

Document No. 7.

FIFTH ANNUAL REPORT

OF THE

COMMISSIONERS OF FISHERIES

OF THE

STATE OF NEW JERSEY,

FOR THE YEAR 1874.

THE UNIVERSITY OF CHICAGO

REPORT.

To His Excellency, Joel Parker, Governor of the State of New Jersey:

SIR:—The Commissioners of Fisheries of the State of New Jersey have the honor to present to you this, their Fifth Annual Report. The fulfillment of this duty is saddened by the death of their colleague, Dr. J. Hamilton Slack. By this event the State has lost a valuable officer, and his colleagues an able and ardent coadjutor.

In the prime of manhood, possessing a highly cultivated intellect, the bent of his inclination led him in the pursuit of natural sciences, especially that branch relating to pisciculture. In this he became distinguished and pre-eminently fitted for the position he held, when, by exposure while in charge of a shad hatching camp on the river Delaware, under the auspices of the United States Commissioner of Fish and Fisheries, he contracted a pleurisy, which terminated fatally on the twenty-seventh day of August last.

SOUTHERN DEPARTMENT.

The interest in fish culture awakened in the last decade, we are happy to say, continues unabated, especially in its bearing upon the replenishing of our much exhausted rivers and lakes with food fishes.

The reports, alike of the Commissioners of Fisheries of State and general governments, abound with convincing evidence of the benefits from the fostering care now being bestowed on this most important interest. Typical of these results, we will instance the experience of the past season's takes of Anadromous fishes in the river Delaware and its tributaries.

For a number of years the spring has been backward, no very early fishing occurring within twenty years. The past season was remarkably late. When the shad entered the bay, it was in unusually great numbers. Retarded, however, by the continuance of cold weather, and the ice and snow water freshets, and intercepted and

headed off, as usual, by the many hundred gilling seines, they made but slow progress up the river, so much so, that the shore fisheries did not commence fishing till the twenty-first of April, a week later than ever before. By the twenty-fourth of April, shad in considerable numbers had reached a point some forty miles above the head of the bay, when occurred the terrible storm of that and the day following, which was rain over the tidal portion of the river, but further north was snow. By this the shad and herring were backed down in the brackish water of the bay. Whence, by reason of the continued cold weather, and consequent slow melting and running off of the snow and ice water, they did not reach again the shore fisheries till sixteen days had elapsed, viz: on Monday, May eleventh.

In that interval, huddled together in immense numbers, the drift nets made great havoc of them. Some nets taking from two to four hundred in a single day. So great was their catch that the Philadelphia market became glutted, and the price fell to about \$6.50 per hundred, which, deducting freight, \$3.00, and salesmen's commissions, \$2.00, left to the poor fishermen but \$1.50, a sum utterly unremunerative. This was induced too by the immense number brought on rail from the Potomac and the affluents to Chesapeake bay.

A marked feature of the past season, and a gratifying one too, was the increased average weight of shad, ascribable by intelligent fishermen to the better observance of the fishing law the past three seasons, especially that prescribing a weekly close time of some thirty hours, in the which shad gain access to their spawning grounds above tide, and after having deposited their spawn, descend to the sea, to return again the subsequent spring of greatly increased weight.

From the causes mentioned, success was confined exclusively to the gilling or drift-net fishermen, whose mode of fishing enables them to keep pace with the "runs" of shad. While the shore or sweeping seine fishermen confined each to a given reach of river, having necessarily to await the advent of those "runs" already decimated by the drift-nets, met with indifferent success, receiving after two weeks unprofitable fishing, at a very heavy expense, a very low price for their shad. Still the catch and remuneration, as compared with the previous year, was probably fifty per cent. greater.

A summary of the reports of the fish wardens of the several counties, will furnish matter of interest.

Mr. James Logue, Fish Warden of Cumberland county, reports the number of nets (drift-nets) less than in previous years, yet he considers this decrease more apparent than real, inasmuch as some are non-residents, but have their cabins in Cumberland county, while residents of that county have theirs in an adjoining one.

Average catch to a net, about one thousand two hundred. Prices varied. Some sending their shad to New York over the N. J. S.

R R., when, for lack of ice, they reached market in a bad condition. Others disposed of theirs to hucksters at Bayside, at from twenty-five to thirty cents.

The number of nets in Cohansey creek is from twenty-five to thirty. Many of the nets fished in the creek are owned by a set of "guerrillas" in the business, unscrupulous men, who give the Warden much trouble, and require ceaseless watching. They are, however, becoming more cautious, and he hopes, in another year, to rid the creek of them. The catch for Cohansey was about eight thousand, and retailed mostly in Bridgeton, at about thirty to thirty-five cents.

The season was very short but very good, and the fishermen well satisfied with the result. The sturgeon ran early and interfered with shad fishing. The more intelligent class of fishermen think the enforcement of the law has done already much good, and expect from it most favorable results, if strictly and impartially enforced.

Mr. James S. Hannah, Warden of Salem county, reports the usual number of shore nets. Catch not so good. All fished by non-residents save one. They have strictly observed the weekly close time. Some one hundred nets are fished by residents and about sixty-five by non-residents of the county. The nets range from three hundred and twenty-five to five hundred fathom in length, and twenty feet in depth below the float lines. The total catch was about three hundred and twenty thousand, and sold at about nineteen cents. The shad were much larger than for several years, attributable, no doubt, he says, to the better observance of the law for the past three years below, and to the removal of fish weirs in the upper and non-tidal portion of the Delaware, enabling the ripe shad to reach the spawning grounds and the fry to reach the sea.

The sturgeon fishing, hitherto carried on chiefly by one man, is now divided among many, with a probable falling off in numbers. This latter observation of the Warden is doubtless true, for since sturgeon gilling seines have multiplied below, comparatively few sturgeon are taken at the upper fisheries. The same has been the case with the shad. There have been instances of violation of the weekly close time by non-residents, who have their floating cabins in small creeks emptying into the bay through the salt marshes, many miles from the mainland, whence they sally forth and fish unobserved. Provided with a small tug, the Warden could effectually patrol the entire water front of his county, and repress all illegal fishing.

The question of jurisdiction pending between Delaware and New Jersey, embarrasses the Warden greatly. Violators of the law are assured by their legal advisors that the Warden cannot enforce the law within the "twelve mile circle." He complains, too, that citi-

zens wink at instead of frowning down its infraction, on the plea that the "*poor fisherman*" should be allowed to fish on Sunday, as he has but a short time to fish any how.

Notwithstanding these difficulties, there has been less violation of the Sunday close time during the past three years than at any like period since drift-nets have been fished in our river. With the question of jurisdiction settled, he guarantees to rid the Delaware, in front of his county, of every Sunday fisherman. No instance of shad being sold or had in possession after the close of the fishing season, viz.: June 10th, has come to his knowledge. He believes that provision has been strictly observed.

Helms V. Heritage, Warden of Gloucester county, reports: "The past season for shad and herring has been very good. The number of shad has been greater and the size larger than any season for the past six or seven years.

"The gillmen have averaged about two thousand five hundred fish to a net, being an excess of over thirty-three per cent. over last year, while the shore fisheries have not done so well as in the past few seasons.

"The largest shad that came under my notice weighed *nine pounds*; the average would be about four and one-half pounds. About seventy-five would be required when cleaned and salted to fill an ordinary fish barrel.

"There was but one infraction of the fishing laws that came under my personal observation, and that by parties resident in this State. No action was taken against them for the reason that upon calling their attention to the violation of the law they immediately desisted and promised to obey the laws in the future. There was another violation to which my attention was directed, but as the person giving the information failed to furnish the names of the guilty parties and the evidence sufficient to sustain the charge, I could do nothing in the matter. I am not aware of any shad being sold out of season, caught within my jurisdiction, although I saw shad sold in the Philadelphia markets after the twentieth day of June, but I do not know where they were taken from.

"In the main the laws relative to fishing have been respected and obeyed, except by parties from Pennsylvania after the season had closed. These persons congregated in numbers too great for me to interfere with, as I had no appliances to put a stop to these violations, especially in view of the fact that there was and is no police assistance from the authorities of Pennsylvania."

Mr. Frederic Shindle, Warden of Camden county, reports:

Number of gill-nets about the same as heretofore. As a rule the weekly close time is observed by the regular gill-net men, but was violated by Philadelphians, who work during the week and fish on Sundays. That he has not the means necessary to arrest them, nor could he identify them should they come on the Jersey shore at any time.

The only shore fishery within his jurisdiction is in the occupancy of Mr. Devier, of Kensington, Philadelphia, who informed him that the season was very short—that the shad were quite large. Recommends that the Warden be furnished by the State with a boat, well manned and equipped, to enable him to act with efficiency; complains of the want of co-operation on the part of the authorities of Pennsylvania, whence proceeds all the outlawry complained of by himself and his fellow Wardens of Gloucester and Burlington counties. Is cognizant of no shad sold or had in possession after the close of the season.

A. D. Carman, Warden of Burlington county, reports only four shore fisheries in operation. Through want of success the previous year, six others were abandoned.

At Dutch Neck, fished by Capt. Rice, the catch was good, and more large shad caught than for many previous years. Shad weighing five, six, and seven pounds were frequently taken. Gross receipts \$2,700. Capt. Rice cheerfully answered all interrogatories and promised to furnish any facts of interest that might come to his notice.

Hawk Island; season short; troubled by a sand bar; fish were large.

Plum Point and Taylor's Point, fished by Jacob Gosse; very reticent. Learned from the men that season had been good, and more large shad taken than they had seen for many years.

Burlington county sent out about seventy-five regular gill-nets, to-wit:

From Delanco, Bridgeboro, and Cinnaminson, twenty-five nets, averaging 1600, price 35 cents.

From Beverly and Burlington townships, twenty-five nets, average catch 1000, price \$40 per 100.

From Bordentown and Mansfield, twenty-five nets, average catch 700, price \$45 per 100.

There were about as many nets from Pennsylvania opposite.

Owing to the protection the shad have had the past three seasons, the season has proved an extraordinary one. Fishing commenced April 13th, and increased till the storm of the 23d drove them down. Returned again about the 18th. But about the 11th of May commenced the heaviest run for eighteen years. Five pound shad were numerous, running five pounds to every sixteen. Largest shad weighed seven and a quarter pounds; most of the large shad were males. Recommends extension of time prohibiting fishing and continuance of the river police organization.

Mr. Carman finds in the stomach of shad fry, bugs, worms, insects, and small shells, which, examined by the glass, thinks are young mussels. The fry stem the current in their descent to the sea, making but slight progress during the flood tide.

As previously remarked, the seasons for a series of years have

been backward, and the last one even exceptionally so. Still it appears from the reports of the wardens of the five counties bordering upon the tidal portion of the Delaware, a distance of about one hundred miles, that shad have been not only more numerous but of a larger growth, and all unite that this is the legitimate result of the removal of the destructive wiers and fish baskets in the upper part of the river, and the stricter observance of those salutary restrictive measures, particularly the thirty hour weekly close time, whereby more shad have reached the spawning grounds, and more young shad have gone each year to the ocean to return in due time. Applied to partridges, this is a species of logic that every farmer appreciates, but there appears to be no class of persons so ignorant of what so greatly concerns their interest as is the unscientific fishermen of the habitudes of the finny tribes.

We would call particular attention to the fact that this most encouraging condition, results from the partial protection that one State, only of the three so deeply interested, has been enabled to afford. It is the earnest of what may be expected from artificial propagation and protection, when Pennsylvania shall have organized an efficient river police, and when Delaware and New Jersey, having adjusted their territorial relation, shall be once more in accord in this matter. To Pennsylvania it is especially important that the fishing interest of the river Delaware should be fostered and protected, since all the valuable shore fisheries on both sides of the river from Trenton Falls to Delaware Bay, *save one*, are owned or fished by her citizens, chiefly of Kensington or Philadelphia, and to her great metropolis and other cities on her borders are the great bulk of shad, herring, and the other varieties taken.

Owing to some fortuitous circumstances so far, every effort on the part of her commissioners to establish a river police has failed. In the hope and belief that a more successful effort may be made the ensuing session of her Legislature, your commissioners most strenuously recommend that our Wardens, whose terms of office expire by limitation before the commencing of another fishing season, may be reappointed.

If we have demonstrated the importance of our fishing interest as it even now exists, how much greater must it be when, by the liberality of the general government, through its commissioners, our river shall abound, as there is now reason to believe it will, with salmon and other valuable varieties of introduced food fishes.

FISH-WAYS.

The erection of dams across some of the principal rivers flowing into the Atlantic ocean has caused a diminution of the anadromous fishes frequenting them, in proportion as they have cut them off from their spawning grounds. Take as illustration the Connecticut

and Susquehanna rivers. In both instances some thirty or forty miles intervene between tide and the first impassable dams. Consequently, in those rivers large numbers of shad have continued to return, while on the Schuylkill, upon the erection of the Fairmount dam, in the year 1820, at the head of tide, the valuable shad fisheries below that dam became worthless, after the shad previously hatched above the dam had returned in the order of their hatching, say in one, two, and three years, (shad return at two and three years of age). We are aware that this result has been ascribed to gas refuse, but gas was not introduced for a number of years after the result we speak of.

To overcome these barriers, fish-ways have been constructed both in Europe and in this country, by means of which the more active and vigorous salmon and alewives (called here herring,) have been enabled to surmount them. But as yet we are not aware that any fish-way has proved entirely successful for shad. This variety moves in schools, keeps in the current, is very shy, and less vigorous than the other two kinds. In this country the Foster and the Brackett are the approved fish-ways. In these by means of bulkheads stretching alternatively from the opposite cribs, and reaching to midway of the chute, the current acquires a tortuous course, and is greatly weakened; eddies being also created in the angles, affording resting places..

A fishway, we believe, should be as rustic in its construction as possible. When practicable it should be paved with stone, as on the sides of that at Columbia, Pa.

The most perfect fish-way known to us for shad, is that at Scudder's Falls, above Trenton. We give a description of it by Hon. Charles Hewitt, one of the proprietors of the Trenton Water Power.

It is a passage for both rafts and fish, and has proved entirely satisfactorily, we believe. "The chute in the dam at Scudder's Falls, in the middle, is one hundred and eighteen feet. It is made through what was the body of the old dam, the stones of which were thrown down, so as to give the required depth of water. What form the latter assumed was left to chance. It was intended to make a timber and stone bottom, but the legal troubles that arose in Pennsylvania, prevented the completion of the work. The dam is about four feet high, and I suppose the chute may be considered from two hundred to two hundred and fifty feet long. The inability to keep the work in repair, has caused the chute, by washing out, to be unnecessarily deepened, to the great injury of the city of Trenton, and without any advantage, so far as I know, to the fisheries."

In the past summer, one of your Commissioners inspected the fish-way in the dam across the Susquehanna, at Columbia, then undergoing important alterations, not having fulfilled the expectations of the Commissioners in the previous spring.

The river there is a mile wide. The fishway, as now completed, consists of very substantial side cribs, extending from the foot of the dam one hundred and twenty feet up stream. The clear width of the fishway is forty-eight feet. The upper tie crib which forms the mouth of the fishway, is two feet below the crest of the dam, and the toe of the fishway is six feet lower than the crest. The fall of water for the entire length is therefore *four* feet. The floor of the fishway is partly of stone and partly of plank. Ten feet on either side consists of a stone floor, eighteen inches deep, and set in panels of heavy timber. The middle, twenty-eight feet wide, is of six-inch hemlock plank, and in this plank floor are seven bulk heads, or breakwaters. Below the dam, for twenty or thirty feet, the bottom has been filled up with large stones of from four to ten cubic feet.

The objections raised to the Foster and Bracket bulkheads, in a fishway of the dimensions of that at Columbia, and in a river so large as the Susquehanna, is that they may be injured or destroyed by large masses of ice, carried down in the winter, and driftwood during the spring freshets.

As it may be expedient to construct fishways in streams in our own State, such as the Raritan and Passaic, the former of which derives its present scanty supply of shad from the Delaware through the Feeder and Canal, your Commissioners have deemed the subject worthy of consideration, and beg leave to present a plan by which the all important bulkheads may be adopted without danger from ice and drift wood.

This plan is based in part on that adopted at Columbia, but with, we think, important modifications, to wit:

The bulkheads to be hinged at one end and let into the sides of the cribs, where they remain entirely secure till all danger is past, and when the shad begin to ascend the stream, they can then be, by a windlass, placed in position and secured there by cleats at the outer end and middle. These cleats fastened to the bottom of the slope, receives an iron shoe or flange at the bottom of the bulkhead, by which the bulkhead is held in place and its buoyancy overcome. The recesses in the side of the cribs, previously occupied by the bulkheads, 2 feet high and 3 feet deep, now afford resting places for the fish.

The plan also provides an Ice Pier at the upper end, and as a measure of paramount importance, direction should be given to the flow when it leaves the toe of the fishway. This can be accomplished by stone ricks or guides, such as are adopted in the construction of weirs and fish baskets, only reversed, so as to diverge for a short distance, and then by an easy deflection fall back to the foot of the dam on each side. By this device, the shad when nosing along in search of a passage, will be led to the chute, while direction will also be given to the current, so that no recoil will be caused

by the water from the chute striking that of the channel, forming a cushion, which we think is as effectual a barrier as the dam itself, but the flow would be easy and continuous with that in the natural channel of the river below the dam.

NON-TIDAL DEPARTMENT.

The warm weather of the first week in March led the up river shad fishermen to prepare for an early season. On the fifth of March, a two and three-quarter pound shad was caught at Lambertville. On the seventh of March, however, the weather was very cold, and so continued until April, and the large quantities of ice and snow which descended the river until late in April, effectually chilled the water so as to keep the shad back. From that time until June the take was very good, and all the fishermen unite in saying that the fish taken were larger and finer than had been seen in the river for many years. Some were taken in Hunterdon county fisheries weighing more than nine pounds each, and large numbers averaged seven pounds each. After April the take declined, for some reason not certainly known, although the up river men attribute it in great part to extremely low water, the river being lower than known for many years. The total take in Hunterdon county was about thirteen thousand, and the size averaging so large, the season was profitable. Nearly all were caught in May, and of the whole take, about ten thousand were from the fisheries at Lambertville. In Warren county, the take was about as last year, and the fish were better. It is the united testimony of the Wardens from Mercer to Warren, that the effect of enforcing the close time, and abolishing fixed instruments or destruction, has been most beneficial, and that the results are now just beginning to be seen. There is still some tendency to violate the law in these respects in Sussex, where, unfortunately, no appointment of Warden has been made this year, and the attention of your Excellency is especially called to the needs of that county.

The active operations of our late Commissioner, Dr. J. H. Slack, acting as a United States Deputy Commissioner of Fisheries, began at Point Pleasant, on the twenty-fifth day of June, and were continued by him until July second. On that day, he returned to his home at Troutdale, and was prostrated the following day by a violent attack of pleurisy, which resulted fatally. During Dr. Slack's illness, his assistant continued the work, under his direction, until the thirteenth of July, when he was ordered to cease operations. Owing to the low stage of the water, and the lateness of the season before the United States appropriation was made and the work ordered, the number of shad taken was not so large as desired, and for the want of males, some of the spawn procured could not be fertilized and used. The scarcity of males is

accounted for from the fact that large numbers of small male shad are captured in small meshed nets in the early spring, when they are really useless, and the remedy proposed is to prohibit, from April 1st to May 20th, the use of nets of a mesh fine enough to accomplish this result. No means have yet been devised for keeping grown shad alive after being netted, so as to use them in fertilizing the spawn that may be taken at the next haul. Experiments made at Holyoke, by Prof. Baird, developed the fact that even when the seine was hauled alongside a netted pound, and the shad transferred to the pound with the utmost care, and without handling, they would not live an hour.

Of course the same cause which embarrassed Dr. Slack in the prosecution of his work would affect the propagation of the fish in the natural way; and further, these small fishes if allowed to return to sea would come back fit for market, and would add greatly to the take.

The result at Point Pleasant was the hatching of about five hundred and thirty thousand young shad. This work was done by the United States without cost to your Commissioners.

The fishermen, who are in fact wide awake to the interests of their trade, have very generally visited the shad hatching camp, and are strongly in favor of a continuation of the work on a larger scale, being assured that it will greatly increase the run of shad, and their profits. Without a single exception the close time has been observed in Mercer, Hunterdon, and Warren (Sussex not fully heard from), and the fishing laws have been very generally obeyed. Set-lines have been used by residents of Pennsylvania, and there being no law in that State prohibiting them, of course our Wardens are powerless, it being admitted that legislation for such object should be concurrent. The Warden of Warren has been troubled again with a fish basket set up in the Delaware in the same place where he destroyed one last year, and it is believed erected by the same parties from Sussex. Threats were freely made that violence would be used towards any one attempting to remove the nuisance, and the Warden could not find anybody within miles of it who would consent to assist in the removal. He took sufficient force, however, and tore it out, and it is proper to add, acted throughout as becomes a faithful officer.

Almost without exception the fishermen feel that your Commissioners are working for their best interests, and are ready to co-operate to enforce measures intended to break up these illegal practices. What the shad fishermen of the upper Delaware demand is, that proper close time be observed from South Jersey all the way up; that laws and regulations be framed to prevent the destruction of small male shad in the early part of the season (up to May 20th), that laws for the abolition of fish baskets and other devices which effect the whole destruction of the young shad, be enforced; and that i

possible the artificial propagation of shad be carried on as it is in the New England rivers. In the Connecticut the shad fisheries were reduced to a minimum in 1867, and by persistent and skillful efforts their products have been increased seven fold. Let skeptics ponder this and similar well authenticated facts and then say whether the return will not well repay the labor.

The Delaware fulfills all the requirements of a perfect breeding ground for shad, and like fishes, and only ordinary and continued effort is required to increase at once the supply, and the profits of of legitimate fishing. If indiscriminate fishing is again permitted, the largely increased number who will engage in it, and the improved devices for prosecuting the work, will insure a speedy reduction of the shad fishing interest, and its abandonment by the regular fishermen.

While the take of shad was larger this year than last, the reverse is true as to the supply of rock and catfish. The season for these fishes does not properly begin until a short time before the limit fixed by law for the close of the shad fisheries, and, on account of the low water, soon after that time and throughout the month of June, the falling off was considerable. Many of the fisheries can only be operated when the water is something above its lowest mark, and, of course, these were comparatively unused.

There are no statistics to show exactly the number and value of the rock and catfish taken in any year, but the Wardens and fishermen inform your commissioners that the take is very large and profitable. The rockfish sell readily at twelve to fifteen cents per pound, and the catfish at twenty-five cents per dozen. Yellow perch have greatly increased in number during the last three years, and are of large size. It may not be generally known that this fish, which is allied to the bass family, often attains a size equalling the average of our bass. During the winter and spring, suckers have been caught in large quantities. The Warden of Hunterdon reports more than one thousand taken at two successive hauls of the seine, at a fishing in his jurisdiction, the last winter. The effect of the abolition of the fish basket nuisance has been shown as fully in the remarkable increase of this class of fishes as in any other way. While not fit to be ranked with fishes of the character of the shad or salmon or bass, still the qualities of the suckers, and the fact that they are reliable winter fish, make them a desirable acquisition to our waters. Large numbers are taken all through the winter season, and they sell readily at from twenty-five to forty cents a dozen.

SUSSEX COUNTY.

No Warden having been found for this county, such information as has been obtained comes from reports direct from fishermen and from the Warden of Warren county. The law as to fish baskets

and fyke-nets has not been fully observed. Owing to the inconvenience experienced in getting to the fisheries so far up the river, the Wardens below have not been able to give this county any personal attention.

Your commissioners find, that while the fishermen, very generally, desire and will aid in the enforcement of the laws, and believe that course to be for their advantage, yet they want to know that there is at hand a power ready and willing to visit the penalty for an infraction of law, speedily, on the guilty person. They are not willing to aid in partly enforcing the law, and thus giving to a few "arabs," as Mr. Warden Weller calls them, a chance to get a greater profit from their illegal operations. It is proper to say that Mr. Jacob Westbrook, the former Warden of this county, did not resign from want of interest in the cause, but for the reason that he required, in order to be successful, the aid of the sheriff of Pike county, and that was refused. It is to be hoped that the operation of the third term principle, or some other equally certain remedy, will give us a more willing aid in that rather wild county. We learn, from residents and fishermen, that shad were taken in large quantities while the season lasted, and that they were very large and in fine condition. The season was so short, (not commencing fairly until after the first week in May), that the value of shad taken was only about the same as last year. Rockfish, suckers, catfish, and other small fishes are taken in about the same quantities as formerly. Numbers of salmon have been seen as far up as the Water Gap. The black bass are said to have found their way as far as Port Jervis, and have been taken above the bounds of Warren county weighing more than five pounds.

WARREN COUNTY.

The efficient Warden of Warren county has given much personal attention to the duties of his office. The lawlessness displayed by a few reckless men in Sussex has naturally produced its effect in adjoining parts of Warren, and it has been only by strenuous efforts that the Warden has been able to keep order.

With a view to do away with the probable and plausible excuse of ignorance of the law, Dr. Slack caused 300 copies of the sections of laws passed at the last session of the Legislature, relating to fish in the Delaware and its tributaries, to be printed in handbill form and distributed by the Warden among the parties interested; and, also, to be set up in public places in the hamlets along the river shore. This was done nearly six months before the printed laws were accessible. For some time this produced the desired effect, but questions having been raised as to the right of Legislature over the tributaries, especially when one man owned both sides of the stream, certain parties defied the Warden and put in the baskets.

He was compelled to cut out or dismantle five fish baskets in the tributaries and one in the Delaware.

It is believed by your Commissioners that the reasoning of Mr. Justice Clifford, in the case decided in the United States Supreme Court in 1872, (see appendix D), will include such streams as the tributaries of the Delaware, and we desire the statute law to be made still more explicit, so that laws, heretofore enacted for the protection of fish in the Delaware, shall be extended in terms to its tributaries.

In Warren and Sussex are many clear, cold, swift flowing streams which empty into the Delaware, and can be made most useful as spawning or breeding grounds for the shad, the salmon (*salmo salar*), the California salmon (*salmo quinnat*) and salmon trout (*salmo confluis*). These are the places which would be naturally selected by all that class of fishes, and would be the best possible nursery for the young for several months, and it is the undoubted duty of the law making power, if, as your Commissioners believe, such action would not interfere with vested rights, to enact such laws as to fish baskets *et id omne genus*, in these streams, as will effectually crush them out. Laws should also be passed extending, in so many words, the power of the commissioners to cause fishways to be built, to these tributary streams. It is granted that each citizen can use the water privileges he may own, in fee simple or otherwise, with any right of fishery thereto attached, in such manner as he may see fit; provided always, that he does not so use his own right as to interfere with the rights of others. These streams have always been, and, of right ought to be, the runways for shad and salmon, when these fishes are seeking a spawning bed; and the young formerly ascended, and still would ascend these streams and live in them for months. The public at large, whether consisting of all owners of fishing rights above any given proprietor, or of the entire public who have a common of fishery in the river below any such proprietor, are entitled to have the full benefit of these runways free from any such permanent obstructions as will prevent the ready passage of the fish up stream, or will destroy them uselessly on their return to the river and sea. If a man should propose to erect in such a stream a screen, which would *entirely* prevent the passage of fish, the absurdity of his claim of right would plainly appear. Yet these structures complained of are only a degree removed from such an arrangement.

Mr. Weller further reports, that of the twelve bonded shore fisheries in Warren county, but ten have been operated this year. The take has been good, although the season came in late, but the size of the shad was unusually large. The other classes of fishes have produced about an average. He has heard of no violations of the Sunday close time. Owing to the great extent of water front in this county, it is almost impossible for him to guard all,

but he has employed several assistants. No unlawful nets or structures have been seen, except the fish baskets above mentioned and having been destroyed by him. The fishermen have noted and remarked that a greater number of young shad were seen going down the Delaware this summer than at any other time within the recollection of the oldest inhabitant. "You could see them popping up as fast as rain drops in the water." The black bass are multiplying very fast and are now found all the way down far past the bounds of Warren. The salmon have been seen in quantities and appear to be doing well. Mr. Weller suggests the passage of a law imposing a fine or imprisonment upon each and every person convicted of having assisted in making or constructing a fish basket or like engine. He says they have, in all, erected three fish baskets, at the same place where the one was destroyed last year. Your Commissioners fully believe that Mr. Weller's suggestion is a good one, and recommend the passage of such an act. He also desires us to take measures to secure absolutely concurrent legislation as to the Delaware.

HUNTERDON COUNTY.

Mr. A. J. Scarborough reports, that he has not heard of a single violation of the fishing laws this season. He finds, in his intercourse with the fishermen, a general desire to have the laws enforced. He says further, that during his twenty-five years experience as a fisherman, at Lambertville, he has learned to know that while fishermen really desire the enforcement of the close time law, they are always ready to do as their neighbors do, and that where the wholesome restraint, which the presence of the Warden gives, is wanting, they will, very generally, go forthwith to work in defiance of law. Near Lambertville, before the appointment of Wardens, fishing was often carried on until July 4th, and above Lambertville the closing time was even later. "The only wonder is that they did not entirely destroy the shad fishing interest in the river Delaware."

Since the appointment of Fish Wardens, the number of young shad going down the river has largely increased. "I have heard old men who have fished here all their lives, say that they never, in previous years, saw as many young shad as they have seen this year and last."

The principal run of shad in this district, was from the latter part of April until May 25th. After that time the low water interfered.

The shad were the finest caught for years. The Warden found this to be true at all the fisheries. Some were caught weighing over nine pounds. The small mesh-net was kept out of the large seines during the run of small male shad in the early part of the season, and the Warden recommends a law prohibiting the use of the small mesh-net from April 1st to May 20th, in order to give these males a fair

chance to get to the spawning ground. The fishermen strongly favor such a law.

The small meshed nets are needed after May 20th, to secure the rock and catfish which run at that time.

The take of shad was better this year than last, and more profitable. About thirteen thousand were caught. Large numbers were seen to go up the river shortly after the close of the season. If the young were not disturbed in their descent of the river the take must increase. There has been nothing to interfere with them in this county for three years last past, but the Delaware and Raritan Feeder and the Trenton Water Power.

These having "wide waters" at their source, draw in the young shad, and no sufficient guard being erected, the fishes follow the course of the current, to be destroyed by millions in their course to the sea. This destruction does more to affect the fisheries than the total take by legitimate fishing above tide water. Since the parties interested could prevent a great part of this waste and destruction by erecting suitable fish guards, and keeping them in position from August to November, there is no reason why legislation should not be had with a view to compelling them to take this precaution.

The black bass have largely increased in the limits of this county and all the way to tide water. The young are seen by the thousand all along the river. They are very destructive to other fish, sunfish in particular. It is a singular fact that in all his fishing for sunfish this year with a hook and line, the Warden caught only large fishes. He thinks that it tends to show that the bass have destroyed large numbers of the young. He would advise the repeal of all laws prohibiting the catching of black bass in the Delaware, as they are now quite able to take care of themselves. The condition of the fishing laws is complained of, and a revision which should repeal utterly all former enactments as to the Delaware, and contain what is intended to be the whole law, is very much to be desired. It is also especially desirable if the observance of the close time is to be enforced, that the laws of Pennsylvania and New Jersey fixing its limit should be identical.

MERCER COUNTY.

The character of this district, which extends both sides of tide water, is such that it fully occupies the attention of the efficient Warden, Mr. Joseph Ashmore. His prompt action in every known case of actual violation of law, and his warnings to all suspected or known to intend such violation, has given him full control of a rather difficult district, and he reports no serious breach of law during the season. The season was of course delayed, for the same reason as given in upper counties, but while it lasted the result was satisfactory. He gives this tabulated statement prepared from returns of the fishermen, showing all the results of the season.

Net.	Number in one pool.		Size of net.		Fish taken.	Average number of hands.	Expenses.	Gross receipts.	Average hauls per diem.	Date of first haul.	Date of last haul.	Average time of haul.	Fished by
	yards.	feet.	Length.	Depth.									
Shore.	1	320	12	} 1000 herring. 4000 shad.	11	\$650	\$850	10	April	13	June	1 hr.	Taylor's Point, by Ham. Hill, Pa.
"	1	300	12		} 6000 shad. 2000 herring.	10	775	950	10	"	15	"	15 1/4
"	1	260	16	} 5000 shad. 2000 herring.		10	525	1000	10	"	12	"	10 1
"	1	400	14		} 5000 shad.	11	550	880	10	"	6	"	2 1
"	1	290	10	2100		5	350	600	20	"	3	"	15 1/2
"	1	240	9	400	5	50	100	12	May	11	"	8 1	Green Bank or Keeler's, by Dan'l Mitchell, N. J.
"	1	200	9	1200	5	175	300	12	"	8	"	9 1	Fisk & Green's, by A. Lawyer, N. J.
"	1	220	9	2600	5	300	650	12	"	8	"	9 1	Duer Island, by Ed. Pidcock, N. J.
"	1	220	9	2600	6	350	650	12	"	9	"	9 1	Terrapin, by Yardley Search, Pa.
"	1	185	10	1500	5	75	555	12	April	10	"	15 3/4	Sand Gully, by Gershom Moore, N. J.
"	1	280	15	1900	5	60	740	12	"	20	"	15 1	Lowlands, by Stephen B. Moore, N. J.
													Duck Island, Emly's Island, Buttonwood, Long Bar, } Not fished.

The eleven fisheries report gross receipts \$7,275, and expenses \$3,860, leaving a profit of \$3,415. This is more than twice as much as the net returns of last year, and the fishery owners were better rewarded for their outlays and trouble than for any year's work for a long time. The shore fisheries are all entered, bonded, and taxed, and some of the proprietors complain that encroachments in the river by private parties have almost destroyed the value of their fisheries, by causing unusual deposits to be made and bars formed during the annual freshets. They also complain that large quantities of fish are destroyed in their passage down the river by being drawn into the feeder and water power; and report that many dead fishes are found at the outlet of the water power when it is drawn off at the close of each week.

FOOD FISHES FOR INLAND WATERS.

Your Commissioners are happy to report that the subject of increasing the supply of food fishes is receiving great attention throughout the State.

Since fishes have been hatched in this country by the million, as an every day thing, the accounts of results are no longer branded as fish stories. In fact, such wonderful things have been accomplished in this line that the phrase should be changed; it has ceased to be cant. It was only after European governments had demonstrated the usefulness of active and intelligent efforts to propagate fish, that the matter was considered by any State in this Union, and it is less than a decade ago that the idea of artificial propagation on a large scale was first insisted on here, with a view to restock or replenish our waters. The efforts of ichthyotechnists were first directed to trout raising. Afterwards, in 1867, Seth Green made the wonderful discovery of his hatching boxes, which made artificial hatching of shad possible, and resulted, under his management, in raising the take of shad in the Connecticut and Hudson from almost nothing to the old time standard.

SALMON, (*Salmo Salar* and *Salmo Quinnat*).

In 1868 efforts were, for the first time, made to bring the ova of the salmon (*salmo salar*) from Canada to the northern rivers of New England. A full account of this, and subsequent efforts in the same direction, will be found in the interesting article herewith submitted (Appendix B). The Canadian government, finding that we wanted the ova, took up the work of procuring them, and in 1869 sold the eggs at \$40 gold per thousand. Although the risk and actual loss in transportation was very great, the New England States were purchasers at this almost prohibitory price. In 1870 a few thousand were placed in the Connecticut, and Dr. Slack placed two hun-

dred in the Delaware at his own expense. Mr. Atkins, of Maine, having been refused permission to take these spawn in Canada, turned his attention to the Penobscot, and procured a few ova in 1871. The appointment of Prof. Spencer F. Baird to take charge of the U. S. Commission of Fish and Fisheries, in 1872, marks an era in the salmon work. He at once, with characteristic energy, sent a proper person to California, where he procured, from a tributary of the Sacramento, a million eggs for distribution in the northern and middle States. Six thousand of these were hatched at Troutdale, by Dr. Slack, for the State of Pennsylvania, to which State Prof. Baird had assigned them. They were removed from Troutdale in very fine condition, when about two and a half inches long, and were deposited in the Susquehanna. Dr. Slack received, through the favor of Prof. Baird, 40,000 ova of the salmon (*salmo salar*) from Mr. Charles Atkins, March 1st, 1873.

The eggs were hatched, and the little fishes kept until May 1st, when a part of them were deposited in the head waters of the Raritan, and the balance placed in the Delaware. The entire expense of freight, express, &c., and the cost of hatching them, was borne by Dr. Slack.

At the time of the last report, over 600,000 ova of the California or Sacramento Salmon (*S. Quinnat*) had been received at Troutdale. These also were furnished by Prof. Baird and were part of three millions (3,000,000) secured by him in that year. These eggs were procured on the McCloud river, a tributary of the Pit or Upper Sacramento.

The Rev. Livingston Stone had charge of the operation on the McCloud, and in his interesting letter, addressed to Mr. E. A. Brackett, and appended to this report (Appendix C.) will be found a full and interesting account of the fish and their breeding ground. Of the 600,000 raised at Troutdale, all but 235,000 were sent to waters south of us. Those retained were placed as appears by the following statement:

Date.	Water.	Placed by.	Name of Fish.	Number.
1874.				
Jan. 1..	Delaware River	Slack, (Commis'ner).	<i>S. Quinnat.</i>	10,000
Jan. 10..	Del. Pohatcong.	" "	" "	10,000
Jan. 13..	Raritan, S. B.	" "	" "	12,000
Jan. 14..	Del. Pohatcong.	" "	" "	13,000
Jan. 26..	Musconetong.	" "	" "	25,000
Feb. 6..	"	" "	" "	30,000
Feb. 7..	Raritan, S. B.	" "	" "	35,000
Feb. 14..	Del., Mus.	" "	" "	50,000
Feb. 16..	Ponds for Del.	" "	" "	50,000
Total, -	-	-	-	235,000

While a portion of these fishes were yet in the State hatching house, the Legislature directed the Committee on Fisheries to visit that establishment. In their report, made after the visit, they say: "In the troughs your committee were shown over one hundred thousand salmon, destined for the waters of our State. During the past season over three hundred and fifty-five thousand salmon have been hatched within the walls of this building, besides ten thousand salmon trout and over one hundred thousand brook trout, making in all a grand total of nearly half a million fishes. In addition to this, two hundred thousand salmon spawn were daily expected to arrive from Maine."

In due course the expected ova (*S. Salar*) appeared, and were taken in charge by Dr. Slack. One hundred and seventy-six thousand fishes were raised and the disposition made of them appears in the following statement:

1874.					
April 5.	Del. Musco,	J. H. Slack,	S. S.,	25,000	
May 18.	Del. Musco,	J. H. Slack,	S. S.,	40,000	
May 20.	Hackensack,	Anderson & Ricardo.	S. S.,	10,000	
May 21.	Raritan,	N. W. Webster,	S. S.,	15,000	Bound Brook.
May 21.	Passaic,	J. C. Pennington,	S. S.,	28,000	
May 30.	Raritan,	T. Vancamp,	S. S.,	6,000	South Branch.
June 2.	Passaic,	Pennington,	S. S.,	30,000	
June 2.	Raritan,	J. H. Slack,	S. S.,	10,000	
June 5.	Mus.,	J. H. Slack,	S. S.,	12,000	
Total,				-	176,000

The following is the report of Mr. Ricardo, who placed the 10,000 in the Hackensack, on May 20th:

Date.	Water.	Tributaries in which fish were placed.	Name of village.	No. of fish.
May 20.	Hackensack,	Central Creek	New Bridge,	1,500
"	"	Old Bridge Creek,	Old Bridge,	2,000
"	"	Cooper's Creek,	New Milford,	1,500
"	"	Hopper's Creek,	Kinderkamack,	1,000
"	"	Bogert's Creek	West Wood.	1,000
"	"	Paskack Brook,	Hillsdale,	3,000
				10,000

"All the above streams are fine spring brooks, which never fail, and the Paskack brook is about the same as the large brook in front of your place at Troutdale."

It appears that the Delaware received one hundred and eighty-eight thousand (188,000) of the Sacramento salmon, (*S. Quinnat*), and seventy-seven thousand (77,000) of the Maine salmon (*S. Salar*), making in all two hundred and sixty-five thousand, (265,000). To the Raritan river, forty-seven thousand (47,000) Sacramento, and thirty-one thousand (31,000) Maine salmon were assigned, making in all to the Raritan seventy-eight thousand (78,000.) Ten thousand

(10,000) Maine salmon went to the Hackensack, and the balance, thirty-eight thousand (38,000,) were placed in the Passaic. In addition to these fishes a considerable number of Salmon Trout (*S. Confinis*,) were placed in the Passaic. Large numbers of the fishes referred to in these statements, have found their way to the main rivers, and have been seen there this summer. They will not start for the sea until next year, (some remaining in the river even longer) and they may be expected back the following year. So far the largest salmon caught in New Jersey waters, of which we have authentic record, was one captured this year in the Raritan near New Brunswick. The weight was fourteen ounces, and the fish was taken with a fly. This must have been one of the lot placed by Dr. Slack in 1872. Two others were caught at New Brunswick, one by Jeremiah Mayers, and the other by his son. Two good sized salmon (*Smolt*) were taken below Lambertville, but unfortunately the weight and size were not noted. Some have been seen lately in the Musconetcong from six to eight inches in length, and one of your Commissioners has a specimen six inches long, taken by Dr. Slack from this stream. It must be remembered that the number put in is comparatively small, that few of the fishermen can recognize a salmon, and that at this stage the fish is so small as to be worthless, and probably would not attract much attention.

To enable parties interested to aid us in getting news from this class of fishes, we desire to call attention to the following points: At the age of six months the young Maine salmon are known by their silvery scales, and by the lateral line being crossed by dark gray bars. At this stage they are called *parr*, and should be about three and a half inches long. The fish then assumes a brilliant silvery appearance without the bars or spots. After this change the sea voyage is taken, and the returning fish is called *grilse* or *salmon*, according to the age, but in either stage bears the likeness of the salmon. For a description of the Sacramento salmon, see Appendix (C).

The land-locked salmon appears to your Commissioners especially adapted to the large lakes in the upper part of the State, and efforts will be made to procure enough ova to thoroughly stock waters of that class. This variety is obtained in the southeastern and southwestern part of Maine. Those caught in the Schoodic lake region of the St. Croix river, principally in Grand lake, are known as *Schoodic salmon*. When caught in Reed's lake, and Sebago lake, in the southwest, they are known as *Sebago salmon*. The usual and most descriptive name is, however, the *land-locked salmon*. They are very like the true salmon, but smaller. Your Commissioners are very anxious to introduce fishes of this class, wherever it is possible, in preference to black bass, in lakes. It is very important that waters suited for the salmon and salmon trout or white fish,

should not be stocked with bass until it is clearly demonstrated that these other and better kinds will not flourish.

The importance of this effort to stock our rivers will be at once perceived by any person who knows the value of salmon as a food fish. At present we only know them in New Jersey as luxuries attainable by the rich man, but never to be thought of by any other class. If this trial is fairly kept up for a series of years, and proves, as there is every reason to believe it will, a success, it will add directly to the wealth and attractions of the State. Besides the fishes reported above, a large lot of salmon trout (*S. Confinis*) and about ten thousand land locked salmon (*S. Gloveri*), were raised at the State hatching house. The former were distributed by public spirited gentlemen, (including some named in the statement above), in the public waters of the State. The latter are held by your Commissioners, who propose to place them before winter in such lake or lakes in the northern part of the State as they may believe, after personal inspection, to be suitable. They are at present in a pond connected with the State hatching house.

BLACK BASS.

Your Commissioners have received many applications for bass, and have been compelled to postpone most of them until winter. If the arrangements we have made do not fail, we will have enough bass in December to fill all orders. Of course we shall decline to send bass to streams and ponds which we may desire to reserve for other fishes. So far we have furnished fish which have been transported from Troutdale at the expense of the applicants, to stock streams or ponds in Hunterdon, Mercer, Monmouth, Gloucester, Salem, Essex, Passaic, and Morris counties. In all cases the parties receiving the fish have been known to be responsible men. The Commissioners have the right, after three years, to take fish from waters thus stocked, to use in other localities.

All this work, except what was accomplished by Dr. Slack at his own cost, has been done under the act passed by the Legislature at its last session, appropriating two thousand dollars to enable the Commissioners of Fisheries to stock the streams, &c., of this State with food fishes.

A statement of the moneys disbursed on account of this fund appears at the conclusion of this report.

On May 24th, Mr. John Parnaby, proprietor of Troutdale Fisheries in Cumberland, England, brought to Dr. Slack some fine specimens of the "Golden Tench," a variety before unknown to our waters. They are especially valuable, being a very good edible fish, and yet flourishing in water of high temperature. If no accident occurs, much may be hoped from these fishes. They are at present in the

goldfish pond at Troutdale, and their habits and wants seem very like those of the goldfish.

Mr. Parnaby's visit to the United States was solely to secure a stock of American fishes, especially the brook trout, (*S. Fontinalis*), and the black bass (*Grystes Salmoides*). He was successful in his quest, and on May 29th started for England, with thirty good sized bass, procured for him by Dr. Slack. On May 28th, our efficient Warden in Hunterdon, on behalf of the Commission, presented to Rev. Livingston Stone two hundred white catfish and six dozen young suckers, as a contribution to the stock of his aquarium car, which started for California about June 1st. These two varieties of fish have proved very valuable here, and as they are unknown in California, it may be that we will thus to some extent be able to repay our younger sister for her contributions of the "king of fishes" to our New Jersey rivers.

The operations of the United States Commission have given a new interest to the coast fisheries, and your Commissioners are glad to be able to present, as an appendix (A) hereto, a short paper prepared for Hon. E. M. Archibald, H. B. M. Consul General at New York, giving a list of certain valuable coast fishes of New Jersey, with remarks on their habits and value.

The smelt fisheries in the Raritan, at New Brunswick, have produced more than the average return. This is an important interest, and it is believed that the fish caught are finer in quality than those from the East. They sometimes sell as high as eight dollars per bushel, and the average price is not less than four dollars. The nets used are required to be very strong, and are not larger than inch mesh. The season is about a month in duration, beginning in the latter part of February. The spawn are deposited in tide water above the old bridge, between it and the dam. Fears have been expressed lest the introduction of new and predatory fish in the river may interfere with this valuable interest, but, after careful consideration your Commissioners are convinced that none of the proposed fishes will, if introduced, injure this class in any way. The smelt do not go above tide to spawn, and the other fishes referred to do not make tide water their habitat.

We have secured this fall, through the continued good offices of Prof. Baird, 225,000 ova of Sacramento salmon, (*S. Quinnat*), which are now in the State hatching-house at Troutdale. These were received about the middle of October, and are doing well. When hatched, the young fishes will be kept for some months until able to take care of themselves, and will then be deposited in the Delaware and Raritan rivers.

This is a continuation of the work begun last year, and it is proposed to keep on with it until the experiment has been fairly tried. We have also initiated arrangements for securing a supply of ova of salmon (*S. Salar*), and salmon trout, (*S. Confinis*), land-locked.

salmon, (*S. Gloveri*), and white fish (*Coregonus Albus*), all of which will be cared for and deposited in the waters of the State, under the direction of your Commissioners. To carry out this work and enable us to distribute these and other fishes, for which we have already numerous applications, your Commissioners ask an appropriation of five thousand dollars.

To carry on the shad-hatching operations, two thousand five hundred dollars will be needed. That will enable us to secure hatching-boxes and proper parties to supervise the work.

A list of the Commissioners thus far appointed is appended to this report. (Appendix G.) It will be seen that the United States and fifteen States have appointed Commissioners, and that the interest in this subject is becoming very general.

All of which is respectfully submitted.

B. P. HOWELL, M. D., Woodbury,
J. R. SHOTWELL, Rahway,
G. A. ANDERSON, Trenton, } *Commissioners.*

FINANCIAL STATEMENT.

Appropriation—Session of 1874,		\$2,000
Paid for hatching salmon ova,	\$250 00	
“ “ Salmon trout,	50 00	
“ “ Cans for moving fry,	18 50	
“ “ Black bass and transportation,	198 90	
“ “ Transportion of ova from California,	82 60	
“ “ Land-locked salmon,	500 00	
	<hr/>	1,100
Balance on hand November 14th, 1874,		<hr/> \$900

PLATE XIX

PLATE XX

APPENDICES.

ALPHEN DICEY

APPENDIX A.

BLOOMSBURY, N. J., Nov. 14th, 1873.

MR. E. M. ARCHIBALD, H. B. M. Consul General, New York.

DEAR SIR:—Yours, concerning coast fisheries of the State, received. The following is a list of economic food fishes, captured upon the coast of New Jersey, with remarks:

Tautoga onitis, Tautog or Blackfish. Caught in large numbers, with bait, during summer and winter. A capital pan fish. Cape May is the extreme southern limit of this species. Weight one-half to four pounds.

Stenotomas argyrops, Porgee. Very abundant during months of July and August. Taken with bait. A good pan fish, but must be eaten very soon after being taken from the water. Weight one-fourth to two pounds.

Sargus ovis, Sheepshead. Common from June to October. Highly esteemed as food. Size from two to twelve pounds. Taken by hand and net.

Cynoscion regalis, Weakfish, Taylorfish and salt water Trout. Abundant on the coast and bays. Taken both by hand and net. Weight one-half to two pounds.

Pogonius fasciatus, big Drumfish. Common. Taken by hand and net.

Liostomus xanthurus, Lafayette fish, so-called from having made its first appearance upon our coast in 1824, the year in which Lafayette revisited America. Common. A small fish highly prized by epicures.

Scomber vernalis, Mackerel. Quantity taken varies with the season. The number taken during the past year has been immense. Fifty thousand per diem have been captured for weeks, during June and July. Few, if any, of these fishes are salted in New Jersey, the proximity of the New York and Philadelphia markets affording opportunities for their sale while fresh. Taken with hook.

Pomatomus saltatrix, Bluefish. Common. The game fish of our salt waters. Highly esteemed by both sportsmen and epicures.

Xiphias gladius, Swordfish. Not common, its habitat being more northern waters.

Gadus morrhua, Codfish. Frequently taken, but sold while fresh.

Morrhua æglifinis, Haddock. Quite common, but not highly esteemed as a table fish.

Pseudo pleuroneites Americanus. Winter Flounder—Common and highly prized as an article of food.

Chaenopsetta ocellaris, Oblong Flounder. Summer flounder, common and esteemed.

Salmo salar, Salmon. Unknown upon our coast, though lately introduced into the head waters of the Delaware and Raritan rivers.

Osmerus veridescens, smelt. One of the most delicious of our fishes. Though mostly taken in our rivers in March and April, they are frequently captured on our coast.

Alosa mattawaca, Fall shad. Of late quite abundant, but not highly prized for the table.

Alosa tyrannus, Herring, ale-wife. Very abundant. Immense quantities taken both on coast and in stream. Large quantities are cured but not packed in casks. None, as far as I am aware, are exported.

Alosa sapidissima, Shad. Concerning this fish I would refer to our reports forwarded you.

Brevoortia menhaden, Menhaden, mossbanker. These fishes are taken by millions. As an article of food they are worthless, but from them an oil is obtained which is used in the arts, and the residue is used as a fertilizer. The entire fish is used as manure by the farmers along the coast, one fish being placed in each hill of Indian corn (*zea mairze*). At Port Monmouth they are manufactured into an article in imitation of sardines, with however but little success.

Engraulis vitatta, Anchovy. These delicate and exquisitely flavored fishes are very abundant upon our coast, though their value and importance has not as yet been duly recognized.

The above list contains such fishes as are commonly sold in our markets. It is impossible to give a positive and accurate statement of the value of fishes sold, yet I should place it at certainly not less than a \$1,000,000 annually. As previously stated, the proximity of our two largest cities affords a ready market for fresh fishes, so that few, if any, are salted down.

There are no laws restricting the capture of sea fishes, no close time upon the coast. In accompanying report you will find laws respecting our river fisheries.

Hoping the above may meet with your approval, I am respectfully yours,

J. H. SLACK, M. D.

APPENDIX B.

SALMON IN NORTH AMERICA—SOUTH AND EAST.

Noble in his watery home, glorious on the hook, and most exquisite upon the table, whether simply boiled, *a la champ*, or served as the more aristocratic *Saumon a la chambord*, or *aux truffles*, the salmon is par excellence the king of fishes, even the gelatinous turbot, or highly prized Spanish mackerel, must yield to him. What the royal stag of ten is to the hunter, he is to the angler. He is known to all, and to know him is to love. Yet, like many well known delicacies of the past, he has been for many years gradually approaching extinction, and were it not that active and energetic measures are now being taken, to repeople our exhausted streams, would soon be classed among the things of the past. The days when Connecticut apprentices rebelled against being fed upon salmon as energetically as did the negroes of the Eastern Shore of Maryland, when confined to an exclusive diet of terrapins and canvass-back ducks, have forever passed away, and it is only in a few rivers of our most northern States that some scattered survivors can still be found. It is probable that the temperature of the more southern rivers is too elevated for the proper incubation of the spawn, for the deposition of which alone the salmon resorts to fresh water; yet, upon the Pacific coast, we have a species which is not so fastidious in its tastes, which, happy fish as he is, is not particular as to a few degrees of heat, who will live, thrive and propagate in waters of comparatively high temperature. Though resembling, to the unscientific eye, his cousin of the eastern coast, to the naturalist he shows characteristics which entitle him to the distinction of a separate species, and is known as the *Salmo Quinnat*, a barbarous name for such a lovely fish. This species, though of late years greatly diminished in numbers, is still found in immense quantities in the head waters of the Sacramento river, and furnishes a large amount of food to the Indians who inhabit that vicinity.

The labors of Seth Green and others having shown to the American public that fish culture was no longer a mere experiment, but a true and certain branch of industry, in 1868 the first attempts were made

to introduce salmon into the waters of the United States. In that year permission having been obtained from the Canadian powers that be, Messrs. Stone and Goodfellow erected upon the banks of the Mirimichi, near Newcastle, Ontario, a large and well appointed hatching-house, the entire length of troughs being about one far-long, and a pond for the reception of parent fishes was prepared. The spawning season began October 15th, and in five days over a quarter of a million spawn were taken from twenty-eight salmon. This number was afterwards augmented by the capture of other fishes, until by December 30th half a million were safely deposited in the troughs of the hatching-house. By various accidents well known to the ichthyotechnist, this number was reduced to about three hundred and fifty-six thousand, one half of which were removed and placed in the rivers of the eastern coast; the remainder being left, as per agreement, in the Mirimichi. But here some unfortunate complications took place between Messrs. Stone and Goodfellow and the Canadian government, resulting in the abandonment of the establishment. It is a curious coincidence, however, that during the ensuing year, a fish farm was started under the auspices of the Canadian government, from which salmon spawn were sold at the rate of forty dollars per thousand. At this price, the value of the take of Messrs. Stone & Co., would have been fourteen thousand dollars, thus almost realizing the hypothetical balance sheets of imaginary fish farms, which ever and anon appear in journals.

A few thousand spawn were, however, obtained from this source, and placed in the Connecticut and Delaware rivers; the former by the New England Fishery Commissioners, the latter by private subscriptions.

In 1871, Mr. Charles Atkins, at Bucksport, Maine, erected a hatching house, and commenced the taking of spawn from salmon captured in the Penobscot. His success was small, owing to the scarcity of parent fishes.

In 1872 the appointment of a United States Commissioner of Fish and Fisheries took place. The position was accepted by Prof. Spicer F. Baird, and a more suitable person for the post could not be found. An ardent and highly educated naturalist, combining thorough knowledge of the subject with rare executive ability, the right man was indeed in the right place. A convention of the Commissioners of Fisheries of the various States was held at Boston, June 28th, and a plan of operations decided upon. From the Penobscot alone on our Eastern coast could spawn be obtained, and the success of Mr. Atkins the previous year had not been great. A new plan of operations was proposed by Mr. Atkins, viz.: that the parent fishes should be purchased alive during the fishing season, and transferred to a large pond, to which spawning races should be

attached. During the spawning season the eggs might, therefore, be obtained in the ordinary method, and a full supply of parent fishes be thus secured.

This plan succeeded well, though operations were commenced late in the season, and over one million spawn were secured and distributed through the Northern and Middle States.

But the more Southern States were not to be neglected. Their waters were even more sparsely stocked with food fishes than those of the North, and for these the Sacramento salmon were peculiarly adapted. By orders of Prof. Baird, Mr. Stone at once repaired to California, for the purpose of obtaining the spawn of this most valuable fish. Of its habits nothing was known by the naturalist. A few specimens had found their way to our museums, but that was all. The time of spawning was supposed to be the same as that of our eastern species, but when, at the end of August, Mr. Stone arrived at the McLeod river, a branch of the Sacramento, in which these fishes abound, he found that the spawning season was nearly over. However, he at once set to work, though far from civilization. A hatching house was built, and a number of fishes captured, but little spawn was taken, and of that little many were lost. But six thousand arrived safely in New Jersey, where they were placed in my care. They nearly all hatched in due season, and the young, after attaining the length of about two and a half inches, were placed, by the order of Prof. Baird, in the Susquehanna river, near Harrisburg. Yet the experiment was by no means a failure. The habits of the fish had been thoroughly studied, the hatching house and the appurtenances were built, and it was firmly believed that the next season would bring with it a thorough success.

And such indeed has been the case. During the past season, (1873,) the number of spawn taken by Mr. Stone and his assistants, has been over three millions, a large per centage of which have been transported in safety to the east, and are now living fishes. :

Mr. Atkins has been no less successful. In fact, when the difficulty of obtaining parent fishes is taken into consideration, his success has been greater, and the introduction of nearly 5,000,000 salmon into our eastern waters has been accomplished.

J. H. SLACK.

APPENDIX C.

COLD SPRING TROUT PONDS, Charlestown, N. H., Nov. 18th.

MR. E. A. BRACKETT.

DEAR SIR:—In reply to your request for some account of the Sacramento river salmon, the eggs of which I forwarded to you this fall, I beg permission to enclose the following notes :

The McCloud river, on which the salmon eggs were taken, is one of the head waters of the Sacramento. As you are aware, the main tributaries of the Sacramento are the American, the Pit, or Upper Sacramento, the Feather and the Little Sacramento.

Formerly all these furnished spawning grounds for the Sacramento salmon, but since the discoveries of gold in California the American and Feather rivers have been completely ruined, as spawning grounds, by the wash from the gold mines of the river basins, leaving only the Pit and Little Sacramento for the salmon to deposit their eggs in.

In all these and their tributaries the salmon are in the habit of spawning every year, to a greater or less extent, but especially in the McCloud, a tributary of the Pit, or Upper Sacramento.

The McCloud heads in Mount Shasta, and is nearly seventy miles long, with an average width of about forty yards. This clear, cold and beautiful mountain stream, fed perennially by the melting snows of Shasta Butte, affords the finest possible spawning grounds for salmon, and is the favorite resort of the Sacramento salmon in the spawning season. The salmon breeding camp of the United States Fish Commission is located on this stream, two miles and a half above its mouth, and about three hundred miles from the outlet of the Sacramento into the ocean, at San Francisco, and nearly north of it. As this river is now inhabited only by Indians, they having murdered the only white man living on it a few days before I left last September, these spawning grounds, for the present at least, seem likely to remain undisturbed.

The salmon enter the McCloud river in March, and continue running up it till October. Even as late as November a few, known as the fall run, ascend the river. After the winter rains begin to

fall, in December, the salmon disappear from the McCloud; at least, none are caught from December to March, and it is probable there are very few or none in the river during that interval.

In the main Sacramento river the running of the salmon is quite different. They begin to come into the river from the sea in small numbers in November; the numbers increase somewhat till March, when there is a very large run, which lasts till June. During the months of June and July, they are less abundant in the river, but in August there is another large run, and from that time they continue to ascend the river in greater or less numbers till November, when the old runs end, and the new run of the year begins to come up from the sea.

The salmon of the Sacramento are best in the winter months. They are most abundant in the spring, and cheapest in the summer.

Only one kind of salmon is found in the Sacramento in any numbers. It is at present thought to be identical or nearly so, with the *salmo quinnat* of the Columbia river,* which, in turn, is thought to be the same as the salmon of the opposite Asiatic coast, *salmo orientalis*. It certainly is not the *salmo salar* of the Atlantic coast of America or Great Britain.

There is a large trout found sometimes in considerable quantities in the main Sacramento, which is commonly known as the Sacramento salmon trout. Occasionally, though but very seldom, a salmon with a humped back strays into the river. It is called the humped-backed salmon, and is probably the *salmo proteus* of the Kamtschatka and Pugets Sound. It is exceptional, however, and so rarely found that it is of no importance, except as a fact in the natural history of the fish of the river.

The regular Sacramento salmon undergo great changes after they enter the fresh water—much greater than even the eastern salmon.

* SALMO QUINNAT—SPECIFIC CHARACTERS.

“Adult—Head pointed and large, forming about a fourth of the length from the snout to the end of the scales, on the caudal; dorsal outline regularly arched; caudal deeply cut out (in the dried specimen, forked); snout cartilaginous as in *salmo salar*; chin pointed—a triangular bare projection extending beyond the teeth; colors—general tint of the back bluish-gray, changing after a few hours removal from the water into mountain green; sides ash-gray with silvery luster; belly white; back above the lateral line studded with irregular rhomboidal or starlike black spots, some of them oscilated; dorsal-fin and gill-covers slightly reddish; tips of the arrals and pectorals blackish-gray; the dorsal and caudal thickly studded with round and rhomboidal spots; back of the head sparingly marked with the same; whole body below the lateral line with the under fins destitute of spots.”—(*Gairdner*).

When they leave the ocean they are plump and silvery in appearance, both sexes looking nearly alike. In the main Sacramento, as far up as Sacramento City, they maintain this appearance, and are in fine condition for the table until about the first of June. After this they begin to deteriorate; the fish becomes less symmetrical and grosser looking, the scales seem larger and coarser, and the flesh is inferior. They continue to deteriorate until about two weeks before spawning, when they lose their silvery color entirely, and become of a dark olive. Their scales disappear and are entirely absorbed into the skin, which is perfectly smooth and very slimy.

The sexes now show a marked difference; the females are distended with spawn, which gives them a plump appearance below, while the males are deep and thin. The head of the female has not materially changed, but the head of the male has become thin and long, the nose being flattened, and the jaws pointed.

The expression of the eyes and face becomes ferocious and repulsive in the extreme, and is intensified by the presence in both jaws of long rows of large, white, pointed teeth, in some instances half an inch long.

As the season advances, these characteristics become more and more confirmed, till after the spawning, when the fish of both sexes become weak and emaciated, and die. These latter changes are not seen in the main river, but only in the smaller streams which contain the spawning grounds.

The most peculiar feature about the Pacific coast salmon of California, is that they are spawning somewhere almost all the year round. For instance, at the extreme head waters of the Sacramento, under Mt. Shasta, they begin to spawn late in June or early in July. A little further down the river, they spawn in July and the first of August; at the breeding camp on the McCloud, in August and September. Further down yet, in the small streams emptying into the main Sacramento, they spawn in September, October and November; and in smaller rivers on the coast, as the Eel and Russian rivers, they spawn in December, January and February. This singular feature in regard to the spawning of these salmon, is the more unexpected to those familiar only with Eastern salmon, because in the Atlantic rivers of America the spawning season of this fish is very short indeed.

We took the first ripe salmon eggs at our camp on the McCloud this year on the 26th of August. The first eye spots showed the twelfth of September; the first fish were hatched the first week of October. The quantity of eggs which can be obtained there is practically unlimited; millions can be secured as easily as thousands.

The Sacramento salmon averages through the year, in the main river, about fourteen pounds in weight in the winter, and about

twenty pounds in the summer. The largest salmon caught in the Sacramento, to my knowledge, weighed fifty-nine pounds.

The yield of eggs is much less, in proportion to the weight of the parent fish, than with the Atlantic salmon, and does not exceed five hundred eggs to each pound weight of the parent.

The salmon of the Mirimichi (an Atlantic coast river, in New Brunswick, Canada,) yield one thousand eggs to the pound.

The salmon of the Sacramento are still very abundant, notwithstanding the encroachments of the gold miners, and the great number annually captured, and as long as the present spawning grounds remain unmolested, their numbers are not likely to decrease.

The quality of the flesh of the Sacramento salmon is very superior during the winter months, and hardly less so in the spring. During the summer they deteriorate very much, and are a coarse and inferior fish for the table; while at, and near the spawning season, they are emaciated and infested with parasites, and wholly unfit to eat.

The reputation of the Sacramento salmon as a table fish, has suffered very much from the circumstance that it has, up to the present year, been caught and sent to market every month in the year, even when taken directly from the spawning beds; and as consumers do not usually discriminate between the fish in season and the fish out of season, and make proper allowance for the difference, the discredit of the salmon out of season and out of condition, falls upon the fish in general, and often gives it a bad name.

There is no question, however, about the Sacramento salmon in season being a fish of very fine quality indeed, and I am wholly unable, from my own experience, which has been considerable in the consumption of both Atlantic and Pacific salmon, to say the Atlantic salmon are any better, in any respect, than the winter salmon of the Sacramento, and I do not believe that any one can affirm positively that one is better than the other.

Very truly yours,

LIVINGSTON STONE.

APPENDIX D.

THE HOLYOKE WATER POWER COMPANY,
Plaintiff in Error,
vs.
THEODORE LYMAN AND EDWARD A. BRACKETT,
Commissioners on Inland Fisheries, etc.

In Error to the Supreme Judicial Court of the Commonwealth of Massachusetts. December Term, 1872.

[We give only that part of the opinion of Mr. Justice Clifford which is of general application. The balance, referring to local laws, has no force here.]

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 every where 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 a 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 Legislature, 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.

* * * * *

Charters of private corporations duly accepted, it must be admitted, are executed contracts, but the different provisions, unless they are clear, unambiguous, and free from 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 *vs.* Railroad Co., 1 Black. 380; Charles River Bridge *vs.* 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 *vs.* 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 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. * *

* * * Public rights, in all jurisdictions, are subject to legislative control, and it is a 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 *Stroughton vs. 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. * * *

Fish rights below a dam, constructed without passage ways 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 (will come) in greatly diminished numbers. * * * * *

APPENDIX E.

On the 26th of April, in the year 1786, an agreement was made between Commissioners appointed by the Legislature of the State of Pennsylvania, and Commissioners appointed by the Legislature of the State of New Jersey, for the purpose of settling the jurisdiction of the river Delaware, and islands within the same, which is contained in the following words:

“An agreement made and concluded between George Bryan, George Gray and William Bingham, Commissioners appointed by the Legislature of the State of Pennsylvania, for settling the jurisdiction of the river Delaware and islands within the same, and Abraham Clark, Joseph Cooper and Thomas Henderson, Commissioners appointed by the Legislature of the State of New Jersey, for the like purpose.

WHEREAS, inconveniences and mischiefs have arisen, and may hereafter arise, from the uncertainty of jurisdiction within and on the river Delaware, therefore, to prevent the same, and in order that law and justice may hereafter in all cases be executed, and take effect within and upon the said river from shore to shore, in all parts and places thereof where the same river is the boundary between the said States, the said Commissioners do agree and establish, for and in behalf of their respective States, in manner following, *that is to say*—

First. It is declared that the river Delaware, from the station point or northwest corner of New Jersey, northerly, to the place upon said river where the circular boundary of the State of Delaware toucheth upon the same, in the whole length and breadth

thereof, is, and shall continue to be and remain, a common highway, equally free and open for the use, benefit and advantage, of the said contracting parties. *Provided, nevertheless*, that each of the Legislatures of said States shall hold and exercise the right of regulating and guarding the fisheries on the said river Delaware *annexed* to their respective shores, in such manner that the said fisheries may not be unnecessarily interrupted during the season of catching shad, by vessels riding at anchor on the fishing ground or by persons fishing under claim of a common right on said river.

Secondly. That each State shall enjoy and exercise a concurrent jurisdiction within and upon the water, and not upon the dry land between the shores of said river, but in such sort, nevertheless, that every ship and other vessel, while riding at anchor before any city or town, in either State, where she hath last laded or unladed, or where it is intended she shall first thereafter either lade or unlade, shall be considered exclusively within the jurisdiction of such State; and every vessel fastened to or aground on the shore of either State, shall in like manner be considered exclusively within the jurisdiction of such State; but that all capital and other offenses, trespasses, or damages committed on said river, the juridical investigation and determination thereof shall be exclusively vested in the State wherein the offender, or person charged with such offence shall be first apprehended, arrested, or prosecuted.

Thirdly, That all islands, islets, and dry land within the bed, and between the shores of the said river, and between the station points northerly, and the Falls of Trenton southerly, shall as to jurisdiction be hereafter deemed and considered as parts and parcels of the State to which such insulated dry land doth lie nearest at the time of making and executing this agreement, and that from said Falls of Trenton to the State of Delaware southerly, Biles' island, near Trenton, Windmill island, opposite to Philadelphia, League island, Mud or Fort island, Hog island, and Little Tinnicum islands shall be annexed to the State of Pennsylvania, and considered as parts and parcels thereof; and that Biddle's or Newbold's island, Burlington island, Petty's island, Chester island, and Shivers' island shall be annexed to the State of New Jersey, and considered as parts and parcels thereof; and that all other islands within said river between the Falls of Trenton and the State of Delaware, which are not herein before particularly enumerated, shall be hereafter deemed and considered as parts and parcels of the State to which such island doth lie nearest at the date hereof; and that all islands which may hereafter be formed within the said river, shall be classed and annexed to the jurisdiction of either State, according to the same principle.

Fourthly. That this present agreement, and every article and clause therein contained, shall be suspended, and take no effect until each of the Legislatures of the State of Pennsylvania and

New Jersey, respectively shall have passed laws approving of and ratifying the same; which being done, the said agreement shall be considered as a joint compact between the said States and the citizens thereof respectively, and be forever thereafter irrevocable by either of said contracting States, without the concurrence of the other. In witness whereof, we, the Commissioners of the aforesaid States, have set our hands and seals to two instruments of the agreement, one for each State, dated this twenty-sixth day of April, Anno Domini one thousand seven hundred and eighty-three.

ABRAHAM CLARK,	[L. S.]
GEORGE BRYAN,	[L. S.]
JOSEPH COOPER,	[L. S.]
GEORGE GRAY,	[L. S.]
THOMAS HENDERSON,	[L. S.]
WM. BINGHAM,	[L. S.]

This agreement was ratified and confirmed by the New Jersey Legislature, May 27th, 1783, and by the Pennsylvania Legislature in due course.

The following opinion as to the construction of the above compact was given by the Hon. Abraham Browning, at the request of one of your Commissioners.

“By the compact of 1783, between the States of Pennsylvania and New Jersey, the Delaware river, from shore to shore, is made a common highway, equally free and open for the use, benefit and advantage of each State; except that each State shall have the right of regulating and guarding the fisheries on the said river Delaware annexed to their respective shores, against vessels riding at anchor on the fishing grounds, or persons fishing under a claim of common right on said river.

“Except the separate right to each State to guard and regulate the fisheries annexed to their respective shores, (by which I understand the sweeping seine fisheries, and not the common of fishery, in the river detached from the shore,) it has been the uniform practice since that compact to regulate all other matters, including the common of fishery, by concurrent legislation, and it has always seemed to me that the necessity of such concurrent legislation is implied by the reservation to each State to legislate separately as to the shore fisheries. It is certainly a practice tended to maintain order and peace against the conflict which would almost necessarily result from separate action.

“March 14th, 1873.

(Signed,) A. BROWNING.”

“To DR. B. P. HOWELL.”

CAMDEN, March 31st, 1873.

MY DEAR SIR:—Our courts have held that the Delaware river, so far as it formed the boundary between Pennsylvania and New

Jersey, remained in the Crown of England up to the American Revolution, and that upon the achievement of the Independence of those States that portion of the river resulted to those States, so that their common boundary became an imaginary line in the middle of the river, or rather, as I think, in the middle of the main channel of the river. The compact of 1783 applies only to the *surface* of the water, and, so far as the bed of the river is concerned, the line of partition between those States is still that partition line. But by the compact, those States now have the concurrent jurisdiction *upon the water* "*between the shores of said river,*" that is, the dividing line, instead of being a mathematical one without breadth, spreads itself over the whole surface of the river. Hence as I think the executive or ministerial officers of either State have equal power to make arrests or serve processes upon the whole surface of the river between the shores, without regard to the imaginary line of division on the bed in the middle of the main channel. In cases of arrest for crime, the officer making the arrest would take the prisoner into the State whose warrant of arrest he held authorizing the arrest. If simply a summons or subpoena to appear at court, the person on whom it had been served would be bound to appear at the court out of which it had been issued, the same as if such writ had been served on the land. And in case of arrest for crimes committed on the river, the officer making it would be obliged to take the prisoner into the State by virtue of whose warrant he made the arrest.

That State then would be the State in which such offender was first apprehended, arrested and prosecuted, and would, by the compact, have the exclusive jurisdiction over the offence.

Very truly, yours,

A. BROWNING.

To Dr. BENJ. P. HOWELL.

APPENDIX F.

The following are the principal acts for the regulation of the fisheries of the river Delaware, which are inserted at the request and for the guidance of fishermen:

ACT OF 1808.

SEC. 3. Be it enacted, That from the place or places where seines or nets are usually thrown in to the place or places where they have been usually taken out, or from the place or places where they may hereafter be thrown into the water to the place or places where they may be taken out, shall be deemed and held to be a pool or fishing place, within the meaning of this act.

SEC. 10. And be it enacted, That if any person or persons who-soever, shall cast or lay out, or cause to be laid out, any seine or net into the river Delaware, within the jurisdiction of this State, beyond the right angle of the shore and where his line strikes the river at low water mark a going out, or suffer it to swing beyond the right angle of the shore of the river and where his line strikes it at low water mark a coming in, (except by unavoidable accident), every person or persons so offending, and being thereof legally convicted, shall forfeit and pay the sum of twenty-five dollars for each and every such offence, with costs and damage, to be paid to the person against whose land such trespass shall be committed, if he shall sue for the same within six months after such trespass has been committed; *and whereas*, it is provided by the agreement of the commissioners appointed by the Legislature of this State and the State of Pennsylvania, to divide the islands and settle the line of jurisdiction in the river Delaware, that the Legislature of each of the States should have and exercise the right of regulating and guarding the fisheries on the said river annexed to their respective shores, in such manner that the said fisheries may not be unnecessarily interrupted, during the season of catching shad, by vessels riding at anchor on the fishing ground, or by persons fishing under a claim of a common right to the said river, therefore,

SEC. 11. Be it enacted, That if any ship, vessel, or raft, shall, during the season of catching shad in the Delaware, come to

anchor at the same, on any fishing ground where shad are usually taken, and shall not immediately be removed from the said fishing ground, if such removal can be done with safety, on application for that purpose by the owner or occupier of such fishery, to the captain, pilot, or person having the command of the said ship, vessel, or raft, or if any ship or raft be wilfully run on shore on any such fishing ground, then such captain, pilot, or person having the command, as aforesaid, shall forfeit and pay sixty dollars, to be recovered by action of debt, with costs, by the said owner or occupier.

ACT OF 1819.

WHEREAS, disputes have arisen, and may continue to arise between the owners and occupiers of certain fisheries on islands and bars in the river Delaware, and others occupying fisheries contiguous thereto, along the shores of said river, from the difficulty that exists in many cases of determining the proper limits of their respective fisheries, under the provisions of the act which defines the same, therefore—

SEC. 29. From and after the passing of this act, the right of fishery on all islands and bars in the river Delaware, within the jurisdiction of this State, shall be bounded by lines drawn from the extreme upper and lower points of said islands and bars, at right angles with their general course or bearing, which shall, and may be determined by a base line drawn through the extreme points of said islands and bars at low water mark, and if any person or persons shall cast or lay out, or suffer to drift or swing, any seine or net beyond the right angle range, of either extreme point at low water mark of any island or bar in the river Delaware, within the jurisdiction of this State, as aforesaid, or beyond the right angle range of his or their front on said island or bar, without the permission or consent of him or them owning beyond said limits, except by unavoidable accident; any person or persons so offending, and being thereof legally convicted, shall forfeit and pay for each and every such offence, the sum of fifty dollars, to be sued for and recovered in any court having competent jurisdiction thereof, with costs of suit, to be recovered by the person against whose fishery or right of fishery such trespass shall have been committed; *provided always*, that nothing in this act contained, shall be so construed as to prevent any owner or occupier of any fishery, on any island or bar in the river Delaware, casting or laying out any seine or net, or suffering the same to drift or swing in landing or drawing in, beyond said limits, in all cases where no other fishery is or may

be immediately adjoining thereto; *provided also*, that this act shall not be considered as valid or operative until the Legislature of the Commonwealth of Pennsylvania shall enact a law containing similar regulations.

Approved by Pennsylvania, March 27th, 1820.

ACT OF 1822.

SEC. 4. The owner or possessor of every fishery upon the river Delaware, within the jurisdiction of this State, his tenant or agent, shall, before he occupies the same as a fishery, give to the clerk of the Court of Common Pleas of the county wherein such fishery or the greatest part thereof may be, a description, in writing, of his, her, or their pool or fishing place, designating the beginning and ending point, and the extent thereof on the river shore, together with the name of the township and county in which it is situated, and the number of men generally employed in fishing the same, and shall also enter into bond, with one or more sufficient sureties, to the clerk of the said county, and his successors in office, in the penal sum of five hundred dollars, conditioned for the payment of all fines and penalties created or given by this act, or the act or acts to which this is a supplement, that shall and may be incurred and recovered for any infraction of, or offence against the said act or acts committed at such fishery, by his, her, or their command or permission, during his, her, or their occupying the said fishery, personally or by tenant; which said description and bond it shall be the duty of said clerk to file in his office, and give a certificate thereof to the person producing the same, on being paid fifty cents; which said bond shall be a security for all such penalties as may be recovered against the said owner or possessor, tenant or agent, during the time he, she, or they may occupy the same; and in case of a recovery against such owner or possessor, tenant or agents, for any penalty given by the said act or acts, and the non-payment thereof, it shall be the duty of the said clerk to cause the said bond to be prosecuted to judgment, and apply the proceeds thereof to the payment or discharge of the said recovery; and if any person or persons shall fish in any fisheries so entered as aforesaid, or draw, cast, or otherwise make use of any seine or net within the same, or in the said river, opposite the river shore, included within the bounds thereof, without permission in writing from him, her, or them so owning, possessing, and entering the same, first had and obtained, he or they so offending, shall forfeit and pay the sum of

two hundred and fifty dollars, together with the costs of suit for each and every offence, to be sued for and recovered by the person or persons so owning, possessing, and entering the said fishery in any court of competent jurisdiction.

SEC. 5. If any person or persons shall cast, draw, fish with, or otherwise make use of any seine or net in the river Delaware, within the jurisdiction of this State, and within the limits of the concurrent jurisdiction of this State and the State of Pennsylvania, between the first day of April and the tenth day of July, in each and every year, without having first entered his, her, or their fishery as aforesaid, or at any place in the said river Delaware within the jurisdiction of this State, at, in, or opposite the shore boundaries of a pool or fishing place, described and entered in the manner prescribed in the preceding section, he or they so offending shall forfeit and pay the sum of two hundred and fifty dollars, together with the costs of suit, for each and every such offence.

SEC. 10. If any person or persons shall, by threat, menace, or otherwise, attempt to deter or prevent any constable, collector, or any other person, from enforcing or carrying into effect this act, or the act or acts to which this is a supplement, or any part thereof, he or they so offending, shall forfeit and pay the sum of one hundred dollars, with costs of suit, for each and every such offence.

SEC. 12. In all and every action or suit for any fine or penalty, given or created by this act, or the act to which this is a supplement, the person prosecuting shall or may sue by warrant or summons, in case the same is commenced in the court for the trial of small causes, and by *capias ad respondendum* or summons, in case the action is commenced in any other court, any law, usage, or custom to the contrary notwithstanding.

SEC. 13. If any person or persons, shall be found making use of any boat, seine, net, or other tackling in the river Delaware, within the jurisdiction of this State, contrary to the true intent and meaning of this act, or the act or acts to which this is a supplement, he, or they so offending, shall, in addition to the fines and penalties aforesaid, forfeit the boat or boats, seine or seines, net or nets, or other tackling so made use of; and that it shall be the duty of all the sheriffs and constables, and may be lawful for any person or persons, to seize and secure any such boat, seine, net, or other tackling, as aforesaid, and immediately thereafter give information to two justices of the peace of the county where such seizure shall have been made, who are hereby required and empowered to meet at such time and place as they shall appoint for the trial thereof, and hear and determine the same in a summary manner, and in case the same shall be condemned, it shall be sold by the order, and under the direction of the said justices, who, after deducting all legal costs and charges, shall pay one-half of the proceeds of said sale to the collector of the county in which such offence shall have been committed, and

the other half to the person who shall have seized and prosecuted the same.

SEC. 14. If any person or persons on board any such boat, or in possession of such seine, net or tackling, shall resist any officer or another person or persons in the lawful seizure of the same, then, every person so offending shall forfeit and pay the sum of one hundred dollars, together with the costs of suit for each offence.

Passed November 28th, 1822, and adopted by Pennsylvania, January 29th, 1823.

ACT OF 1833.

SEC. 1. From and after the passing of this act, if any person or persons whosoever, shall cast or lay out any seine or net in the river Delaware, within the concurrent jurisdiction of this State and the State of Pennsylvania, from sunset on Saturday until twelve o'clock on Sunday night, of each and every week, he, she, or they so offending, shall forfeit and pay the sum of one hundred dollars, together with costs of suit, for each and every offence.

SEC. 4. If any person or persons shall unlawfully cast, draw, drift, anchor, stake, or otherwise make use of any gilling seine or drift net, for the purpose of catching fish in the river Delaware, within the concurrent jurisdiction of this State and the State of Pennsylvania, between the first day of March, and the tenth day of July, in each and every year, every person so offending shall be guilty of a misdemeanor, and on conviction thereof, shall be punished by fine not exceeding one hundred dollars, or by imprisonment in the county jail, not exceeding six months, or both, at the discretion of the court before which such offender or offenders shall be convicted; *provided*, that this act shall not subject to conviction and punishment, any person or persons who shall have been subjected to a prosecution for a penalty, as provided for in the seventh and eighth sections of the act to which this is a supplement.

Passed February 15th, 1833, and adopted by Pennsylvania, April 3d, 1837.

ACT OF 1845.

SEC. 1. If any person or persons whomsoever, shall cast, draw, or otherwise use, for the purpose of catching fish, more than one seine or net in any pool or fishing place in the river Delaware, within the jurisdiction of this State, at any place opposite to or above the lower mouth of Rancocas creek, in the county of Burlington, in the State of New Jersey, and more than two seines or nets in any one pool or fishing place from thence as far down as the concurrent jurisdiction of this State and the State of Pennsylvania extends, within any one term of twenty-four hours, beginning at sunrise, and ending at sunrise the day following, or shall be aiding or assisting therein, contrary to the true intent and meaning of this act or the act entitled, "An act further supplementary to an act entitled, an act to regulate fisheries in the river Delaware, and for other purposes," passed the twenty-eighth day of November, A. D. eighteen hundred and twenty-two, he, she, or they so offending shall forfeit and pay the sum of two hundred and fifty dollars, together with costs of suit, for each and every such offence; *provided always*, that it shall and may be lawful for any person or persons who, by accident or otherwise, may be deprived of the seine or net first used in any pool or fishing place, in any term of twenty-four hours, to withdraw the same, and substitute another seine or net in the place of the one so withdrawn.

Passed March 22d, 1845, and adopted by Pennsylvania, March 19th, 1846.

ACT OF 1852.

SEC. 1. No person, being an inhabitant of this State, or of the State of Pennsylvania, shall be subjected to the pains and penalties prescribed by law for illegal fishing in the river Delaware, with a gilling seine, or drift net, unless he shall so fish in some pool or fishing place entered as such according to law; *provided*, that any person so fishing, except as to the entering of the place fished by him as his fishery, shall, in all other respects, conform to the laws regulating fisheries in said rivers; *and provided further*, that nothing in this act shall be construed to impair the right of the owner of any shore upon said river to the exclusive enjoyment of his fishery annexed thereto, upon entering the same as a fishery, as aforesaid.

Passed March 12th, 1852. Adopted by Pennsylvania April 15th, 1852.

ACT OF 1858.

SEC. 1. If any person or persons shall cast, draw, or otherwise make use of any seine, or net, of a larger mesh than three inches, for the purpose of catching fish in the river Delaware, within the jurisdiction of this State, below the head of Trenton Falls, between the tenth day of June and the tenth day of July, in any year, or above the head of Trenton Falls, of any seine or net of a larger mesh than two inches, between the fifteenth day of June and the tenth day of July, in any year, he, she, or they so offending, shall forfeit and pay the sum of one hundred dollars, together with costs of suit, for each and every offence.

SEC. 2. It shall not be lawful for any person or persons, for the purpose of catching fish in the river Delaware, within the jurisdiction of this State, to anchor, stake down, or otherwise fasten, any drift net or gilling seine in or across said river; and that, if any person or persons shall so anchor, stake down, or otherwise fasten any drift net or gilling seine in or across said river, within the jurisdiction of this State, for the purpose of catching fish, he, she, or they so offending, shall be guilty of a misdemeanor, and on conviction thereof, shall be punished by fine not exceeding one hundred dollars, or by imprisonment in the county jail, not exceeding three months, or both, at the discretion of the court before which such offender or offenders shall be convicted; and every such net or seine so anchored, staked down, or otherwise fastened in or across said river, shall be deemed and considered a public nuisance, and liable to be abated or removed by any person or persons who may deem proper to abate or remove the same.

Approved February 26, 1858.

ACT OF 1871, PAMPHLET, P. 40.

SEC. 1. Be it enacted by the Senate and General Assembly of the State of New Jersey, That hereafter no person shall, within this State, have in his or her possession, or expose to sale, any shad caught in the river Delaware, or any of its tributaries, within the jurisdiction of this State, below the head of Trenton Falls, between the eleventh day of June and the tenth day of August, in any year, or above the head of Trenton Falls, between the sixteenth day of June and the tenth day of August, in any year, under a penalty of five dollars for each and every shad so had in possession or exposed for sale, to be recovered in an action of debt, with costs of suit, by

any person or persons, in his or their name or names, before any justice of the peace in the county where the offence was committed, or where the defendant resides or is found; and in all prosecutions or proceedings under this act, it shall not be necessary to file any state of demand, or to comply with the formalities required in penal actions, and in all such actions both parties may be sworn; *provided always, nevertheless*, that nothing in this act, or the act or acts to which this is a supplement contained, shall make it unlawful by order of one or both of the Commissioners of Fisheries of the State of New Jersey, to take fish in the said river Delaware, or any of its tributaries, at any time, to be used for the purpose of the natural or artificial propagation of the same.

SEC. 2. And be it enacted, That if any person or persons shall cast, draw, fasten, or otherwise make use of any seine, net, fykenet, or net of any other description, of a less mesh than ten inches, or any other appliance except the hook and line, for the purpose of catching fish in the river Delaware, within the jurisdiction of this State, below the head of Trenton Falls, between the tenth day of June and the tenth day of August, in any year, or above the Trenton Falls, between the fifteenth day of June and the tenth day of August, in any year, he, she, or they so offending, shall forfeit or pay the sum of one hundred dollars, together with cost of suit, for each and every offence.

SEC. 3. And be it enacted, That the Governor shall appoint one person in each county adjoining the river Delaware, as special officers, who shall be a resident of said county, to be Fish Wardens, whose duty it shall be, on view or information, to enforce the fishing laws within their respective counties, by arresting and prosecuting the offender or offenders; and said officers shall be entitled to their pay as witnesses in said cases, although they be complainants, and said officers shall have a right at all times, and they are hereby authorized to visit any dam, wier, fish basket, brushnet, or other apparatus for taking fish, for the purpose of removing the same, as hereinafter provided: The said officers may, in the discharge of their duties, call in the aid of any constable or sheriff, or other peace officer, when deemed necessary; and any such officer neglecting or refusing to aid when thus required, shall forfeit ten dollars, to be recovered by action of debt; the said special officers thus appointed shall hold office for three years, unless sooner removed, and shall be duly sworn before any justice of the peace or judge of the Court of Common Pleas, to the performance of their duties; they shall make an annual report to the Commissioners of Fisheries, on or about the first day of November in each year; they shall be furnished with such appliances as, in the judgment of the Commissioners having charge of that department of the river, shall be deemed necessary, at the expense of the State, and receive three dollars for each day they are occupied in their special duties; and

that said per diem shall be paid by the treasurer of the State, upon an authenticated statement of the Commissioners of Fisheries; *provided*, that in no case shall any special officer receive more than one hundred dollars for his services in any one year.

SEC. 4. And be it enacted, That it shall be the duty of said special officers or Fish Wardens, so to be appointed, and it shall and may be lawful for any other person or persons who may discover the same, to remove from the river Delaware, wheresoever the same may be found, all wiers, racks, fish-baskets, fishing dams or pounds, or any seine, brushdam, or other device, anchored, staked or fastened for the purpose of taking fish in the said river, and all boats, lines, implements and materials used in violation of this act, shall be forfeited to the State, and all wiers, racks, baskets, dams or pounds, may be destroyed and rendered incapable of taking fish. (Vide Laws of 1872, p. 10.)

SEC. 5. And be it enacted, That one-half of the fines and forfeitures collected, shall be for the benefit of the person prosecuting therefor, and the other half shall be paid to the clerk of the county in which the prosecution shall be had, and the said clerks of the several counties of this State shall pay over to the Commissioners of Fisheries of the State of New Jersey, all moneys collected and recovered by them by virtue of this act, who shall pay the same over to the treasurer of the State; and all expenses incurred by said Fishery Commissioners shall be paid to them by the treasurer of the State, as the same may be audited by the comptroller of the State; and on failure of the person or persons prosecuted under this act to pay the fine or fines imposed in pursuance of this act, then such person or persons shall be committed to the county jail till such payment is made, or until otherwise discharged by due process of law.

SEC. 6. And be it enacted, That the first and second sections, or so much of the supplement of the aforesaid act, passed on the twenty-sixth day of February, Anno Domini eighteen hundred and fifty-eight, as comes within the purview of this act, be and the same is hereby repealed, but that this act shall not go into operation until the Legislature of the State of Pennsylvania shall approve of the same, by the enactment of a similar act, in whole or in part; and that from and immediately after the said Legislature shall so approve of this act, either in whole or in part, then this act, or such parts thereof as may be so approved of, shall go into operation and take effect. (Vide Laws of 1872, p. 10, Sec. 1.)

Approved March 15th, 1871.

The above act is printed as passed, and the following amending act is printed to show the changes.

SEC. 1. Be it enacted by the Senate and General Assembly of the State of New Jersey, That the sixth section of the supplement (to an act, entitled "an act to regulate fisheries in the river Delaware and for other purposes,") approved March fifteenth, eighteen hundred and seventy-one, be and the same is hereby repealed.

SEC. 2. And be it enacted, That the said supplement of March fifteenth, one thousand eight hundred and seventy-one, shall go into immediate operation; *provided*, that so much of the second section of said supplement as requires concurrent legislation in the State of Pennsylvania to make it operative, shall not go into effect until such concurrent legislation is had; *and provided further*, that the fourth section of said supplement be amended by inserting the word "such," between the words "all" and "weirs," where the same occurs in said section, and adding to the said section the following proviso: *provided*, that the said Fish Wardens shall first give notice in two newspapers of their respective counties, that said contrivances are known to exist, and are declared common nuisances, ordering them to be dismantled by their owners or managers, so as to render them no longer capable of taking or injuring the fishes of the streams, of whatever kind; and if, at the expiration of ten days from the date of said notice, the dismantling shall not have taken place, then the said Fish Wardens or others, shall proceed to remove, or destroy, or dismantle the said obstructions, as hereinbefore directed. (Vide Laws of 1873, p 157).

SEC. 3. And be it enacted, That this act shall take effect immediately.

Approved February 28th, 1872.

The following portion of the second section of the act approved March 15th, 1871, having been concurred in by the State of Pennsylvania, is now law: "And be it enacted, That if any person or persons shall cast, draw, fasten, or otherwise make use of any seine net, fyke net, or net of any other description, of a less mesh than ten inches, or any other appliance except the hook and line, for the purpose of catching fish in the river Delaware, within the jurisdiction of this State, *above the Trenton Falls*, between the fifteenth day of June and the tenth day of August, in any year, he, she, or they so offending, shall forfeit or pay the sum of one hundred dollars, together with costs of suit, for each and every offence."

ACT OF 1873, PAMPHLET, P. 157.

SEC. 1. Be it enacted by the Senate and General Assembly of the State of New Jersey, That the provisions of the act entitled "An Act to Regulate the Fisheries in the River Delaware, and for other purposes," passed November twenty-sixth, one thousand eight hundred and eight, and of the several supplements and acts supplementary thereto, be and the same are hereby extended and applied to the Delaware river and bay, and their tributaries within the jurisdiction of this State.

SEC. 2. And be it enacted, That the ten days' notice required by a further supplement to an act entitled "An Act to Regulate Fisheries in the River Delaware and for other purposes," approved February twenty-eighth, one thousand eight hundred and seventy-two, shall not apply to gilling seines and driftnets, anchored, staked, or fastened in violation of the supplement to said act, approved February twenty-sixth, one thousand eight hundred and fifty eight, in the tidal portions of the Delaware river and bay, and their tributaries.

SEC. 3. And be it enacted, That the first section of the supplement of "An Act to Regulate Fisheries in the River Delaware, and for other purposes," approved February twenty-sixth, one thousand eight hundred and fifty eight, be amended by adding to the same the following proviso; *provided*, that the prohibition shall not extend to the use of gilling seines of a larger mesh than ten inches for taking sturgeons.

Approved April 4th, 1873.

ACT OF 1874, PAMPHLET, P. 61.

SEC. 1. Be it enacted by the Senate and General Assembly of the State of New Jersey, That from and after the passage of this act, it shall not be lawful for any person or persons, with net, seine, trap, fike, gilling-net, set-net, pot, or gun, to take or catch fish in any of the lakes or ponds of this State, which may have been stocked by the Fish Commissioners of this State with fresh water fish; and any person or persons who shall take or catch any fish in any of such lakes or ponds of this State, in manner aforesaid, shall be guilty of a misdemeanor, and upon conviction thereof, before any court having jurisdiction of such offence, shall be imprisoned in the county jail for a term not less than three months, or by a fine not less than twenty-five dollars, nor exceeding one hundred dollars, or by both, such fine and imprisonment, at the

discretion of the court before which such conviction shall be had; *provided always*, that such penalty shall not apply to the taking or catching of small minnows for bait, with a seine not over fifteen feet long, or to legitimate fishing with a hook, line, and rod; *provided further*, no person shall use less than a four and a half inch mesh in fishing for shad.

SEC. 2. And be it enacted, That it shall not be lawful for any person or persons to take or catch, with a hook and line, or with hook, line, and rod, any fish whatsoever, from any of the lakes or ponds of this State, which have been, or may hereafter be, stocked by Fish Commissioners of this State, for three years from the time the stock fish or spawn is introduced into such lakes or ponds; and any person or persons who shall violate the provisions of this section, shall, upon conviction, be punished as provided in the preceding section.

SEC. 3. And be it enacted, That any lake or pond of this State, which, before the passage of this act, may have been stocked with fresh water fish, or which may hereafter be stocked with fresh water fish by any individual or individuals, as a private enterprise, shall come within the provisions of this act, and no fish shall be taken from any such lake or pond for three years from the time such lake or pond shall have been stocked, under the penalty as in the first section of this act provided.

SEC. 4. And be it enacted, That hereafter it shall not be lawful for any person or persons to take or catch any brook trout in any of the streams of this State, before the first day of April or after the fifteenth day of August of each year.

SEC. 5. And be it enacted, That it shall not be lawful for any person or persons to take or catch from any of the lakes or ponds of this State, any black bass or perch, between the first day of March and the first day of June in each year, and whoever shall be convicted of violating the provisions of this section, or of the preceding section, shall be punished as in the first section of this Act provided.

SEC. 6. And be it enacted, That hereafter it shall not be lawful for any person or persons, in any manner, to catch, take or carry away any trout or other fish from any stream, pond or reservoir, belonging to any person, persons or corporation, except the owner thereof, which stream, pond or reservoir may have been stocked with fish by hatching the eggs or spawn, or otherwise; and any person so offending shall, upon conviction, be punished as in the first section of this act provided, and in addition thereto the person or persons so offending shall be liable to the owner or owners of such stream, pond or reservoir, for the full value of all fish so taken or carried away, to be recovered in an action of debt before any court having jurisdiction thereof.

SEC. 7. And be it enacted, That it shall not be lawful for any

person or persons to place in any of the ponds, lakes, rivers or streams of this State, or in any of the waters belonging to this State, any lime, gas-tar, coculus indicus, (otherwise known as fish-berries), or any other deleterious substance, or take or catch fish with any deleterious substance or medicated bait, nor shall any person or persons make use of giant or electric powder, or any explosive substance whatever, for the purpose of taking fish; and any person or persons offending against the provisions of this section of this act shall be guilty of a misdemeanor, and, upon conviction, shall be punished by imprisonment for a period not less than six months or more than two years, or by a fine not less than two hundred dollars nor more than five hundred dollars, or by both such fine and imprisonment, at the discretion of the court before which such conviction shall be had.

SEC. 8. And be it enacted, That of all penalties recovered under this act, one half shall go to the informer, and the other half shall be paid to the clerk of the county in which the conviction shall be had, to be paid by him upon demand, to the Commissioner of Fisheries in charge of the district in which such county may be located, which Commissioner shall account for the same to the Comptroller of the State.

SEC. 9. And be it enacted, That it shall be lawful at any and all times, for any person or persons to legitimately take, or catch with hook and line, or with hook, line and rod, any pike, or pickerel, or bass, in or from the bodies of water known as lake Hopatcong, and Stanhope reservoir, situated in the counties of Sussex and Morris, in this State, and the bodies of water known as Cranberry reservoir, Swartswood pond, Decker's pond, and Culver's lake, situated in the county of Sussex, in this State, and none of the penalties contained in this act, shall apply to such legitimate fishing as is provided for in this section.

SEC. 10. And be it enacted, That this act shall take effect immediately.

Approved March 21st, 1874.

ACT OF 1874.—PAMPHLET LAWS, P. 114.

SEC. 1. Be it enacted by the Senate and General Assembly of the State of New Jersey, That hereafter it shall not be necessary in any case, to give the ten days notice heretofore required by the second section of a further supplement to an act entitled, "an act to regulate fisheries in the river Delaware, and for other purposes,"

approved February twenty-eighth, one thousand eight hundred and seventy-two, this section to take effect when concurred in by the Legislature of Pennsylvania.

Approved March 27th, 1874.

Attention is also called to an act approved March 27th, 1874, (Pamphlet Laws, 137,) entitled "an act to amend and consolidate the several acts relating to game and game fish." This act contains several important provisions in reference to game fish, and to fishing in waters stocked by the Commissioners or private parties.

APPENDIX G.

Commissioners on Fisheries thus far Appointed.

UNITED STATES.

Prof. Spencer F. Baird, Smithsonian Institution, Washington, D. C.

MAINE.

E. M. Stilwell,
Henry O. Stanley,

Bangor.
Dixfield.

NEW HAMPSHIRE.

O. H. Noyes,
J. S. Wadleigh,
A. C. Fifield,

Henniken.
Laconia.
Endfield.

VERMONT.

M. C. Edmunds,	Weston.
M. Goldsmith,	Rutland.

MASSACHUSETTS.

Theodore Lyman,	Brookline.
E. A. Brackett,	Winchester.
Thomas Talbot,	North Billerica.

RHODE ISLAND.

Newton Dexter,	Providence.
Alfred A. Reed, Jr.,	Providence.
John H. Barden,	Rockland.

CONNECTICUT.

Wm. M. Hudson,	Hartford.
Robert G. Pike,	Middletown.
James A. Bill,	Lyme.

NEW YORK.

Horatio Seymour,	Utica.
Robert B. Roosevelt,	New York City.
Edward M. Smith,	Rochester.

NEW JERSEY.

B. P. Howell,	Woodbury.
J. R. Shotwell,	Rahway.
G. A. Anderson,	Trenton.

PENNSYLVANIA.

James Worrall,	Harrisburg.
J. Howard Reeder,	Easton.
James Duffy,	Marietta.

VIRGINIA.

Asa Wall,	Winchester.
-----------	-------------

62 REPORT OF COMMISSIONERS OF FISHERIES.

ALABAMA.

Charles S. G. Doster,
Robert Tyler,
D. R. Hundley,

Montgomery.
Montgomery.
Courtland.

IOWA.

Samuel B. Evans,
B. F. Shaw,
Chas. A. Haynes,

Ottumwa.
Anamosa.
Waterloo.

MINNESOTA.

A. W. Latham,

Excelsior.

MICHIGAN.

Gov. J. J. Bagley,
Andrew J. Kellog,
George Clark,

Detroit.
Allegan.
Ecorse.

OHIO.

John Hussey,
John H. Klippart,
E. T. Sterling,

Lockland.
Columbus.
Cleveland.

CALIFORNIA.

R. B. Redding,
S. R. Throckmorton,
J. D. Farwell,

Sacramento.
San Francisco.
San Francisco.

DOMINION OF CANADA.

W. F. Whitchen,

Ottawa.



