclusive right of fishery, which also has its source in the same ownership of the soil, and the better opinion is that it is not divested or extinguished by any legislative act condemning the land to the use of another for mill purposes, unless the words of the grant conferring the authority to construct the dam plainly indicate that such was the intention of the legislature.

Water rights of the kind, whether the streams are used for mill purposes or merely as fisheries, are justly entitled to public protection, as they are in many cases of great value to the community where they exist, but they are the source of many conflicting interests which the State legislatures as well as the courts have found it difficult to adjust, as appears from the countless efforts which have been made in that behalf without complete success.

Certain persons, their associates and successors, on the twenty-eighth of April, 1848, were incorporated by the name of the Hadley Falls Company, for the purpose of constructing a dam across the Connecticut river, and one or more locks and canals, in connection with the said dam, to create a water-power to be used for manufacturing and mechanical purposes, and also for the purpose of navigation, with all the powers and privileges, and subject to all the duties, liabilities, and restrictions set forth in the thirty-eighth and forty-fourth chapters of the revised statutes of the State.—(8 Special Laws, 949. Rev. Stats., 328-366.)

Power and authority are given to said corporation to construct and maintain a dam across said river at South Hadley, at any point between the present dam of the proprietors of the locks and canals and the lower locks of the said proprietors, of a height sufficient to raise the water to a point not exceeding the present level of the water above the dam of the said proprietors; and the farther provision is that the corporation shall pay such damages to the owners of the present fish rights above the dam to be erected as shall be awarded by the county commissioner.

Pursuant to the act of incorporation, the stockholders accepted the charter, constructed the dam, paid certain damages to the owners of fish rights above the dam as constructed, and expended, as the respondents allege, more than two millions of dollars, in-

cluding the cost of the dam and the damages paid to parties adversely interested, in constructing their improvements, and failed in business. New parties acquired the title to the dam and the other improvements, and on the thirty-first of January, 1859, the respondents in this case, as such new proprietors, their associates and successors, were incorporated by the name of the Holyoke Water-Power Company, and they were empowered to uphold and maintain the dam and other improvements constructed by the prior company, and to erect and maintain a water-power to be used for the same purposes as those described in the prior charter, with the same powers and privileges and subject to the same liabilities and restrictions.—(Private Acts, 1859, 225.)

Special power was conferred upon the governor, by and with the advice and consent of the council, by the act of the fifteenth of May, 1866, to appoint commissioners of fisheries in the said river and one other river, to hold their offices for five years unless sooner removed, and it was made their duty by the same act forthwith to examine the several dams on said rivers in said State, and after notice to the owners of the dams, to determine and define the mode and plan by which fishways shall be constructed, suitable and sufficient to secure the free passage of salmon and shad up said rivers during their accustomed seasons. Said commissioners are also authorized to agree with the proprietors of such dams to construct at their own expense such fishways according to the plans adopted, if the proprietors consent so to do, and if they fulfil the agreement and the fact is duly certified to the Secretary of State, the provision is that the same, for the period of five years, shall be taken and deemed as in lieu of the fishways which such a proprietor is now required by law to keep and maintain for that purpose. Unless the proprietors of such a dam shall agree with the commissioners within thirty days from the time he is so furnished with the plan to build such fishway in the manner prescribed, the commissioners are authorized to construct the same in behalf of the State, and in that event the provision is that the expense shall be a charge against the owner of such dam, and the same may be recovered of the proprietor in an action of contract in the name of the State, or the commissioners may enforce the construction of such a fishway, by a bill in equity, to compel a specific performance.—(Sess. Acts 1866, 231. Sess. Acts 1867, 741. Sess. Acts 1869, 677-741.)

Due notice having been given by the complainants, as such commissioners, to the respondents as the owners of said dam, of their intention to examine the dam pursuant to the provisions of the aforesaid acts of the legislature, they proceeded to perform that duty, and determined and defined the mode and plan in which the fishway should be constructed therein, suitable and sufficient to secure the free passage of salmon and shad over the dam and up the river during their accustomed seasons. They also furnished the respondents with the plan and specifications of such fishway, and filed a copy of the same in the office of the Secretary of State, and requested the respondents to construct such a fishway or to agree with them as such commissioners to comply with that re-

quirement; but it appears that the respondents refused and neglected so to do, insisting that the State had no power or right to require them to build such a fishway. Entirely different views were entertained by the complainants, and they instituted the present suit to compel the corporation respondents to comply with that requirement, and the State court entered a decree for the complainants.—(Same case, 104 Mass., 451. *Sampson v. Weston*, 8 Cush., 347.)

Dissatisfied with that decree the respondents sued out the present writ of error and removed the cause into this court.

Ample power was vested in the first company to hold real estate, not exceeding five hundred thousand dollars in value, but their act of incorporation did not give the company any authority to condemn the real estate of another to any extent or for any purpose. They were required to "pay such damages to the owners of present fish rights existing above the dam" as should be awarded by the County Commissioners of the counties in which said rights existed, and they might at any time apply to said commissioners to proceed, ascertain, and determine the damages to said fish rights, subject, however, to an appeal to a jury from such assessment, as in cases of assessment of damages for land taken for highways.

Damages for injuries to fish rights above the dam were to be ascertained and assessed, but no authority was conferred to condemn the land of another for the site of the dam or for any other purpose, nor was any provision made to ascertain and assess the damages to fish rights below the dam, nor does either charter contain a provision exempting the builders and owners of the dam from the obligation to construct suitable and sufficient fishways for the free passage of fish up the river during their accustomed seasons.

None of these propositions are controverted, but the respondents insist that the acts of the legislature under which they have been required to make the fishways in question, impair the obligation of the contract contained in the charter incorporating their grantors, and that those acts are inoperative and void as contravening the article of the Constitution which prohibits the States from passing any law impairing the obligation of contracts. Such a charter, when accepted by the incorporators, is undoubtedly a contract that the powers, privileges and franchises granted shall not be restrained, controlled or destroyed without their consent, unless a power for that purpose is reserved to the legislature in the act of incorporation, or in some prior general law in operation at the time the act of incorporation was passed.—(*Dartmouth College v. Woodward*, 4 Wheat., 709-712. *Wales v. Stetson*, 2 Mass., 146.)

Private charters of the kind are held to be contracts, because they are based for their consideration on the liabilities and duties which the incorporators assume by accepting the terms therein specified, and the general rule is that the grant of the franchise on that account can no more be resumed by the legislature or its benefits diminished or impaired, without the assent of the corpo-



rators, than any other grant of property or legal estate, unless the right to do so is reserved in the act of incorporation, or by some immemorial usage or general law of the State which was in operation at the time the charter was granted.—(College Cases, 13 Wall., 213.)

Charters of private corporations duly accepted, it must be admitted, are executed contracts, but the different provisions, unless they are clear, unambiguous and free of doubt, are subject to construction, and their true intent and meaning must be ascertained by the same rules of interpretation as other legislative grants.

Repeated decisions of this court have established the rule, that whenever privileges are granted to a corporation, and the grant comes under revision in the courts, such privileges are to be strictly construed against the corporation, and in favor of the public, and that nothing passes but what is granted in clear and explicit terms.—(Rice v. Railroad Co., 1 Black, 380. Charles River Bridge v. Warren Bridge, 11 Pet., 544.)

Whatever is not unequivocally granted in such acts is taken to have been withheld, as all acts of incorporation and acts extending the privileges of corporate bodies are to be taken most strongly against the corporations.—(Sedgw. on Stat. & Const. Law, 339. Lees v. Canal Co., 11 East., 652.)

Evidently the right of fishery, as well as the right to use the water of a stream for mill purposes, is the subject of private ownership, and when held by a good title, the one as much as the other is a vested right, and both alike are entitled to public protection, and are subject, in a certain sense, to legislative regulation and control. Difficulties, in every case, attend the proper adjustment of such rights, as the complete enjoyment of the one may interfere with the corresponding enjoyment of the other; but the presumption is, in construing any regulation upon the subject, that the framers of the regulation did not intend to allow either party to disregard the rule that he should so use his own property as not to injure the property of the owner of the other right.

Ownership of the banks and bed of the stream, as before remarked, gives to the proprietor the exclusive right of fishery opposite his land, as well as the right to use the water to create power to operate mills; but neither the one nor the other right, nor both combined, confer any right to erect obstructions in the river to prevent the free passage of the fish up and down the river at their accustomed seasons, as such obstructions would impair and ultimately destroy all such rights owned by other proprietors both above and below the obstruction on the same stream.

Authoritative support to these views is found in the judicial decisions and legislative enactments of the State throughout her history, commencing even before the Revolution, and continued in an unbroken series to the present time.—(Com. v. Chapin, 5 Pick., 204.)

Undoubtedly each proprietor of the land adjoining such a river or stream has in that State a several or exclusive right of fishery in the river immediately before his land, to the middle of the river, and may prevent all others from participating in it, and will have

a right of action against any who shall usurp the exercise of it without his consent, but the Prov. St., 8 Ann., c. 3 (1709), 162, prohibited all persons, "without approbation or allowance," from placing in or across rivers or streams any weir, hedge or other incumbrance to obstruct the free passage of fish in the proper seasons of the year.—(1 Prov. Laws, 162.)

Persons who erect or build a dam across any river or stream where the salmon, shad, alewives or other fish usually pass up into the natural ponds to cast their spawn, were required by the Prov. Stat. 15 Geo. II, c. 6 (1741), to make a sufficient passage-way for the fish to pass up such river or stream, and the owners of dams so constructed that such fish could not conveniently pass up the river or stream, were required to make such a passage-way and keep it open for a certain period in each year, as therein prescribed.—(1 Id., 297. 1 Id., 17 Geo. II (1743), 313. 1 Id., 19 Geo. II (1745), 321.)

Laws of the kind, requiring the owners of dams across the rivers and streams of the State to build fishways, and keep them in repair, have been passed, in numerous instances, since the State constitution was adopted, many of which are still in full force. Such laws usually require the owners of the dam to build the fishway at their own expense, and subject their doings in that behalf to the approval of some supervisory board or committee.—(2 Laws Mass. App., 1020-1026.)

Reference was made at the argument to some thirty-five or forty statutes of the kind, passed at different periods, commencing the year the constitution of the State was adopted (1780) and coming down to the present time, covering a period of more than ninety years.—(Vinton v. Welsh, 9 Pick., 90. Angel on Wat. (6th ed), 72. Washburn on Easements (2d ed.), 501. Peables v. Hannaford, 18 Me., 106. Parker v. Mill Dam Co., 20 Me., 353.)

Statutes also encouraging mills by authorizing their owners or occupants to overflow the lands of other persons, by paying such damages as may be assessed in the mode prescribed, are also of very ancient origin, and have received the sanction of the courts of the State throughout the whole period of her history.—(1 Prov. Stat., 12 Ann., c. 1 (1709), 160. 1 Id., 12 Ann., c. 8 (1714), 181. Ancient Char., 388-404. 2 Laws Mass., 729. Rev. Stat. (1836), 676. Angel on Wat. (6th ed.), 664. Washburn on Easements, 332. Murdock v. Stickney, 8 Cush., 119.)

Public rights, in all jurisdictions, are subject to legislative control, and it is settled law in Massachusetts, and has been for a century and a half, including her colonial history, that the right of fishery in such rivers as the Connecticut and Merrimac, even above the point where they are navigable for boats or rafts, and the right to erect and maintain dams to create water power for mill purposes, are public rights, and that the owners of such rights are bound by such reasonable regulations as the State may make and ordain for their protection and enjoyment.

All persons, say the supreme court of that State in the case of Stoughton v. Baker, 4 Mass., 528, who may build a dam for mill purposes, on a stream annually frequented by fish, do it under an

implied obligation to keep open sufficient sluices and fishways for the passage of fish at the proper seasons, and that the grant of the right to erect a dam, if made by the legislature, is to be construed to be under the same implied condition to keep open the fishways, unless such implication is excluded by an express provision exempting the grantees from such an obligation.

By the statement of facts in that case it appears that the defendants' dam was an ancient dam; that they deranged their title from the original proprietor, who acquired his right thereto in 1633 by a grant from the town within whose limits the mill-site was then situated; that the grant included the mill privilege and a weir adjoining the mill, and the exclusive right of fishery; that the grant was subsequently confirmed by the legislature, and that no fishery was ever made through the dam until the year 1789, when one was constructed at the expense of third parties, pursuant to a resolution passed by the legislature of the State; that on the fifteenth of March, 1805, the legislature appointed a committee to examine the dams on that river and to order such alterations to be made in the fishways as in their opinion would be sufficient for the convenient passage of the fish at said dam. Three-fourths of the expenses were to be borne by the owners of the dams and one-fourth by the towns interested in the fisheries. Suitable fishways were accordingly constructed, and the towns having paid the whole expense instituted a suit to recover one-fourth of the expense of the owners of the dam. Able counsel appeared on both sides, and the opinion of the court was delivered by Chief Justice Parsons, all of the other justices concurring.

Based on these facts it was contended for the defendants that the original grant was a bar to the claim, but the court conceding that the grant as confirmed amounted to a franchise of a several fishery, nevertheless held that the franchise could not be construed to include the right of excluding all fish from passing above the weir, the court giving as a reason for the conclusion that the value of a fishery in such a stream depends upon the shoals of fish that enter the river and pass to the ponds above to cast their spawn, adding that if none were allowed to pass, the public would lose their supply, and that the fishery would become of little or no value.

Evidence was introduced tending to show that the franchise of the exclusive fishery was lost by non-user, but the court held that the said franchise, if it was not lost, would be no objection to the right of the public to have a convenient passageway for the fish to ascend the river to the ponds. They also held that the original proprietor took a fee in the mill privilege, and that he had the right to erect the dam to raise water sufficient to operate his mill, but that the right to build a dam for the use of a mill was subject to the following limitations: (1) That the proprietor must make compensation to the owners of the lands above the dam for damages occasioned by overflowing their lands. (2) That he must so construct the dam that the fish will not be interrupted in their passage up the river to cast their spawn, adding that every owner of a water mill or dam holds it on the condition that a sufficient

and reasonable passageway shall be allowed for the fish.—(Burnham v. Webster, 5 Mass., 266. Nickerson v. Bracket, 10 Id., 212. Com. v. McCurdy, 5 Id., 324. Cottrill v. Myrick, 12 Me., 229.)

Substantially the same questions were presented to the supreme court of the State in the case of Vinton v. Welsh, 9 Pick., 92, in which the opinion of the court was delivered by Chief Justice Parker, and the decision was in the same way and to the same effect. He decided that the owners of dams across such rivers, as well as the owners of such fisheries, hold their property subject to such regulations as the legislature from time to time shall prescribe for the preservation of the fish, basing his conclusion chiefly upon the fact that the colonial and provincial governments, as well as the government of the State under the State constitution, had exercised the right of prescribing such regulations from the first settlement of the country to the date of the decision in that case.—(Com. v. Chapin, 5 Pick., 204.)

Litigations upon the subject ceased for a time, but the same questions thirty years later were again presented to the supreme court of the State in the case of Com. v. Essex Company, 13 Gray, 248, in which the opinion of the court was delivered by Chief Justice Shaw, as the organ of the whole court. Special reference is made in that opinion to the prior decisions of the court upon that subject, and all the leading cases here referred to are approved and the propositions decided are reaffirmed, the court announcing the following conclusions: That from the earliest times the right of the public to the passage of fish in rivers and the private rights of riparian proprietors, incident to and dependent on the public right, have been subject to the regulation of the legislature; that the mode adopted by the legislature, whether by public or private acts, to secure and preserve such rights, has been by requiring, in the erection of dams, such sluices and fishways as would enable these migratory fish, according to their known habits and instincts, to pass from the lower to the higher level of the water occasioned by such dam, so that, although their passage might be somewhat impeded, it would not be thereby essentially obstructed.

It appears in that case that the company was duly incorporated with power to construct a dam across the Merrimac river at Lawrence, subject to the condition, among other things, that they should construct suitable fishways in their dam for the passage of migratory fish; that they applied to the county commissioners, requesting them, after due notice, to prescribe the mode in which they should construct such fishways in their dam; that such notice was given and a hearing had, and that the commissioners did prescribe the mode in which the company should comply with that requirement, and that the company did construct such fishways in their said dam according to the mode and plan so prescribed; that the fishways, however, as constructed, proved to be unsuitable and insufficient to provide a convenient passageway for the fish.—(8 Special Laws, 470.)

Circumstances occurring subsequently, made it necessary for the company to ask for leave to increase their capital stock, and

the legislature, in granting their application, also provided that the company should be liable for all damages occasioned to the owners of fish rights above the dam by the stopping or impeding the passage of the fish up and down the river by the said dam, and that such damages should be assessed by the county commissioners of the county in which such fish rights existed, saving to the respective parties the right to apply for a jury to make such assessment in the manner provided for the recovery of damages from laying out highways.—(8 Special Laws, 990.)

Having accepted the amendatory act, the company availed themselves of that provision and caused the damages to the fish rights existing above the dam to be assessed, and they paid the several assessments to the owners of the same, amounting to the sum of twenty-six thousand dollars, "as damages for hindering or impeding the passage of fish by their said dam, with the aforesaid fishways therein, as previously constructed."

Such fishways did not admit of the usual and unobstructed passage of the fish, as required by the law of the State and the seventh section of their act of incorporation. Complaints subsequently arose, and the company was indicted for such neglect, and the case came to trial; and the jury, under the rulings and instructions of the court, found the defendants guilty, and they excepted to the rulings and instructions of the court, and the case was heard before the full court.

Unquestionably the case was fully considered, and the court in the first place reaffirmed all of their previous decisions upon the subject, which hold that persons who build a dam for mill purposes on a stream frequented by migratory fish, do it under an implied obligation to keep open sufficient sluices and fishways for the passage of the fish in their accustomed seasons, and that every grant to erect such a dam is to be construed as under the same implied condition, unless such implication is excluded by an express provision to that effect. Still the court held that the legislature had the power to regulate the public right, and in view of the fact that the amended charter substituted a new proceeding for the recovery of damages by the owners of the fish rights, and that the same, as assumed by the court, had been executed, the court also held that the amended charter had in it all the elements of a contract executed by one party and binding on the other, and that it was not competent for the legislature, even under the power reserved in a prior general law, to amend, alter, or repeal any such charter to require the proprietors of the dam, *without any change of circumstances*, to construct the fishways, which by the terms of the amended charter they had been exempted from any obligation to construct, basing their opinion upon the ground that the right acquired under that provision had become vested by a legitimate exercise of the power granted.—(Sess. Acts 1831, 613.)

Vested rights, it is conceded, cannot be destroyed or impaired under such a reserved power, but it is clear that the power may be exercised, and to almost any extent, to carry into effect the original purposes of the grant, and to protect the rights of the public

and of the corporators, or to promote the due administration of the affairs of the corporation.—(Miller v. the People of N. Y., 15 Wall.,—.)

Had it appeared in that case that the amended charter contemplated the assessment of damages for fish rights owned below the dam as well as those owned above the dam, the opinion would certainly be more satisfactory, as in that event the theory assumed by the court that all the parties damaged in their fisheries had been indemnified by the owners of the structure would be correct.—(Moulton v. Libbey, 37 Me., 484.)

Fish rights below a dam, constructed without passageways for the fish, are liable to be injured by such a structure as well as those owned above the dam, as the migratory fish, if they cannot ascend to the head waters of the stream at their accustomed seasons will soon cease to frequent the stream at all, or in greatly diminished numbers.

Suppose the rule, however, to be correct, still it is quite clear that it does not control the case before the court for the reasons given by the same court in rendering the decree brought here for re-examination by the present writ of error. Passageways for the fish had been constructed in that case under the act passed incorporating the company, but they proved to be unsuitable and insufficient, and the court in sustaining the views of the defendants rested their decision upon the ground that the amended charter discharged them from the obligation to reconstruct such fishways, as the amended charter required them to make compensation for the injuries to the fish rights in the place of the prior obligation arising from the rules of the common law of the State and the terms of their original charter, the court holding that the government could not, *without any change of circumstances*, require the defendants to do the very acts which, by the terms of the amended charter, they had been exempted from doing; but the court declined to decide whether, if the fishways provided should prove to be wholly unfit and inadequate to their purpose, the legislature could not by further legislation require the company to fulfil the original obligation.

Sufficient appears to warrant the conclusion that no evidence was introduced in that case to show that the fish rights below the dam suffered any injury whatever, nor does it appear that the attention of the court was drawn to the fact that the river across which the dam was built runs through more than one State.—(Moore v. Veazie, 32 Me., 353. Veazie v. Moore, 14 How., 571.)

Different rules perhaps may be applied in ascertaining the power of a State legislature to authorize permanent obstructions to the free passage of fish in a river flowing through two or more States, like the Connecticut or Merrimac, from the rules which should be applied in a case where the river across which the dam is constructed is wholly within the State which authorizes the structure; but it is not necessary to consider that question in this case, as it was not raised in the State court, nor was it presented here by either party.

Fishways have never been constructed by the respondents in their dam, and they contend that they are not obliged to make any such provision for the passage of the fish, as their charter does not create any such obligation; but the answer which the complainants make to that suggestion is decisive that the charter does not contain any provision exempting them from that implied obligation, which arises in every such case by the common law of that State, unless the charter contains some provision which expressly negatives that implication.

Even suppose that it is so, still they contend that the fourth section of the charter of their grantors should be construed as negating any such implied condition; but the court is entirely of a different opinion, as that section makes no provision for any compensation to the owners of the fish rights below the dam, and the record shows that such fish rights, as well as those above the dam, are injured by the obstruction to the free passage of the fish in their accustomed seasons to the head waters of the river.

Authority to construct and maintain a dam without a fishway, it is conceded, is not granted in terms in the charter, and it may be added that the charter does not contain any words to warrant any such implication. On the contrary, the terms and provisions of the charter are consistent with the theory that the legislature contemplated the construction of a dam with a convenient passage-way for fish, so as not to impair unnecessarily the rights of the riparian owners either above or below the dam, and that the legislature, if the company failed to fulfill that obligation, may "compel them to do so by more specific legislation."

Damages, it is true, were to be paid to "the owners of present fish rights existing above the dam," but the court here, in respect to that matter, concurs with the State court that the meaning of the sentence is satisfied by regarding it as providing for a partial interruption and injury of those rights, and not as contemplating their utter destruction; that the legislature which granted the charter may well have supposed that a dam across the river at that place, with the best fishway that could be constructed, would to some extent obstruct the free passage of the fish, and may have intended by that provision to require the owners of the dam to make compensation for such injuries.

Viewed in any reasonable light, it is quite clear that the charters of the respondents do not contain any stipulation or contract exempting them from the implied condition annexed to such a grant, not qualified by such a contract, that the corporation in erecting such a dam shall construct suitable and convenient fishways for the free passage of the fish to the head waters of the river in their accustomed seasons; and that the charter, in view of the fact that it contains no such exemption, is subject to the power reserved to the legislature by the general law in operation when the charters were granted, that all acts of incorporation shall at all times hereafter be liable to be amended, altered or repealed at the pleasure of the legislature. Such charters being subject to the implied condition to construct suitable fishways for

the free passage of the fish, it follows that the corporations are not exempt from that burden, and that the legislature under the reserved power to amend, alter or repeal the charter, may pass laws to enforce that duty, as such a law does not impair any contract created by the charter or infringe any right vested in the corporation—(Rev. Stat., 366. College Cases, 13 Wall., 213.)

Charters subsequently granted must be understood as standing just as they would if that reservation of the power to amend, alter or repeal the same had been incorporated into each charter.—(Miller & al. v. the people of N. Y., 15 Wall.,—.)

Power to legislate, founded upon such a reservation, is certainly not without limit, but it may safely be affirmed that it reserves to the legislature the authority to make any alteration or amendment in a charter granted, subject to it, that will not defeat or substantially impair the object of the grant or any rights which have vested under it, which the legislature may deem necessary to secure either the object of the grant or any other public right not expressly granted away by the charter.—(Holyoke Water Power Co., 104 Mass., 451.)

Such a charter may doubtless be granted to build a dam across a river whose whole course is within the State granting the franchise, with a provision exempting the corporation from all obligation to construct such fishway for the free passage of the fish, as the enterprise of erecting a dam to create power to operate mills is so far public in its nature that it is competent for the legislature to exercise the power of eminent domain to accomplish the purpose, if suitable provision is made to compensate the owners of the property or rights condemned under that power; but it may be more doubtful whether the legislature of a State can make a contract with such a corporation authorizing them to construct a dam across a river flowing through two or more States, which shall permanently exempt the grantees from all such obligation, and destroy forever the rights of fishery in the river throughout its whole course from its source to its confluence with tide waters.

Concede, however, that the power to make such a contract exists, and that it is as boundless as the theory of the respondents assume it to be, still the court here is of the opinion that the decree of the State court is correct, and that it should be affirmed, as the charters under which the dam in this case was erected and is maintained do not contain any such exemption from the implied obligation to construct fishways for the free passage of the fish, nor any provision which prohibits the legislature from imposing that obligation under the power reserved to amend, alter, or repeal the charter.

Properly construed, neither of the charters affords any support whatever to the theory of the respondents, as they do not contain any semblance of a grant to take and subvert the fish rights below the dam, nor is there anything in the provision requiring compensation to be made to the owners of fish rights above the dam, which is not perfectly consistent with the theory that it was in-



corporated into the charter merely to compensate the owners of such fish rights for injuries which they would suffer from the obstruction, even if the customary fishways were constructed as required by immemorial usage and the express enactment of the legislature.

Decree affirmed.

D. W. MIDDLETON, C. S. C., U. S.