

FOURTH ANNUAL REPORT

OF THE

Commissioners of Fisheries,

OF THE

STATE OF NEW JERSEY,

*FOR THE YEAR 1873.*

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TRENTON, N. J.:

THE STATE GAZETTE—MURPHY & BECHTEL, BOOK AND JOB PRINTERS.

1873.

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FOR THE YEAR 1883

THE COLLEGE

OF THE STATE OF NEW JERSEY

1884

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THE END

## REPORT.

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*To His Excellency Joel Parker, Governor of New Jersey :*

SIR:—The undersigned, appointed by your Excellency as Commissioners of Fisheries of the State of New Jersey, respectfully present to you this their fourth annual report :

### SOUTHERN DISTRICT.

The past fishing season in the tidal portion of the river Delaware has resulted in failure.

Few, if any, of the established shore fisheries paid expenses; most of them lost heavily.

The drift-net men, too, as a rule, were poorly remunerated for their time and expenditure. For particulars relating to the modes of fishing by these two classes of fishermen, we respectfully refer to our first report, (see reports 1871). Very much has been learned by the indefatigable labor and observations of naturalists of the habitudes of the migratory fishes in the past few years, yet much remains to be learned.

It is a fact well known to fishermen, that the vicissitudes incident to season exert a powerful influence on the movements of these fishes when impelled by the instinct of propagation they seek suitable places for spawning. It has long been a popular belief that "a hard winter will be followed by a good fishing season," and that an early freshet reaching far down the bay, and probably into the ocean, entices and guides the shad into and up the rivers; yet, paradoxical as it may seem upon this view of the case, it is a well known fact that when shad have reached fresh water, a freshet will drive them back into salt water. This seems to militate against the foregoing theory, and leads to the conclusion that they need no such enticement or guidance.

The past winter was one of extreme rigor, and attended by a succession of stormy and variable weather, but as there was little if any ice remaining in the tidal portion of the Delaware during the month of March, the impression prevailed that when once the successive runs

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of shad and herring had entered the bay, they would make persistent efforts to reach the upper waters of the river. The fishermen, accordingly, made preparations for fishing at the usual time; they were, however, doomed to sad disappointment, though no unusually heavy freshets occurred, yet there was a continual flow of cold water from the melting of large masses of snow and ice in the mountainous regions of the State of New York, whence the Delaware takes its rise. To such a degree was this the case that it is said the water was fresh and cold nearly to the Delaware breakwater. So effectually did this condition of the water stay the progress of the shad, that it will appear by the report of Mr. James Logue, Fish Warden of Cumberland county, that those drift-nets which fished far down the bay took double the number of shad than they did which were fished higher up, taking the season through. It is remarkable, too, the season was an unusually short one. It was supposed that this abnormal condition of the water would merely retard the shad, and hence the season would be more protracted. Mr. Logue said that all the drift-net men in his county were home by the first of June, with one or two exceptions; all the shore fishermen, and a majority of the drift-net men in the upper reaches of the tidal portion of the river, quit fishing before the expiration of the season, viz., the tenth of June.

A. D. Carmans, Fish Warden of Burlington County, reports:

Fishing season commenced late. First shad caught was at Riverton, April 8th; five at Delanco, April 18th. They reached Bordentown on the 20th. Shore fishing commenced about 25th of April. At Cinnaminson fishing ceased May 24th. Taylor's Point and Dutch Neck stopped fishing in May; these three fisheries losing money. Hawk Island fishery stopped June 1st,—made a medium season. On May 1st, seventy-one drift-nets were fishing, by the 20th, only forty-six continued to do so; the catch was about half of that of the year 1872, say two hundred and fifty shad each, excepting four nets, which made an average season, owing to so many others having withdrawn from their drifts. Fishing on the whole in Burlington County has been a failure.

The destruction of shad has been so great for several years that unless (artificial?) propagation is resorted to, and the laws enforced with rigor the shad will be entirely destroyed.

The repeal of the close time law by Pennsylvania has been the cause of much trouble to the wardens and expense to the State. I have caused to be removed more than three hundred fyke-nets from the Delaware; they cause the destruction of thousands of young shad. You ask how our fisheries compare with thirty years ago? My information is obtained partly from records and partly from reliable fishermen. Thirty and forty years ago a run of shad was not called a good one unless they averaged six pounds. There is recorded *one*

catch of three hundred and seventeen shad, the smallest weighing six pounds.

In what was called a good run, forty shad, with head and tail off, would fill a pork barrel—mackerel barrels were not then in use. The largest haul (then) on Duck Island was two thousand three hundred; the largest on Long Bar, three thousand one hundred. Six of the largest fisheries averaged forty thousand each, in a good season. Price from \$10 to \$13 per hundred. Mesh  $6\frac{1}{4}$  to  $6\frac{3}{4}$  inches.

Drift-nets caught then about one thousand shad; these sold somewhat higher.

“April 19th, several fisheries in Pennsylvania fished herring nets, catching shad by the thousands, weighing from a half to one pound each; these were sold to dealers.” These were probably males of one and two years growth, which, like the parr and grilse, (young salmon), are fecund and follow in the wake of the females, who are not so till the third year, and then contain “three sets” of ova, which from the difference in their sizes are supposed to mature in three consecutive seasons. From this the inference is that shad live at least five years, and when suffered to revisit their native streams, in that time attain to the weight of those large shad once so abundant in our waters.

Frederic Shindle, Fish Warden of Camden County, reports:

That his present differs but little from his report of last year, except that the catch of shad was almost a failure. Hugg and Howell were compelled to cut out before the season closed; and as regards the gillers, they did not do anything, comparatively speaking. Of the parties that made an attack on him, up the river, in May, 1872, one was arrested, tried, and convicted on four different charges, at the last May term, but he cannot tell what disposition was made of the case.

In his vicinity there were no violations of the law, but above Camden the same was carried on as during last year. He told the sheriff he would call on him to protect him, but he said he would not unless he would get paid first.

He hopes some further measure will be adopted to enable him to enforce the law.

Helm V. Heritage, Fish Warden of Gloucester County, reports:

The past season has not been a good one for either shad or herring; the shoremen as a rule, having lost money. As compared with former years, the shad were fewer in number and smaller in size, the average weight being about three pounds to a fish, and it requiring about one hundred, when cleaned and salted to fill an ordinary fish barrel.

There are about one hundred nets (with two men to a net) employed by the gillmen in my jurisdiction, and the catch averaged

about two thousand fish to the net; this, however, includes the fishing in the Delaware bay and in the river outside of the limits of Gloucester county. There are also seven shore fisheries in the county, employing one hundred and ninety-three men, the number of fish taken by these I have not been able to ascertain." (Five of the above shore fisheries are operated by citizens of Kensington, in Philadelphia; the other two took about eleven thousand four hundred and fifty each, and twenty-six thousand and fifty-six herring, twenty-two sturgeon, and a few rock-fish).

There were some violations of the fishing laws during the season by persons unknown to me, whom I believe to be citizens of Pennsylvania, but by reason of a lack of sufficient force and proper and necessary appliances, I was unable to arrest the offenders and enforce the laws. No instance of shad having been offered for sale or had in possession contrary to law, came to my knowledge during the past season, and in this respect the law, without exception, so far as I know, was obeyed within my jurisdiction.

James S. Hannah, Fish Warden of Salem County, reports:

Four shore fisheries, viz.:

1. At Ridgways, two hundred fathoms, crew of eight men.
2. At Helm's Cove, five hundred fathoms, crew of thirty men and one horse.
3. At Carneys Point, five hundred fathoms, crew of thirty men.
4. At Salem Cove, four hundred fathoms, crew of fifteen men.

That at Helm's Cove fishes about one month at expense of \$65 per diem. Loss \$700 this year.

At Carney's Point the catch of shad was three thousand, of herring, five hundred thousand.

At Salem Cove fishing continues but a few weeks in the early part of the season. All fished by non-residents except the first named.

About one hundred and twelve drift-nets owned and fished from Salem county; about seventy-five drift-nets fished from said county but owned by non-residents—length from three hundred and twenty-five to four hundred and fifty fathoms, depth below float lines twenty feet. Total catch of these drift-nets about two hundred and ten thousand, or one thousand one hundred and twenty-three to a net; average twenty-two cents. 1872, catch averaged one thousand three hundred and fifty-two, to a net. The catch of three of the shore seines could not be ascertained. Slight decrease in the catch of sturgeon from last year.

But few violations of the Sunday close time by residents of the county, such as occurred were almost exclusively confined to persons out of the State or from the adjoining county of Gloucester, who fish from some isolated point in the county. Owing to the great extent of water front of this county, evil-disposed persons take advantage of the impossibility of the warden to guard every point. He recom-

mends power being given him to appoint for one day in the week, a sufficient number of deputies.

On the 9th of September, was informed of parties fishing with fyke-nets at mouth of Stow creek, the southern boundary of Salem county. Immediately conferred with the Commissioner of Fisheries, Dr. Howell, in charge of southern department of the river Delaware. The commissioner's reply was of such a tenor as to lead me to suppose the nets complained of were not unlawful nets, and therefore did not conflict with any of the present acts of the Assembly.

It is proper here to state that, by second section of act of 1871, fyke-nets are prohibited, with all other seines of less mesh than ten inches, only between 10th of June and 10th of August. The warden says he was afterwards informed by Mr. Logue, warden of Cumberland county, that they were unlawful nets, and that he (Logue) had driven them from his jurisdiction. He immediately visited the locality, and found that the apparatus was owned by parties residing in Monmouth county. The proprietor being absent, his representative promised to remove the nets and give no further trouble, and so the matter rests for the present. It is the opinion of old drift net men that there is little difference in size of shad in the last ten or fifteen years, or since they have fished over a five inch mesh. A number of years ago, when they fished a six inch mesh, they caught a few weighing from six to eight pounds apiece, but they find that a shad weighing over four and a half pounds will very seldom gill in a five inch mesh; and their opinion is, that there are very few of those very large shad in our river, or else the shore nets would catch them.

Mr. James Logue, Fish Warden of Cumberland County, reports:

About eighteen nets from his county against twenty-one last year. Those fishing in lower bay and river averaged about thirteen hundred to a net. Those fishing higher up rarely took nine hundred to a net the season through; this is ascribed to fresh water extending so far down. The season came to an early close; nearly all the nets were home by 1st of June; prices higher than last year. The fish are shipped to New York over the New Jersey Southern Railroad, wholesale price, twenty to twenty-five cents. In Cohansey creek, some twenty-five to thirty gilling seines, in length, thirty to forty fathoms, take, annually, ten thousand shad. Some years back, three or four shore fisheries took there as high as twenty-five thousand in a season, but the gilling seines have gradually thinned them out by excessive fishing, until now the above number, about ten thousand, is rarely exceeded. The fish taken in this creek are retailed in Bridgeton and vicinity at thirty to thirty-five cents. Besides shad and herring, about five thousand bushels of blue fish are annually taken off the shores of this county.

Mr. Logue complains of a party who fished in April, May and

June, with brush-nets, fyke-nets and dams, commencing at Maurice river, moving thence to upper side of Stowe creek, in Salem county. Of their presence there, he informed Mr. Hannah, Warden of Salem county. Complains very justly of the ten days' notice, required to be given before brush-nets, dams, &c., can be seized or destroyed, as "superfluous—the law itself forbidding their use is certainly sufficient notice."

With this exception, there were but few violations of the laws; these few were confined to Cohansey creek. Prevailing opinion with fishermen is that shad were superior in size, as well as quantity, fifteen or twenty years ago. The three largest shad taken the past season weighed, respectively, six, seven, and seven and a quarter pounds. One hundred shad just from the net would weigh, on an average, two hundred and eighty-five pounds, less than three pounds each. When cleaned and salted down, seventy-five shad will fill a fish barrel.

One of the fishermen told him that almost invariably, upon taking up his net, he would find the lead line and the net, for a considerable distance up, encumbered with ova of shad, the shad having struck fresh water and spawned there, which was very unusual as far down the river as he fished.

The Commissioners have endeavored, in former reports, to refute the idea of shad ova attaching to anything. The letter from Seth Green, the great shad hatcher, contained in this report, we hope will settle this question. Mr. Daniel Stoy, of Philadelphia, informs one of your Commissioners that he fished a gilling seine forty years; that thirty years ago a net of only ninety fathoms in length, caught, inside of three weeks, three thousand shad; that at three drifts, constituting one day's fishing, he took three hundred shad; and at that time it required but from forty-five to fifty shad to fill a barrel, whereas, now, it takes one hundred to do so.

The foregoing statements prove conclusively that a rapid decrease has been progressing for many years, not only in the numbers, but also in the size of the shad.

At several of the large shore fisheries, the falling off in the latter five of the past ten years has been one-third. At this ratio the hitherto valuable tax-paying shore fisheries must all succumb, as one-half of them, since eighteen hundred and eighteen, have gradually done. In such an event these pools will be occupied by scores of drift nets, to the still further obstruction of the migratory fishes to their spawning grounds.

What then has become of the large shad which were formerly so numerous, weighing eight, ten, twelve, fourteen, and in one instance the astonishing weight of sixteen pounds, a scale of which, on the authority of the late Honorable James Wall, was two years ago, still preserved in Burlington, New Jersey?

To this question there can be but one answer—they have all been

fished out. The knowledge of this fact has led shore fishermen to reduce the size of their mesh from five to four and a half inches in many instances, and the gill men theirs from six and three-quarters to five inches.

From the rate of the growth of shad now established by the experiments of Mr. Seth Green, the vast majority of those taken in our river and its tributaries of late, must be those only of two and three years old, and returning for the first time.

In evidence of this, Mr. Green transferred the fry of shad hatched on the Hudson, to the Sacramento river, California, in the early summer of 1871, where till then they were unknown in rivers emptying into the Pacific ocean. The present year males have been taken there weighing one and a quarter pounds, and one foot in length, the growth of two years. Mr. Green, in a letter communicating this fact to one of your commissioners, says: "The females will return next year," a conclusion based on the wonderful results of his shad planting in the Connecticut river, the males there returning in two years, and again accompanied in the third year by the females, and in numbers greater than had been known in fifty years; while in adjacent rivers, where no planting had been done, there was no appreciable increase.

How then can we not only arrest the further deterioration of our fisheries, but restore them to their former plentitude?

We answer by artificial propagation, and by giving the migratory fishes a chance to reach their spawning grounds; by a strict enforcement of the law which interdicts fishing between sunset Saturday and twelve o'clock Sunday night, and below Trenton Falls after the 10th of June, and above said Falls after 15th of June.

These salutary restrictions have long existed, but owing to the cupidity of fishermen, the ignorance and passiveness of the community to their own interest, and the faithlessness of the ministers of the law, have, until lately, remained in abeyance. The result of all which is the present scarcity and high prices of this, our most valuable fish, once so abundant and cheap, as to be within reach of the poorer classes, but soon, it is feared, to become a luxury, attainable only by the wealthy. Should the experiments now being made, of introducing salmon into the Delaware prove it to be a suitable habitat for them, the importance of strictly enforcing these restrictions must be obvious. Else but few of them will run the gauntlet of a thousand gilling-nets or the sweep of the shore seines. Highly important as it is that the fishing season should be confined within its present limits, it is infinitely more so that the existing weekly close time be observed, for two reasons, viz.: that the dwellers along the entire length of the river may receive their fair proportion, and that the shad may during the whole period of the season reach their spawning grounds; for it is not at all improbable that these fishes in returning to their native waters, do so in the order of their hatching.

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When we consider all the causes tending to the diminution of the shad, it seems wonderful that the race has not long since become extinct. The schools obstructed and scattered by drift-nets and swept in by the shore seines while ascending the river, their progeny decimated by rock-fish, eel-weirs, fish-baskets and brush-nets, drawn into feeder and race-ways, and killed in their somersaults over mill-wheels, while those that fairly reach the ocean become a prey to snapping-mackerel, cod-fish, and legions of other piscivorous tribes of fishes, myriads of the ova, too, besides being borne away by freshets and smothered by their sediment, are devoured by eels and suckers. As two of the conditions to successful incubation of shad ova are constant motion and clean running water, may not great loss be caused by the removal of cobble stones from the bed of the river, used in paving the streets of our cities?

What more suitable places for the shad ova to be dropped into than the interstices among these stones forming little eddying pools, wherein, secure from predatory fishes, the above named conditions are fulfilled, viz: clear water and constant motion?

The reports of the Fish Wardens of Camden and Gloucester counties, show that on some occasions they were unable to enforce the law for lack of sufficient force and suitable means to do so. By second section of the act of 15th of March, 1871, the wardens are to 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." "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."

Without funds and with no suitable appliances at hand, the Commissioner in charge of this department was unable to take the initiative prescribed by the act, nor did he feel warranted to put the State to such expense in employing the requisite force and means adequate to the emergencies, till the Commissioners of Pennsylvania, under the authority of the 7th section of the act passed by her Legislature at its last session, should appoint a river police to enforce, on their part, the joint fishing laws of the two States. As nothing, however, was done by said Commissioners, so far as related to the tidal portion of the river Delaware, it was inferred that they had been commissioned too late to organize and to become acquainted with the actual needs demanded.

Our wardens can and do, with comparative ease, control our own citizens, but over a reach of river from twelve to twenty miles in length and a mile or more in width, with a strong current to contend with, and without adequate force and suitable appliances immediately at hand, it is not always easy to enforce the law against lawless men, (and from another State) banded together and prepared for resist-

ance, whereas the authorities of Pennsylvania, through a well appointed harbor police, could readily identify, arrest and bring to justice these violators of law. Nor is it reasonable to expect the officers of our State to perform alone the duties incumbent upon those of both States. If their enforcement is to devolve upon New Jersey alone, it will become necessary that our officers be provided with a tug-boat, fully manned and well appointed in all respects, to cope with any opposition. There are reaches of the river within the jurisdiction of Camden and Gloucester counties wherein demonstrations of resistance have been made of such a character the past two seasons, as to clearly prove the necessity of calling into requisition such means as above named to uphold the supremacy of the law. As a special act was passed in April 1867 by the Legislature of Pennsylvania requiring her then Commissioners to investigate the laws regulating fishing in the river Delaware, and to ascertain what, if any, additional law might be necessary on the part of the States riparian thereto, it is presumed her present Commissioners will carry out the intentions of that act, and in concert with your Commissioners, devise such measures as may be requisite, and adopt some practicable plan for their enforcement.

In this connection your Commissioners beg leave to call your Excellency's particular attention to our treaty relations with Pennsylvania touching the river Delaware.

By the compact of 1783, to each State was given jurisdiction over the entire surface of the river, and by it both States could regulate the fisheries annexed to their respective shores, known as shore fisheries. In process of time another mode of fishing was introduced, independent of, and annexed to neither shore, called drift or gill-net fishing, coming under the head of what the Hon. A. Browning designates as "the common of fishery." As these nets are stretched across the channels and float with the tide, it is obvious that concurrent legislation is absolutely demanded to prevent conflict of authority. To avoid which the usage has long pertained for neither State to make laws regulating fishing operative till approved by the other. At the recent session of her Legislature, Pennsylvania saw fit to depart from a usage sanctioned both by comity and equity, and changed the established weekly close time, without assent of New Jersey, and the anomaly now exists of two States, the one forbidding fishing between sunset Saturday and twelve o'clock Sunday night, the other permitting it, and this on a river over which both have equal jurisdiction!

Of so much importance does this subject seem, and involving, as your commissioners believe, such grave results, that they beg leave to present to your Excellency the opinion of the Hon. Abraham Browning on our treaty relations with Pennsylvania touching the river Delaware, and the necessity growing out of them of concurrent legislation. By request too, of one of your commissioners, Mr.

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Browning kindly supplemented the above opinion with his views in respect to the authority conferred by the compact upon the ministerial officers of the two States in the exercise of their functions over the whole surface of the river lying between and opposite to the shores of the respective States.

“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.”

14th March, 1873.

[Signed]

A. BROWNING.

To DR. B. P. HOWELL.

CAMDEN, 31st March, 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 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,

[Signed]

A. BROWNING.

DR. BENJ. P. HOWELL, Woodbury, N. J.

These views are deemed important, too, to be presented here to correct a construction put upon the last clause of the second article of the compact by the Commissioners in their last report. Besides ample means being provided for the enforcement of these laws, we cannot urge too strongly the appropriation of a sufficient sum for the planting of shad and salmon in our river. It will take several years before we may enjoy the full fruition of these measures, as these fishes require several years to attain a marketable size. The following letter from Mr. Seth Green, recognized authority on this question, may be interesting and instructive:

CAPE VINCENT, N. Y., 23d October, 1873.

BENJAMIN P. HOWELL, M. D.—DEAR SIR:

Yours of the 14th is received. You are right about the gill-nets picking out the large shad. The spawn that stuck to the nets (see Mr. Logue's report) were not shad spawn; shad spawn do not attach to anything.

I had men operating on the Susquehanna river with fair success for the first year. It takes time to find the spawning grounds. We had a great catch in the Hudson and Connecticut rivers last Spring. The longer you put off operating on the Delaware, the longer it will take to build it up again.

SETH GREEN.

What stronger argument for "operating" on the Delaware can be used than the fact that while all the rivers draining the Atlantic slope, the Hudson and Connecticut, which had reached zero, are, by means of artificial planting, being restored to their former repletion? For this purpose a small appropriation, say of five thousand dollars,

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would be amply sufficient; the initiatory steps have been taken, as will be seen by reference to another portion of our report. Fish culture is no longer an experiment, and it is hoped that our Legislature at the coming session will realize its value and importance.

### NORTHERN DISTRICT.

The returns to the fishermen of this district have, during the past season, been proportionately much better than those of the southern part of the State. It is true that the catch of shad has been much less than that of the preceding year, though the extra five days allowed the fishermen added greatly to their profits. Yet the enormously increased catch of the smaller food fishes in many cases more than compensated for the decrease of shad. More spawning shad and more young were noticed, the former during the month of July and the latter in September and October, than in any previous season in the memory of our oldest fishermen, giving promise of increased catch in future years. With the sole exception of Sussex county, the wardens have been active and energetic, attending zealously to their duties, in some cases at heavy personal risk. No trouble has arisen from our own citizens, the offenders in we believe every case having been residents in a neighboring State; and as the organization of the Pennsylvania protective police will be perfected during the coming winter, it is believed that in future no trouble need be anticipated. Fears were entertained that collisions would arise from the shortening of the close time by Pennsylvania, thus allowing the citizens to fish in hours proscribed by the New Jersey code, but we are happy to say that no conflicts took place. The new law prohibiting the placing of any net of less than ten inch mesh in any portion of the Delaware above Trenton falls, between June 15th and August 10th, was well observed; but one violation being known; the offender was at once arrested. That ignorance of this law might not be pleaded in excuse, a number of hand-bills were printed and posted in hotels and other conspicuous places along the upper river. This law, though interfering somewhat with the operations of the so-called "small mesh fishermen," is generally considered as proper, and the enormous increase in the number of young fry seen during the past autumn, has proved its value. The smaller fishes of our river have hitherto been too much neglected, yet the numbers annually taken are great, as will be seen by reference to other portions of this report. The operation of the United States Commission of Fish and Fisheries at Point Pleasant, were superintended by a member of your Commission, and he was thus thrown in contact with a large number of the fishermen both of our own State and that of Pennsylvania. He is happy to be able to state that the old feeling of antagonism against your commission has almost entirely disappeared, and their acts for the most part fully approved;

they are recognized as the friends and not the foes of the fishermen, and though individuals may object to certain acts by which time-honored, though illegal customs, have been interfered with, they still, upon the whole, recognize the justice of the laws and cheerfully obey them. The demand for artificial propagation is universal, our operations were at first looked upon with doubt which soon gave way to intense interest. Thousands of persons visited our camp, and all expressed wonder at and interest in our work. They saw with their own eyes the means by which their river could be restocked, yes, soon refilled with shad as in days of old. Messrs. Green and Holton, the manipulators, were prompt and obliging in showing our numerous visitors the young shad in various stages of development, explaining the methods employed by them in obtaining and fertilizing the eggs. Our camp was visited by a number of our prominent citizens from distant parts of the State, who in every case expressed their interest in and approbation of our proceedings.

## SUSSEX COUNTY.

We regret to state that constant and persistent violations of the fishing laws have taken place in this county during the past season. The close season has not been observed and fish-baskets have been erected. Mr. Jacob Westbrook, warden of this county, having vainly endeavored in a quiet manner to enforce the laws, and having been positively refused assistance by the sheriff of Pike county, has resigned his position. An active and energetic successor will we hope be appointed by your Excellency. Of course no report has been received, but it has been ascertained that the catch of shad has been almost the same as that of the season of 1872.

## WARREN COUNTY.

Three fish-baskets were erected in this county during the past season, but after due notice having been given to the proprietors, two were destroyed by Mr. Lewis C. Weller the worthy warden of this county who has shown throughout a firm determination to do his duty; the third basket was carried away by the October freshet, had not this occurred it would also have been destroyed by Mr. Weller upon the subsidence of the high waters. One individual was detected in the act of setting a fyke-net during the close season and duly prosecuted according to law. The case was tried before a justice of the peace, and though the fact was duly proven, the justice decided in favor of the defendant. The case will soon be tried in the county court.

With these few exceptions no violations of the fishing code have taken place within the county. All the fisheries are now for the first time entered according to law and bonds given.

The catch, upon the whole, has been somewhat better than that of last year. Ten thousand three hundred and fifty shad, averaging forty cents have been taken, making a total value of \$4,150. Large numbers of suckers, bass, sunfish, and other smaller fishes have been taken, the value of which is estimated to be greater than that of the catch of shad. We think we are therefore justified in stating that the total amount of fish food derived from the rivers of Warren county during the past year has not been less than \$10,000. With the exception of their proprietors fish-baskets are regarded with no favorable eye by the fishermen, and the action of Mr. Weller in destroying them is approved by all. Great numbers of shad were seen ascending the river after the close of the fishing season, and the number of young noticed upon their way to the sea was far greater than had been ever previously noticed. This is universally ascribed to the increased facilities for descending afforded by the removal of the fish-baskets, the observance of close time and the stoppage of small mesh fishing. The black bass are found in large numbers though principally below Foul Rift. Mr. Weller suggests that a law imposing fine or imprisonment upon the builders of fish-baskets is imperatively needed. By the present law the Warden is required after ten days' notice being given, to destroy any fish-basket which may have been erected within his district, but no penalty is prescribed for constructing such a structure. It was supposed by the framers of the law that the pecuniary loss involved in the destruction of the basket would be sufficient to deter the builders from again erecting it, but the third basket was erected upon the site of the first one destroyed by Mr. Weller.

Your Commissioners would therefore suggest the passage of a law imposing a penalty upon every person engaged in the construction of a fish-basket, and the repeal of the act of 1873, requiring ten days' notice to be given, the law itself, in our opinion, being a sufficient notice. The capture of fishes by means of fish-berries or crazy-bait, (*cocculus indicus*), is still carried on in this county to an enormous extent. An act prohibiting this method of fishing was introduced into the Legislature during its past session, but for some reason failed to meet the approbation of the Assembly. It is to be hoped that the importance of such an act will be recognized during the coming session. As stated in a previous report (No. 3, page 5), the Musconetcong creek, which flows for a long distance through this county, has been selected, for reasons there given, as the stream in which the young salmon are placed. This stream is therefore the nursery for the young fishes, and as such, should be thoroughly protected. Were net fishing in this creek entirely forbidden, and the defilement of its waters by the waste materials of tan-yards and paper-mills prevented, the chances of life of the young salmon would be greatly increased, and were fish-ways erected in the dams it would doubtless become the favorite spawning ground of the adult fishes,

whose habit of returning to their native waters is well known. By a recent decision of the United States Supreme Court, these fish-ways can be constructed at the expense of the owners of the opposing dam, though a fish-way through which shad can ascend is as yet a desideratum. Salmon ladders can be readily and cheaply constructed.

## HUNTERDON COUNTY.

Mr. A. J. Scarborough, Fish Warden of this county, reports:

That he has frequently paid unexpected visits to the fisheries in his district, that he has traversed the entire river border on Sundays and has neither met with or known a single instance of any violation of the fishery laws. On the contrary he has met with kind and gentlemanly treatment from the fishermen, who in the main, heartily approve of the laws lately passed at the suggestion of your commissioners, and especially of those by which fish-baskets, stake-nets and other fixed engines of destruction are prohibited.

The catch of shad has been upon the whole less than that of last year. The fisheries may be divided into three classes: 1st. high water fisheries; these are situated near deep reaches of the river, connected with the shore by flats; it is only when these flats are covered with water that the seine can be drawn. 2d. low water fisheries at which the reverse is the case, and 3d. high and low fisheries, where the net can be drawn at any stage of the water. The first and second classes of fisheries have done badly, the catch being but little more than half that of 1872. The third class, however, have done fully as well as during the previous year. But the increased catch of the smaller fishes has fully compensated them for the diminution in the catch of shad; never before has the river been so prolific; this is universally attributed to the removal of fixed engines of destruction. Six to twelve dozen fishes captured by the hand line has been an ordinary half-day's work; seven dozen sun-fishes were taken with one line by Mr. Scarborough in three hours. A number of persons have been engaged in line fishing as a means of livelihood and with good results, from one and a half to two dollars being the daily profit. On the 11th of August, Mr. Moore, at Moore's fishery, in this county, captured at one haul of a small seine over eight bushels of sun-fish, cat-fish and perch, and on the 12th, four bushels more were taken. The bass have been found in abundance. The number of young shad seen descending the river has been so great as to excite wonder, even among those who have known and fished the river for over a quarter of a century. Attention is called to the fact that large numbers of male shad, too small to be used as food, are taken in the early spring. Many fishermen request that the size of the mesh be regulated by law so as to prevent the capture of these useless fishes, which in another year would have doubled or trebled in size and have become fit for food. The law passed by New Jer-

## 18 REPORT OF THE COMMISSIONERS OF FISHERIES.

sey in 1872, and approved by Pennsylvania in 1873, (vide Appendix, No. 2), prohibits the capture of fishes in the Delaware, above Trenton Falls, between the 15th of June and 10th of August, by any means, except with hook and line, this therefore, as Mr. Scarborough properly observes, prohibits the use of *cocculus indicus* (fish-berries, crazy-bait), within the above mentioned limits.

The temporary dam erected by the Delaware and Raritan Canal Company at Bulls Island, further narrowing the space between the wings of their permanent dam, has been denounced by many as impeding the ascent of the spawning fishes; certain it is that the operations of the United States Commission of Fish and Fisheries at Point Pleasant were brought to a close for want of spawning shad, immediately on its completion; at least a curious coincidence. Concerning the legality or illegality of this structure, your commissioners are unable at present to give an opinion. It is highly probable however, that this mooted question will be positively decided by other parties in a short time.

### MERCER COUNTY.

Mr. J. Ashmore, Fish Warden of this county, reports:

The catch of shad has been much less than usual, this is attributed to the coldness of the season and the immense amount of ice cold water carried down the river by the spring freshets. The last week was by far the best of the season, and the following week thousands of shad could be seen making their way up stream. Returns from seven fisheries give a take of 13,500 shad which at thirty-five cents each would give the value of the catch as \$4,725. The expenses have been \$3,350, leaving a profit of only \$1,370; number of hands employed, fifty-eight; deducting one-third as the share of the land and net owner, the share of the hands employed would amount to less than twenty dollars each.

### EASTERN DIVISION.

The catch of both shad and smelt in the Raritan river seems to be still on the decrease. In regard to the former fish it is, however, probable that the same causes which will, it is hoped, lead to their increase in the Delaware, will act upon the Raritan.

As stated in a previous report it is excessively doubtful if any shad breed in this river, the entire supply being, it is believed, derived from the Delaware, via. the Delaware and Raritan Canal. Since the placing of the young salmon in the head waters of this river, a fishway in the dam near Bound Brook is imperatively demanded. There are in this division many lakes and streams the water of which being of too high a temperature and otherwise unsuitable for trout, are now almost destitute of good fish for the table. Some

of these waters are well adapted to the sustenance of the Black, Strawberry, Oswego and Rock Bass, valuable varieties of edible fish increasing with great rapidity whenever introduced into waters adapted to their wants. Milton lake, near Rahway, was stocked during the early spring of 1872 by the "Milton Lake Fishing Association" with the above varieties of bass and also with giant perch and wall-eyed pike. Fish of the same kinds were placed in the Rahway river at two different points in March, 1873. Some members of the Association assert that they have seen large numbers of the fry of these fish sporting in the shallows this summer.

Fish five inches in length, evidently the product of the Milton lake stock, have been taken from the lake this season. Some streams and ponds in the vicinity of Elizabeth were supplied with bass and other fish during the spring of this year. The interest taken in these initial efforts to develop a new food source and the introduction of varieties classed by sportsmen as "game fish," tends greatly to encourage our efforts, and we believe that nothing is now lacking to make this interest become universal in our State but the passage of laws for the protection of stocked waters. We append to this report a draft of an act for the above purpose. Voluntary associations may accomplish a great deal in the way of supplying our inland waters with fish. A small fee for membership gives persons a feeling of proprietary interest in the undertaking and they thus become protectors of the waters they have stocked. The "Milton Lake Fishing Association" was organized with this idea, an initiation fee of \$1 for each member has defrayed all expenses and left a surplus in the hands of the treasurer. Many more such associations will undoubtedly be formed if protective laws are passed, giving by these simple means a very large addition to the food resources of our citizens at a very small outlay of labor or money.

All of which is respectively submitted,

B. P. HOWELL, M. D., Woodbury,

J. H. SLACK, M. D., Bloomsbury,

J. R. SHOTWELL, Rahway,

*New Jersey Commissioners of Fisheries.*

APPENDIX

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APPENDICES.

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APPENDIX

LIST OF THE CONTENTS

The first part of the appendix contains a list of the names of the persons who have been admitted to the office of the Secretary of the Board of Education since the year 1862. The names are arranged in alphabetical order, and are accompanied by the date of their admission, and the name of the person by whom they were appointed. The names of the persons who have been re-elected are also given, and the date of their re-election. The names of the persons who have been appointed to the office of the Secretary of the Board of Education since the year 1862 are as follows:

1862. J. B. [Name], appointed [Date].

1863. J. B. [Name], re-elected [Date].

1864. J. B. [Name], re-elected [Date].

1865. J. B. [Name], re-elected [Date].

1866. J. B. [Name], re-elected [Date].

1867. J. B. [Name], re-elected [Date].

1868. J. B. [Name], re-elected [Date].

1869. J. B. [Name], re-elected [Date].

1870. J. B. [Name], re-elected [Date].

1871. J. B. [Name], re-elected [Date].

1872. J. B. [Name], re-elected [Date].

1873. J. B. [Name], re-elected [Date].

1874. J. B. [Name], re-elected [Date].

1875. J. B. [Name], re-elected [Date].

1876. J. B. [Name], re-elected [Date].

1877. J. B. [Name], re-elected [Date].

1878. J. B. [Name], re-elected [Date].

1879. J. B. [Name], re-elected [Date].

1880. J. B. [Name], re-elected [Date].

1881. J. B. [Name], re-elected [Date].

1882. J. B. [Name], re-elected [Date].

1883. J. B. [Name], re-elected [Date].

1884. J. B. [Name], re-elected [Date].

1885. J. B. [Name], re-elected [Date].

1886. J. B. [Name], re-elected [Date].

1887. J. B. [Name], re-elected [Date].

1888. J. B. [Name], re-elected [Date].

1889. J. B. [Name], re-elected [Date].

1890. J. B. [Name], re-elected [Date].

1891. J. B. [Name], re-elected [Date].

1892. J. B. [Name], re-elected [Date].

1893. J. B. [Name], re-elected [Date].

1894. J. B. [Name], re-elected [Date].

1895. J. B. [Name], re-elected [Date].

1896. J. B. [Name], re-elected [Date].

1897. J. B. [Name], re-elected [Date].

1898. J. B. [Name], re-elected [Date].

1899. J. B. [Name], re-elected [Date].

1900. J. B. [Name], re-elected [Date].

## APPENDIX NO. 1.

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### NOTES ON THE FOOD FISHES OF NEW JERSEY.

The bass (*Grystes salmoides*) which were placed in the Delaware by private enterprise some few years since, have increased to an almost incredible extent. During the shad hatching operations of the United States Commission of Fish and Fisheries they were seen in great numbers, in the early part of June hundreds could be counted watching their nests upon the gravel beds in the vicinity of Trimble Rush Islands and Point Pleasant, and a few weeks afterwards immense numbers of young, varying from three-quarters to one inch, were noticed. Reports from other portions of the non-tidal part of the stream show that the bass were not confined to one locality. Though much controversy has taken place in regard to the placing of these fishes in the streams already containing valuable food fishes, of their adaptability for our inland lakes and mill-ponds, there can be no doubt. A small appropriation judiciously dispensed would place them in all our waters. Arrangements might be made with the shad fishermen of the upper river by which the bass could be placed in live boxes and transported to one or more centres of distribution. Applications were received from over twenty parties for these fishes, but they, of course, could not be supplied. Of the spawn of the salmon (*Salmo salar*) but 40,000 were forwarded from Bucksport, Maine, by Mr. Charles Atkins, arriving at Troutdale March 1st. The salmon being far advanced hatched in a few days after arrival. On May 1st 18,000 were placed in an empty pond supplied by clear cold spring water and communicating with the Musconetcong creek, a tributary of the Delaware river. 15,000 were afterwards placed in Salmon Run in the extreme head waters of the Raritan. These spawn were furnished by the United States Commission of Fish and Fisheries, but the entire expense of freight, express, care and food, up to the time at which they were placed in the streams, was borne by a member of this commission. The enterprise was undertaken under the hope that an appropriation would be made by the Legislature of New Jersey at its last session, and the matter was deemed of such vital importance to the fishing interests of the State that your commissioners resolved to proceed even in the absence of

## 24 REPORT OF THE COMMISSIONERS OF FISHERIES.

any immediate appropriation, hoping that the Legislature at its coming session would recognize the services performed and reimburse outlay expended. Your commissioners are aware that no authority has been granted them to expend public moneys upon fish propagation; but the spawn having been offered them by United States Commissioner of Fish and Fisheries, they deemed the matter of such importance as to warrant the expenditure, believing that the Legislature at its coming session would recognize the value of the introduced fishes and reimburse your commissioners for the mere expenses incurred. Recent reports from Bucksport announce that from the large amount of parent fish now on hand, the take of spawn during the coming season will be very great. A large number will be sent to your commissioners for our rivers, and it is but just that they should be reimbursed for at least the amount expended. The following is a statement of the number of these fishes placed in the Delaware and its tributaries :

1873, New Jersey Commission,	- - - -	20,000
1873, Pennsylvania Commission,	- - - -	27,000
1872, " Private enterprise,	- - - -	14,000
1871, " " " "	- - - -	6,000
Total,	- - - -	<u>67,000</u>

At present it is not considered advisable that any laws should be passed for the protection of these fishes. It is important that the number of salmon captured in our river should be speedily and precisely known. Were protective laws passed the obtaining of information upon this point would be a simple impossibility. Passing up the river at the same time as the shad, numbers must necessarily be captured in the gill nets, and would be destroyed in the act of extricating them.

Over six hundred thousand spawn of the Sacramento salmon (*S. Quinnat*) have been received at the establishment of one of your commissioners. The final destination of the young has not yet been decided, but a large number will be placed in the rivers of our State. The spawn of the *S. Quinnat* was taken on the McLeod river, a tributary of the Sacramento, by Mr. Stone, the expense being defrayed by the general government. The initiatory steps towards stocking the Delaware with shad were taken during the month of June last. A camp was pitched upon the Delaware near Point Pleasant, and over half a million of shad hatched and turned into the river. Much time was lost in the selection of the site and in preparatory arrangements, which being once made will not require to be repeated. The operations were conducted under the charge of one of your commissioners, the entire expense having been defrayed by the general government. It is hoped that during the coming season our own State will establish a shad breeding camp, and the

experience gained by your commissioner in the initiatory steps will prove of great value. As has been repeatedly proven by experiment, the young shad can be transported long distances with perfect safety. From the camp upon the Delaware the young fishes could be taken to other waters of the State, and thus but one hatching camp would be required. Of the success of transplanted shad there is no longer a shadow of doubt, as the experiments in the Genessee, Alleghany and Sacramento plainly show. To the waters in which shad were formerly unknown have young shad been transplanted, and in every case have proved a perfect success.

Of the white cat-fish (*Amiurus albidus*) an immense number have been taken; it has been estimated by proprietors of fisheries in the vicinity of Lambertville, that the value of these fishes taken during the past season was fully equal to that of the catch of shad. Fair sized fishes were sold as low as ten cents per dozen. The number taken in this vicinity is believed to be no less than 25,000.

This enormous catch, far exceeding that of any previous year, is universally ascribed by the fishermen to the removal of the fyke-nets at Wells' falls, by Mr. A. J. Scarborough, the active and energetic Fish Warden of Hunterdon county under the direction of your commissioners last year. These fykes formed an insurmountable barrier to the passage of the fishes up stream, and as is shown by the above has been followed by the most satisfactory results. A strange epizootic disease appeared among the black cat-fish (*A. atrarius*) during the past spring, immense numbers were found dead upon the shores of Burlington and Camden counties. A careful examination by your commissioners of two specimens from Camden county has shown that the intestines were violently inflamed, evidently from some indigestible or poisonous material taken either as or in the food. Noxious indeed must be the substance which can affect the health of the black cat-fish, the scavenger of our rivers and creeks, a fish reveling in filth, and frequently found to have not only lived but fattened in ponds into which liquid manure from tan yards is allowed to flow. A similar disease appears to have infected the fishes in the small lakes of northern New York, and still later those of Schuylkill; the latter can, however, be readily accounted for, by the fact that the late heavy freshets have brought down in solution a large amount of green vitriol (sulphate of iron) dissolved from the immense heaps of coal refuse which line the banks of the river.

Regarding the sucker (*Catostomus Bostoniensis*) but little information has been obtained, though from the quantities exposed for sale and the price obtained for them, it is thought that the catch has been somewhat less than that of the previous year. The principal fisheries for this fish are situated in Warren and Hunterdon counties; the catch for 1873 may be estimated at forty thousand against fifty thousand of the preceding year. The rock-fish or striped bass (*rochus lineatus*) has been unusually scarce, though this is probably owing to

## 26 REPORT OF THE COMMISSIONERS OF FISHERIES.

the enforcement of the law prohibiting the placing of any net in the river between the 15th of June and 10th of August, this being the period at which most of these fishes had previously been taken. From observations made by Messrs. Holton and Green upon the Roanoke river, where enormous specimens of this fish are taken in large numbers, it would appear that like the shad they deposit their spawn in the non-tidal portion of our rivers. Several females were there taken heavy with spawn, which having been expressed and fertilized by the milt of the male in the usual manner, were placed in one of Green's hatching boxes. To the great surprise of the operator they were not agglutinated together, as is usually the case with spawn of the percidal, to which family this fish belongs, but were free like those of the shad. Their period of incubation was about eighty hours, the young resembling those of others of the same family.

### SALMON TROUT.

Of the salmon trout (*Salmo confinis*), six thousand spawn were presented by Mr. Seth Green to your commissioners, these were placed in the Troutdale hatching house, and nearly all were hatched and raised to the length of over two inches. Upon the failure of the appropriation bill they were placed in the Musconetcong creek, in the hopes that some, at least, might make their way to its source. The salmon trout is admirably adapted to the waters of the lakes in the northern portion of our State, in fact it is still found in a few of these sheets of water, showing that a new supply could be readily introduced. It is of rapid growth, and its flesh is highly esteemed by the epicure, though inferior to that of the brook trout. Another invoice of spawn is expected before the close of the year 1873; these will be placed in proper locations, and it is hoped will thrive as in their wont.

### LAND-LOCKED SALMON.

The land-locked salmon (*Salmo Gloveri*), is at present not found in our State. They will, however, be introduced this season, from spawn obtained under direction of the United States Commission.

### STURGEON.

Two species of sturgeon, the *Accipenser Oxyrhynchus* and the *Huso brevirostris*, are taken in large numbers in the Delaware, for the most part in the tidal waters, though we have met them as far north as Easton, where however, their presence is rare. They are fished for with drift nets, having a mesh of ten inches, and form an important article of commerce; in our southern counties immense quantities of caviare are manufactured from their roe; the process

consists in thoroughly washing off the investing membrane and rubbing the residue into a fine pulp by hand; it is then thoroughly salted and subjected to a heavy pressure, dried and packed in small tin boxes for sale. It is believed that large quantities are exported and sold in Europe as true Russian caviare. To the uninitiated the taste is excessively disagreeable; but it is highly esteemed by the inhabitants of the continent of Europe, and we have been informed by the proprietor of a New York restaurant, much frequented by foreigners, that as much as ten pounds per diem has been consumed in his establishment. This branch of industry has only sprung up within the past few years, but is rapidly increasing.

## SMELT.

The take of smelt in the Raritan river has been small. It has been the general supposition among both fishermen and naturalists that salt water was necessary for the existence of this fish; but from the late report of the Commissioners of Fisheries for the State of New Hampshire, it would appear that this idea is erroneous. They appear to inhabit the deep waters of the Lake Winnipisogee, only entering the streams and smaller lakes for the purpose of depositing their spawn. Their spawn is agglutinated together in the same manner as that of the perch and the cyprinoids, and is deposited upon the moss and aquatic plants with which the bottom of the streams are plentifully supplied. It has generally been believed that agglutinated and non-agglutinated spawn are characteristic of the perch and salmon families, but this is proven to have been an error. We have shown in speaking of the rock-fish (a percoid), that the spawn was free and in the smelt (a salmonoid), we have adherent eggs. After spawning, the parent fishes return immediately to the lake and are not seen again until the late spring. The period of incubation is about two weeks, the young returning immediately to the lake. The spawn of this fish has been taken and the young reared, they resemble much in appearance and habits the young of the white fish. The parent fishes might readily be obtained in the Raritan and transported to our inland lakes, and thus form a valuable addition to the at present short catalogue of our inland food fishes. Lakes in which bass, pickerel and other predaceous fishes now abound, should of course be avoided.

## APPENDIX NO. 2.

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The following is the "Notice to fishermen" referred to in page — of the report:

"The following portion of the 2d section of the act approved March 15th, 1871, having been concurred in by the State of Pennsylvania, is now a 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 offense.'"

*Fish Warden,  
County,*

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## APPENDIX NO. 3.

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The following is the act which it is proposed to present to the Legislature at its coming session:

An Act for the protection of Fisheries in this State.

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, fyke, 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 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 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 hook, line and rod.

2. *And be it enacted*, That it shall not be lawful for any person or persons to take or catch with hook and line or with hook, line and rod any fish whatsoever from any of the lakes or ponds in this State which have been or which may hereafter be stocked by the 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 be punished as provided in the preceding section.

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 penalties in the first section of this act provided.

4. *And be it enacted*, That hereafter it shall not be lawful for any person or persons to take 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.

5. *And be it enacted*, That it shall not be lawful for any person or persons to take or catch from any of the ponds or lakes of this State any salmon, 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.

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, 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 trespass before any court having jurisdiction thereof.

7. *And be it enacted*, That from and after the passage of this act it shall be the duty of the fish commissioners of this State to give notice in the State paper for four successive weeks, of all lakes or ponds of this State which they may have stocked with fish, specifying the variety or varieties of the fish with which such lakes or ponds shall have been stocked, the date of stocking, and of the penalties prescribed by this act, and in addition, shall file in the office of the clerk of the county or counties in which such lake or pond may be, a copy of such published notice, with an affidavit of the due publication thereof, and a certified copy of such notice so filed, with an affidavit of the publication thereof, shall be presumptive evidence before any court of this State of the facts therein contained.

8. *And be it enacted*, That any persons who have heretofore, or who may hereafter stock any of the lakes or ponds of this State with any variety or varieties of fish as a private enterprise, shall also give notice in one or more of the newspapers published in the county or counties in which such lake or pond may be, of the date of such stocking, the variety or varieties of the fish with which such lake or pond has or have been stocked, and also of the penalties prescribed by this act, and shall also file in the office of the clerk of the county or counties in which such lake or pond may be, a certified copy of such published notice, with an affidavit of the due publication thereof, and such notice so filed with the affidavit or affidavits of the publication thereof shall be presumptive evidence before any court of this State of the facts therein contained.

9. *And be it enacted*, That it shall not be lawful for any person, persons or corporation to place or allow to pass into any of the ponds, lakes, rivers, or streams of this State, any lime, gas-tar, cocculus indicus (otherwise known as fish-berries) or any other deleterious substance, 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.

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

## APPENDIX NO. 4.

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### *Commissioners of Fisheries thus far Appointed.*

#### UNITED STATES.

S. F. Baird, 918 New York Avenue, Washington, D. C.  
(*Commissioner General*).

#### MAINE.

Charles G. Atkins, Bucksport.

#### NEW HAMPSHIRE.

Thomas E. Hatch, Keene.  
W. W. Fletcher, Concord.  
W. A. Sanborn, Weirs.

#### VERMONT.

M. C. Edmonds, Weston.  
M. Goldsmith, M. D., Rutland.

#### MASSACHUSETTS.

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

#### CONNECTICUT.

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Newton Dexter, Providence.  
A. A. Reid, Jr., Providence.  
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E. M. Smith,

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J. H. Slack, M. D.,  
J. R. Shotwell,

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Bloomsbury.  
Rahway.

## PENNSYLVANIA.

J. Duffy,  
H. J. Reader,  
R. L. Hewitt,

Marietta.  
Easton.  
Holidaysburg.

## VIRGINIA.

William Ball,  
Asa Wall,

Mid Lothain.  
Winchester.

## ALABAMA.

C. S. G. Doster,  
D. R. Handley,  
Robert Tyler,

Prattville.  
Mountain Home.  
Montgomery.

## MICHIGAN.

Gov. J. J. Bagley,  
G. H. Jerome,  
G. Clark,

Detroit.  
Niles.  
Ecorse.

## CALIFORNIA.

B. B. Redding,  
S. R. Throgmorton,  
J. D. Farnell,

San Francisco.  
Sacramento.  
Sacramento.

## CANADA.

P. Mitchell, Minister of Marine and Fisheries, Ottawa.

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