

State of Rhode Island and Providence Plantations.

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TENTH ANNUAL REPORT

OF THE

COMMISSIONERS OF INLAND FISHERIES,

MADE TO THE

GENERAL ASSEMBLY,

AT ITS

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JANUARY SESSION, A. D. 1881.

PROVIDENCE:

E. L. FREEMAN & CO., PRINTERS TO THE STATE.

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REPORT.

*To the Honorable the General Assembly of the State of Rhode Island,
January Session, 1881.*

The Commissioners of Inland Fisheries beg leave to present their report for the year 1881.

In the report for the year 1880, diagrams were given of the traps set at Seaconnet Point and at the south end of the island of Rhode Island, and also of the location of all the heart nets in Narragansett Bay. It has been thought best not to go to this expense this year. The sets of the traps are about the same from one year to another. The heart nets or pounds vary more in locality, and were all visited and marked on the chart by the commissioners in July and August last. They found forty-one (41) of these pounds in active operation, an increase of ten (10) over the year previous.

The commissioners appointed the same deputies as in 1879, as they supposed they were the persons who were best adapted by their former experience for the office.

The catch of scup in the traps this Spring was not so large as usual, and was estimated to be less by two-thirds than that of 1879, but prices were better, and it is to be supposed most of the fishermen received a fair price for their labor. So far as the trap fishing is concerned the commissioners have seen no reason to change their views given in their last report to your Honorable Body, and respectfully refer to their report for 1880, as it is hardly worth while to go over the matter a second time.

In that report they recommend the line established by Chapter 751,

Section 1, (being a line drawn from Narragansett lower pier to Seaconnet Point) be abolished, and the whole coast line of the State be protected; that traps, and above all, heart nets or pounds, should be licensed. Up to the present date no move has been made in the matter by the Honorable General Assembly. The Commissioners of Inland Fisheries are willing and glad to devote a large portion of their time and attention to the bay fisheries, for which they receive no pay, and not any very great measure of thanks, but as a mechanic would find it impossible to perform a piece of work without suitable tools, so they cannot be expected to accomplish much without suitable laws to guide and support them. In this connection they beg to call your most earnest attention to the changes they desire made in Chapter 751, (passed March 26, 1879). These changes have been suggested by the observance of the workings of said Chapter 751 for the past two seasons, and unless such changes are made the commissioners in the future will hesitate to take the responsibility of expending the money which the present law admits in efforts to enforce a law which they feel is inadequate.

Chapter 751 reads as follows:

CHAPTER 751.

An Act in amendment of Chapter 134 of the General Statutes, "Of Certain Fisheries."

(Passed March 26, 1879.)

It is enacted by the General Assembly as follows:

SECTION 1. There shall be, between the first day of May and first day of August in each year, a weekly close-time, extending from Saturday morning at sunrise to Monday morning at sunrise, during which time no fish of any description shall be taken by weirs, traps or similar contrivances, from the waters covered by a line drawn from Seaconnet Point in a westerly course to the Narragansett lower pier, and including all the waters above said line. If there be any weir, trap or other stationary contrivances used for the purpose of catching or obstructing the passage of fish in that part thereof where the fish are usually taken, the netting at the mouth of the same shall be floated to the surface of the water so as to effectually close the mouth thereof during the weekly close-time, so that during said time the fish may have a free, unobstructed passage; and no device shall be placed in any part of said limits which shall tend to hinder such fish from running up the waters of such river. In case the enclosure where the fish are

taken is furnished with a board floor, an opening three feet wide shall be made, extending from the floor to the top of the weir, trap or other contrivances: provided, however, that nothing herein shall be so construed as to apply to the shad and herring fisheries in the tributaries of Narragansett Bay.

SEC. 2. The Commissioners of Inland Fisheries shall have a general supervision of all matters relating to the subject contained in the first section of this act, and may make all needful regulations to carry out the provisions described in said section, and shall, from time to time, examine all the weirs, traps or other contrivances, with a view of carrying out such regulations as are most beneficial to the people of the State, and shall prosecute for the violation of such regulations. They may cooperate with the fish commissioners of other states, and shall make an annual report to the General Assembly of their doings, with such facts and suggestions in relation to the object for which they are appointed as they may deem proper. Said commissioners shall be allowed their actual disbursements made in the execution of this act.

SEC. 3. Every person who shall violate any of the regulations made by said Commissioners under the authority of the provisions of the preceding sections of this act, or who, between the days mentioned in said first section, shall set any weir, trap or contrivances, contrary to such provisions, shall upon conviction be fined not exceeding one hundred dollars, or be imprisoned not exceeding three months, or both, in the discretion of the court before whom the offender shall be tried.

SEC. 4. All acts and parts of acts inconsistent with the provisions of this act are repealed.

The changes we desire are the following, and in this connection we would say that they have been most carefully drawn up by our counsel, Mr. Francis W. Miner, whose ability as a lawyer is unquestioned, and whose interest in the cause is very great.

An act in amendment of Chapter 751, "Of Certain Fisheries.

SECTION 1. Of said chapter in the fourth line, after the words "similar contrivances," striking out the words "from the waters covered by a line drawn from Seaconnet Point in a westerly course to the Narragansett lower pier, and including all the waters above said line," and inserting in their place the following words; "the whole of the waters of the coast line of the State and Narragansett Bay."

SEC. 2. No person shall at any time use or suffer to be used by any person, any weirs, traps, heart nets, or similar fixed contrivances used for the purpose of catching and obstructing the passage of fish within the waters of this State unless as is hereinafter provided.

SEC. 3. The Commissioners of Inland Fisheries may grant, or refuse to grant, licenses to such number and to so many citizens *resident* within this state to use weirs, traps, heart nets and similar stationary contrivances for the purpose of catching fish within the waters of this State, as they may think proper. Each license so granted shall be taken out in the name of the owner of said weir, trap, or heart net, or *other* stationary contrivance, and shall continue in full

force for one year from the date of the license, unless revoked as hereinafter provided.

Before granting license to any person under the provisions of this act said Commissioners shall give notice, in such manner as they may direct, of the name of the applicant for said license and the particular location for which the license is requested. And before any license shall be issued under the provisions of this act, the person applying therefor shall give bond to the *State Treasurer* in the penal sum of \$500, with at least two sureties satisfactory to the said Commissioners of Inland Fisheries, conditioned that he will not violate any of the provisions of this act, and he shall also pay to the said Commissioners of Inland Fisheries the sum of \$25, to be paid to the General Treasurer for the use of the State.

SEC. 4. If any person shall be convicted of the violation of any of the provisions of this act, his bond shall be put in suit by the State Treasurer, and by due process of law the penal sum of said bond be recovered for the use of the State.

SEC. 5. Every person licensed under this act shall, on or before the 1st day of November in each and every year, make a sworn return to the Commissioners of Inland Fisheries of the amount of catch and the prices realized for the same, and blank forms for such returns shall be issued by said Commissioners and sent to each and every licensed person, and no new license shall be issued to any person neglecting or refusing to make such return.

SEC. 6. The Commissioners and their deputies shall have free access to the said weirs, traps, heart nets and other fixed contrivances, at any and all times, for the purpose of examining the catch, etc.

SEC. 7. Purse seining and gill netting is hereby prohibited in Narragansett Bay and its tributaries north of a line drawn from Pojac Point to Warwick Light, from Warwick Light to North Point on Prudence Island, from North Point to Popasquash Point, from Popasquash Point to Bristol Ferry in Bristol County.

SEC. 8. If any person shall violate any of the provisions of this act he shall, upon conviction, be fined fifty dollars.

SEC. 9. Any defects of form in any active complaint and warrant, indictment, information or other proceeding may be amended by the court before whom the action, complaint and warrant, indictment, information or other proceeding is brought.

SEC. 10. Whenever any complaint or other proceeding under this act shall be made by any Commissioner of Inland Fisheries against any person violating any of the provisions of this act, such Commissioner shall not be required to give surety for costs, but be liable in his individual capacity therefor. And the jurisdiction of justice courts over crimes and offences committed under this act may be exercised by the justice court of any town adjoining the public waters of this State.

SEC. 11. Nothing in this act to be construed as applying to gill nets or fyke nets in any of the waters controlled by this State.

Our reasons for asking for these changes are as follows, section by section:

SECTION 1.—The line drawn from Narragansett lower pier to Seaconnet Point is unjust and arbitrary, for the reason that it curtails the operations of trappers at the south end of the island of Rhode Island and at Seaconnet Point, and permits unlimited fishing from said Narragansett lower pier south around Point Judith, and from that point westward to Watch Hill, a distance of twenty-five miles, and in our opinion that portion of our coast requires protection as much, and perhaps more, than any other. (See our report for last year.)

SECTION 2.—Requires no comment.

SECTION 3.—We desire a system of licenses in order that better supervision may be had of our coast and bay fisheries; that proper statistics may be obtained as to their value; and that a small sum be paid by such parties as are engaged in the business to assist in paying the expense of such supervision and collection of such statistics.

SECTION 4.—This to render licensed persons more cautious than they would otherwise be, as their bondsmen would take an interest in their conforming to the requirements of the law.

SECTION 5.—That complete and thorough statistics may be had of the catch of fish and value thereof in our waters.

SECTION 6.—To save expense to the State, and labor and trouble to the Commissioners and their deputies.

SECTION 7.—This is, in our opinion, a very necessary addition to our fishery laws. In the summer months the menhaden come into Narragansett Bay for the purpose of depositing their spawn, and gradually work their way up to the head waters thereof. Seekonk River was a famous spawning ground for them in past years. The bluefish follow them, for the menhaden is their chief food. Fleets of sailing vessels and steamers follow them, and hardly any are left to propagate. If the head of our bay, from these points, could be set apart to protect them, at no possible expense, an abundant supply of these very important fish would be secured to us, and the fishermen that make them their prey would reap in the future an abundant reward for their forbearance.

SECTION 8.—That violators of the law may be made to pay a severe penalty.

SECTION 9.—To save expense to the State in event of prosecution.

SECTION 10.—Because gill netting and fyke netting do less harm to our bay fisheries than any other ways of fishing where nets are employed. The gill nets only take fish of a certain size, and the fykes are used almost entirely in the spring for the catching of flounders or flat fish.

The abundance of fish in our bay the past season has been a cause of remark and congratulation on all sides. Scup of large size have been plentiful; tautog or black fish, also, and the quantity of young blue fish and squitague taken at the head of the bay, and even at the head of navigation on the Seekonk River, at Pawtucket, has been entirely without precedent, affording enjoyment and profit to a very large number of the good people of this State. This may be attributed to two causes or a combination of two causes. First, the weekly close-time as provided by chapter 751, section 1; and, second, an exceptionally abundant season for these sorts of fish, due to favorable circumstances at the spawning season, etc.

The advocates of the close-time law have every reason to congratulate themselves on its success the past season, but at the same time they should be prepared not to be discouraged in the event of a scarcity of fish in years yet to come.

During the past summer Prof. Spencer F. Baird, United States Commissioner spent the whole of his very valuable time in Newport, himself and his force of trained assistants studying the fisheries of Narragansett Bay and vicinity. The people of the State of Rhode Island are to be congratulated that this, the foremost man in the world in knowledge of fish and fisheries both practically and scientifically, has been among us to tell us what is best to do. When he speaks, it will be well for us to listen. He proposes to return again next season and continue his observations.

When a law is enacted to provide for the general public good, and encroaches, as in all cases it must, on the interests and privileges of a small class, it is always the case that such law, beneficial as it may be for the general public, is defied by some individuals of the class who imagine themselves injured by it. Mr. King, of Jamestown, having

disregarded all due warnings was arrested and brought before Justice Tillinghast at East Greenwich for violation of the weekly close-time from Saturday morning at sunrise to Monday morning at sunrise from May 1st to August 1st. Two heart nets, or pounds were maintained by him in Dutch Island harbor. It was thought best to bring an action against him in East Greenwich before a justice of the peace, and that necessitated his arrest by a sheriff of that county. To accomplish this his arrest had to be made *on the waters of the bay*. Mr. Burlingame, the very efficient sheriff of that county took the job in hand. One of the Commissioners of Inland Fisheries was obliged to go to Greenwich and give bond. This was done. The case was tried before Mr. Justice Tillinghast, and held for two weeks for advisement. He was then bound over to appear before the Supreme Court of Kent County at the March term. The case is therefore in the hands of the Attorney General of the State.

In prosecuting this case to the end, it is the desire of the commissioners to test the working of the law, and endeavor to enforce the same as in duty bound. We find the amendments suggested to be very much needed. (See Sections 9 and 10 in amendment.)

To show the workings, cost, catch and profits of trap fishing, we submit the following statistics collected by our deputy, at Newport the past summer, and his remarks thereon.

(Many barrels of valuable fish taken in the heart nets set in the vicinity of Wickford, and owned by Mr. Farnum, were used as manure the past season.)

Amount of fish taken from trap at Boat House Point, Newport, R. I., and prices realized for same during the season of 1880. Taken from clerk's books:

1880.				
April 23.	14½	barrels of Scup at	\$4.00.....	\$58 00
26.	36½	“ “	4.00.....	146 00
26.	32½	“ “	3.50.....	113 87
26.	1½	“ Striped Bass,	5.00.....	7 50
27.	17	“ Scup,	3.60.....	59 50
28.	1½	“ Striped Bass,	5.00.....	7 50
29.	26½	“ Scup,	3.50.....	92 87

1880.

May	5.	4½ barrels	Rock Bass,	3.00.....	\$13 60
	10.	37½ "	Scup,	.75.....	28 12
	10.	2½ "	Rock Bass,	1.87.....	4 67
	11.	39½ "	Scup,	.75.....	29 62
	11.	3½ "	Rock Bass,	.75.....	2 62
	11.	4 "	Weak Fish,	.75.....	3 00
	12.	13 "	Scup,	.75.....	9 75
	13.	7½ "	"	1.00.....	7 50
	13.	½ "	Striped Bass,	4.00.....	2 00
	14.	16 "	Scup,	1.50.....	24 00
	15.	13½ "	"	1.50.....	20 25
	17.	44 "	"	2.00.....	88 00
	18.	45 "	"	2.00.....	90 00
	18.	2½ "	Striped Bass,	5.00.....	12 50
	19.	21½ "	Scup,	2.00.....	43 00
	21.	21½ "	"	2.00.....	43 00
	22.	27 "	"	2.00.....	54 00
	23.	39½ "	"	3.00.....	118 50
	23.	3 "	Striped Bass,	6.00.....	18 00
	24.	2 "	" "	6.00.....	12 00
	24.	1½ "	Scup,	2.00.....	3 00
	24.	22 "	"	3.00.....	66 00
	25.	3 "	Striped Bass,	6.00.....	18 00
	26.	3½ "	Flounders,	1.50.....	5 25

Sold to peddlers at trap \$98.84 during catch.

You will observe that the total amount of catch is \$1,300.46. One-third of this amount goes for the use of boats and trap. There was one boat twenty-two feet long worth about \$20; two small boats fourteen feet long, worth about \$18 each; \$56 for boats. The trap was made out of old seines purchased from mackerel catchers, and was not worth and did not cost over \$100; whole cost \$156. One-third of \$1,300.46 is equal to \$433.48, the sum the owner of the trap recovered. There were six men in gang fishing. The remaining two-thirds were divided among them, each man receiving \$144.42 for his labor.

You will also notice that there were 9½ barrels of striped bass taken, picked out from the scup and sold separate. These bass were all *small*, running from ½ pound up to 3 and 4 pounds each. The small bass are mixed in and taken with the scup, and as a usual thing sold with the scup, but when very plenty are picked out and sold separate

on account of their value. The word scup is used in this account because they will exceed in quantities any other kind of fish taken in traps, there being as a usual thing a general assortment of all kinds of fish known in our waters. No one need ask what has become of the splendid bass-fishing for which the rocks at Newport were noted in years past, when this wholesale destruction of the small fish is being carried on. Taking this trap as an average trap (it was the smallest along the shore), you can conceive of the great amount of fish destroyed—I mean small fish. During the season the trap at Price's Neck must have taken three times this amount of fish, being the best set along the shore. As to fish in the bay the past season it is the general remark that for years they have not been so plenty. Large scup have been taken at Patience and Hope Islands, weighing nearly a pound each, and fishermen anchoring anywhere in the bay, in five feet of water, have found all the small scup they wanted. Captain Place can give you the names of fishermen who can prove this.

In September we sent Captain Place with Mr. Ludwig Rumlien, assistant of the United States Fish Commissioner, and special agent 10th census, to collect names of and the number of fishermen, trappers, purse-seiners, sweep-seiners, owners of pound or heart nets, and hand-line fishermen in Rhode Island.

Capt. Place reports as follows:

MENHADEN FISHERIES AND OIL WORKS AS COLLECTED BY LUDWIG RUMLIEN, SPECIAL AGENT 10TH CENSUS.

Narragansett Oil Works, Daniel Church & Company.

Capital invested in oil works	\$35,000 00
In seven steamers with outfits.....	77,000 00
In sailing vessels.....	6,000 00
Interest in four traps at Sachuest.....	4,000 00
Interest in two traps at Seaconnet.....	2,000 00
	<hr/>
	\$124,000 00

Fish taken, 210,000 in 1879. Manufactured 165,000 barrels of fish; producing 4,900 barrels of oil and 7,000 tons of guano. Employing 75 men about the works; 120 men fishing in their employ.

William Brightman's Oil Works, Tiverton, R. I.

Capital invested in works	\$18,000 00
One steamer	8,000 00
Two sailing vessels	3,500 00
	\$29,500 00

Manufactured 42,000 barrels of fish; produced 50,000 gallons of oil and 1,260 tons of guano; 17 men employed about the works; 27 men fishing.

James Manchester, Tiverton.

Caught 4,000 barrels of fish; produced 5,000 gallons of oil and 120 tons of guano; one sailing vessel, value \$600; employed eight men at the works and eight men fishing.

Isaac Brown, Tiverton.

Produced 32,000 gallons of oil and 750 tons of guano; capital invested \$10,000; four vessels, \$3,800; 17 men employed in the works; 32 men fishing.

Charles Cook, Tiverton Four Corners.

Manufactured 3,000 barrels of fish; produced 3,500 gallons of oil, 90 tons of guano; one steamer, value \$6,000; employed 5 men in the works, 10 men fishing.

C. Otis Wilcox, Tiverton Four Corners.

Caught and manufactured 6,000 barrels of fish; producing 7,500 gallons of oil, 180 tons of guano; one steamer and outfits, value \$4,000; employed 6 men in the works, 9 men fishing.

(This is an estimation by W.D. Wilcox.)

Atlantic Works, below Bristol Ferry. No report. Officers of the company in Boston, Mass.

Oil works at the south end of Prudence Island come in with Job Wilson's works at Cole's River, Mass.

Remarks on East River (Seaconnet River) from Stone Bridge to Seaconnet Point.— I find a great deal of difficulty in getting at the number of men that fish in this river by other methods than traps and seines. Great complaint is made by summer visitors at the scarcity of fish as compared to former years. They attribute it to spring trapping and heart seines during the summer season.

East Greenwich.—Fifteen men in this place are engaged in fishing throughout the year; ten of these fish by all methods, in February they set fyke nets for

flat fish, in April and May by hand line and shore seines, in July and the rest of the season, gill nets; two of them maintained a pound trap or heart net in Pine Hill Bay (Prudence Island) the past season. E. Mitchell, of this place, says that he has followed fishing for a living for twenty years—his father was a fisherman before him—and that for several years past the fishing has fallen off to such an extent that it has not been profitable in Greenwich Bay. The value of the fish taken would not amount, he thinks, to \$2,000 a year. He attributes the scarcity to impurity of the water. He thinks *young fish* are more numerous this year than he ever saw them before.

Apponaug.—Fifteen boats and twenty-five men employed in this place fishing. Method, shore seines, hand line, gill nets and eel pots. The value of catch they estimate at \$1,500 for several past years. I am told that fishing has fallen of more than one-half what it was ten years ago. They attribute the cause to trapping and heart nets in the main bay. They also report that the water is impure at this place and has killed out the clams for more than a mile from the bridge. Shad and herring formerly came up there, none in later years. Seven sail-boats, owned in this place and Coweset, take parties fishing in the summer.

Warwick Cove.—Six boats and nine men. Method, hand line, shore seine and gill-nets; value of catch the past year \$500. They say the fishing has fallen off two-thirds as compared to ten years ago, and attribute it to heart nets and trapping.

Warwick Neck.—Two boats, eight men. Method, shore seines.

Mill Cove, Warwick.—Four boats, seven men. Method, hand line, shore seines and gill-nets; value of catch, \$800. They report an abundance of *small* fish of this year's growth. They report the same scarcity as the others in regard to former years, and lay it to heart nets and trapping.

Wickford.—Ten men in this place eke out a living by hand line fishing, lobster pots and eel pots. H. Farnum, pharmacist of Wickford, has two heart nets, worked by J. O. Lewis on shares. Mr. Farnum says he invested \$300 in putting out two heart nets this Spring, and let them out to J. O. Lewis on shares, he receiving one-third of gross amount of catch. Up to date, (Sept. 10th) he had received \$160. Reliable information gives thirty men in the fishing business in this place.

Dutch Island Harbor.—There are eleven men, all of them named King, who follow fishing for a business. Two of them are hand-liners and lobster catchers, two hand-liners and pilots, and the other seven, trappers. It is impossible to get a correct and truthful report from any of them. We interviewed five of them, and could get no correct value of fish taken by them yearly.

Saunders' Town, (opposite Dutch Island.)—Three men and three heart nets. Lobster pots and cod-fishing in winter.

Bristol.—Twelve men follow hand line fishing. Two men have four heart nets in the vicinity, one at Mount Cove, one at Hog Island, one at the ferry, one in the harbor. They report their catch at about 75,000 pounds for the year 1879. The hand line fishermen report slim fishing the past few years at this place.

Newport.—I have found that there are about one hundred men who follow fishing for a living here; twenty-five trappers and about seventy-five hand-liners, also twenty boatmen who take parties fishing. I have interviewed very many of them, and they all tell the same story, if they have no interest in traps or heart nets, and all say that these have injured and almost ruined the fishing in the bay. I have the names of seventy men who fish with hand lines most of the year. James Holt and William Holt say they have been fishermen for more than twenty years. The value of fish taken by them each year would not exceed \$200. They have to rely on lobster catching for a living. They think that their catch is more than an average of hand line fishermen, and includes cod fishing in the fall and winter months.

Twenty-five men are interested in heart nets and traps; (the Captain gives a list of their names and location of the heart nets.—*Commissioner*.) all of whom were very reluctant to give any information about their business and also refused Mr. Rumlein, who had to adopt other methods. The hand line fishermen were always ready to give any information in their power, and all agreed that the heart nets were profitable to those engaged in the business. The boatmen also were very ready. Their interest is involved in the matter, as they rely for their support in part in taking parties fishing in the summer months.

Mr. Alger, boat builder on Long Wharf for the past thirty years, gave a great deal of information as to the fisheries, past and present. He personally knows almost all the fishermen, hand-liners and trappers. He is related to two (trappers) who only fish four months in the year, and he estimates their profits at \$800, and they make more than he does working all the time. His estimate of the value of the catch of the hand line fishermen, with lobster pots and cod-fishing in the fall and winter months is at about \$250 to \$300, in the past five years. He says there are more than twice the number of boats and men engaged in the fisheries than there were fifteen years since, with a falling off of at fifty per cent. of the catch, but prices in the meantime have doubled, in fish and lobsters.

I suppose Mr. Rumlein will get at the value of the catch of fish in our bay with some accuracy, but it will require time and patience to accomplish it. Some of the trappers refused to give him any information fearing the *State* would take advantage of it to their detriment.

Warren.—There are ten or twelve men that fish for shad and herring in the spring. Method of capture, traps and heart nets. They estimate the value of shad caught the past season at \$2,100. Ten men follow hand line fishing exclusively.

Nayatt Point.—Ten men follow fishing here with hand lines in spring and fall. One shore seine, not used however for several years.

Pawtuxet.—Two shore-seiners and two hand-liners who make it their business; several others who fish occasionally.

Providence.—There are no men in Providence, or but a very few, who depend upon fishing for a living the year round. Large numbers come down from the city in the spring and fall and fish with hand lines in the vicinity of Nayatt Point, Warwick Neck and the Islands.

This shows that there is invested in this State by parties *residing* in the State, one hundred and seventy-seven thousand three hundred dollars in works, steamers, boats, etc., giving employment to three hundred and thirty-four men in the menhaden fishery; two hundred and forty-six men who depend upon fishing for their support the year through, of whom forty-three are interested in heart nets. Exactly why this small number of individuals should be allowed, year after year, to deplete and almost ruin the fisheries in our splendid bay, we fail to see, and in our capacity as commissioners and faithful servants to our trust, and to the people of the State of Rhode Island who have honored us with our office, we most respectfully and earnestly beg that the Honorable General Assembly will enact such additions to our fishery laws as we have suggested.

We find there are a number of individuals, non-residents of this State, who carry on the manufacture of fish oil and guano, and heart seining, to say nothing of lobster catchers. All this may be remedied by the enactment of Section 3 of our proposed amendment to Chapter 751, save as regards to lobster-fisheries; Section 8 of Chapter 134 will do that very thoroughly if properly enforced.

We most earnestly desire to call the attention of your Honorable Body to the very important question of the lobster fishery in our waters. Maine, Massachusetts and New York have seen fit to protect themselves, and it is more than time the State of Rhode Island fol-

lowed their example. The following letter was received from Prof. Baird the past summer:

“I enclose you herewith a letter just received from Mr. Wilcox, the Chairman of the Boston Fish Bureau. Will it not be very desirable to have Rhode Island enact a law in regard to the limitations of the size, of lobsters, simply doing what Maine, Massachusetts and New York have done. Their standard is $11\frac{1}{2}$ inches. You might suggest the same for Rhode Island.”

The letter referred to from Mr. Wilcox says:

“After leaving you this noon, I took a ramble around the fish stands [at Newport] and was reminded I was out of Massachusetts by seeing the fishermen bring in lobsters not any over six or eight inches long, and they called them large. I presume Rhode Island has no law as to size, but I am sure they need one, for such small specimens of lobsters I have never seen in any market.”

The lobster law of Massachusetts is as follows:

SECTION 1. Whoever sells, or offers for sale, or has in his possession with intent to sell, either directly or indirectly, any lobsters less than ten and one-half inches in length, measuring from one extreme of the body to the other, exclusive of claws or feelers, shall forfeit for every such lobster five dollars.

SEC. 2. All forfeitures accruing under this act shall be paid one-half to the person making the complaint, and one-half to the city or town where the offence is committed.

SEC. 3. This act shall take effect on the first day of May, 1874.

This act is very well as far as it goes, but does not cover the whole ground by any means. The capture of small lobsters has gone on in Rhode Island since the first lobster pot was put in Rhode Island waters, the larger ones sent to market, and the smaller used for bait for black fish. Let us see what the Rhode Island law amounts to, Sec. 8 of Chapter 134: “If any person not at the time an inhabitant of this State shall set, or keep, or cause to be set or kept, within any of the waters, or upon or within three miles of any shore of this State more than two pots or nets for the catching of lobsters at any one time, he shall forfeit twenty dollars for each offence.” Sec. 9: “If any person shall lift or raise any pot or net set for the catching of lobsters,

without the permission of the owner thereof, he shall forfeit ten dollars."

It would appear from this that the laws of the State of Rhode Island attempt to protect lobster fishermen, but do nothing toward protecting the unfortunate lobsters, which are vastly more in need of encouragement.

Complaints have been made in past years to the Commissioners (before any supervision of the bay fisheries was given to them) that many parties from Massachusetts were setting hundreds of lobster pots in Rhode Island waters. All we could do was to show them the law, and advise them to protect themselves. This, so far as we know, has never been attempted. Now our lobster fishery is a very valuable one. Very many men eke out a living with their lobster pots, and all know the luxury of an abundance of fresh and cheap lobsters in our cities. For a number of years past the catch of lobsters has been steadily decreasing, not as to numbers, but as to size. "All is fish that comes to the net" is the rule with lobster catchers. Those that are of a size fit to send to market, from half a pound upwards, are sent, the balance, from five to six or seven inches in length, are sold for bait for tautog fishing, save a few that go to those most delicate palates that delight in "chicken lobsters."

We most respectfully advise and request your Honorable Body to at once pass a law for the protection of lobsters, as follows:

An act entitled an act for the protection of Lobsters and Lobster Fisheries in the State of Rhode Island.

SECTION 1. Whoever sells, or offers for sale, or has in his or her possession with intent to sell, either directly or indirectly, any lobsters less than twelve inches in length, measuring from one extreme of the body to the other, exclusive of claws and feelers, shall forfeit for every such lobster five dollars.

SEC. 2. All forfeitures accruing under this act shall be paid, one-half to the person making the complaint and one-half to the city or town where the offence is committed.

It would be admirable if a provision could be made forbidding the sale of female lobsters loaded with spawn. August seems to be the month in which the bulk of lobsters are so loaded, although they

seem to be taken at all times of the year with spawn. It is a well known fact, of course, that the female passes her spawn and retains it under her tail for a period, probably until it is hatched. Every female destroyed at this time represents the destruction of tens of thousands of young. Could the catchers of lobsters, who are comparatively a very small factor of the general public, be made to see what an increase it would give to their annual profits if these spawn-ers were returned to their element, and time given them to hatch their young, and these young not taken until they are of a size to make them of some value in the markets, we feel sure they would be the first of all to endorse such a law as we suggest.

Lobsters are always in great demand. If not sold fresh they are canned and sent to the interior of the continent where the fresh lobster is never seen. So far as the limit of size is concerned we are well assured the law will be most popular. All persons we have interviewed on the subject, catchers, sellers and consumers, are unanimous that such a law is needed, and we feel safe in saying that it will meet with entire acceptance.

The State of Rhode Island is at present the market for under-sized lobsters from Massachusetts. They are sent here in barrels, the catchers on the Massachusetts coast and dealers in Boston, knowing that it would be unsafe to offer them for sale in Massachusetts, send them to us and we get the full benefit of such poor and illegal supply. The difference in length of lobsters makes a vast difference as to their weight, as follows:

Fifteen inches....	4 pounds.	} These weights are from boiled lobsters, and not in especially good order, but selected for their weight from a large number.
Fourteen "	2 $\frac{3}{4}$ "	
Thirteen "	2 $\frac{1}{2}$ "	
Twelve "	2 $\frac{1}{4}$ "	
Eleven "	1 $\frac{3}{4}$ "	
Ten "	1 $\frac{1}{4}$ "	

In boiling they shrink about twenty per cent., on an average, and the better their condition, the less the shrinkage. Poor condition means, probably shedding, which is supposed to occur once a year.

This is "not proven." It may be oftener, and very likely is, at least among the younger growth. How fast they grow, and what a very young lobster is like is at present not known to us; a system of experiments, as far as we know, has never been attempted in America. It must be elaborate and expensive, and well worthy the attention of the United States Government. To show the extent and value of the lobster fishery in Rhode Island, we submit the following from the principal dealers in Providence: One firm in this city handled, last year, about 143,750 pounds, the bulk of which came in the summer months from Rhode Island waters. Another firm received from E. C. Smith, of Newport, the past year, 40,672 pounds, and Mr. Smith handled 58,764 pounds the past season, all from Rhode Island waters. This represents a value of over \$20,000. It would seem that this subject is well worthy the attention of the Legislature of this State, and we ask your immediate action in the matter.

INLAND FISHERIES.

We have to report the stocking of the Georgiaville Reservoir with black bass the past summer, making twenty-seven public waters so stocked during the past ten years. Black bass are now a Rhode Island fish, and afford much satisfaction to those of our citizens whose pleasure it is to "go a fishing." The greatest recorded weight as yet taken in our waters is 5½ pounds.

We received in November from Prof. Baird a consignment of two hundred carp. These we distributed to the best of our ability to twelve parties who had made application for them. The requirements of carp are still water of moderate depth, muddy bottom and plenty of water plants, and an absence of other fish that destroy the spawn and young. The carp is as a general thing a vegetable feeder, but does at times eat its own eggs. To make carp culture profitable a series of ponds should be maintained. We are promised a larger number in the spring, and shall take pleasure in distributing to all applicants who may have suitable accommodations for them.

A very large consignment of shad is promised us from the government hatching the coming summer, which will be very valuable and suitably disposed of. We would respectfully request that an appropriation of \$1,000 be made to allow us to meet any expenses demanded. No appropriation has been made for the past few years, and our funds are reduced to a very low ebb. We append our financial statement for the past year, showing our expenditures for the Inland Fisheries, and for the supervision of the coast and bay department.

AFFRED A. REED, } *Commissioners*
 JOHN H. BARDEN, } *of*
 NEWTON DEXTER, } *Inland Fisheries.*

State of Rhode Island in account with Commissioners on Inland Fisheries, for account Inland Fisheries:

1879.

July 31.	To amount paid Robert J. Holmes for stocking Georgiaville pond with 26 black bass	\$62 00
	To amount paid express on bass to Georgiaville pond	4 00
	“ “ “ Billings Bros. for team for Commissioners.	6 00
	To amount paid J. A. & R. A. Reid for 12 cloth posters for Georgiaville pond stating the law on fishing in the same.	2 25
Oct. 31.	To amount paid Robert R. Holmes for distributing carp.	16 00
	To amount paid telegrams to Washington, etc., about carp.	4 00
Nov. 30.	To amount paid traveling expenses Newton Dexter, Commissioner.	10 00

1881.

Jan. 31.	To amount paid traveling expenses J. H. Barden, Commissioner.	8 56
		\$112 81
	To balance of appropriation on hand this day.	130 01
		\$242 82

1879.		
July 31.	By amount of appropriation on hand this day.....	242 82
1881.		
Feb.	By balance brought forward on hand this day.....	\$130 01

JOHN H. BARDEN, } *Commissioners*
 NEWTON DEXTER, } *on*
 ALFRED A. REED, } *Inland Fisheries.*

PROVIDENCE, February, 1881.

State of Rhode Island in account with the Commissioners of Inland Fisheries, for account of Bay Fisheries:

1880.		
Jan. 31.	To amount paid W. D. Wilcox, Deputy, for expenses to Newport for evidence.....	\$5 00
May 31.	To amount paid J. A. & R. A. Reid for printing 100 letter circulars of regulations.....	2 25
	To amount paid for postage.....	1 12
	“ “ “ R. M. Bliss use of boat and watching traps in bay.....	21 00
June 26.	To amount paid Knowles, Anthony & Danielson, printing regulations.....	7 87
	To amount paid Mercury office, printing regulations	10 00
	“ “ “ telegram.....	75
July 31.	“ “ “ Continental Steamboat Co., for tug Reliance for Commissioners to inspect bay for traps.....	50 00
	To amount paid expense of Commissioners inspecting bay for traps.....	30 00
Aug. 4.	To amount paid W. D. Wilcox, Deputy, for services and expenses in enforcing the regulations of trap fishing at Warwick.....	256 35
	To amount paid Samuel Place, Deputy, services, etc., etc., at Newport.....	232 00
	To amount paid S. H. Vaughn, Deputy, services, etc., etc., at Wickford.....	69 00
Dec. 18.	To amount paid Geo. Burlingame, Sheriff, for arresting John B. King, at Dutch Island, obtaining proof, etc.....	75 00
	28. To amount paid Knowles, Anthony & Danielson, advertising.....	3 00
1881.		
Jan. 17.	To amount paid Samuel Place, Deputy at Newport, services and expenses.....	70 00

1881.

Jan. 20.	To amount paid Miner & Roelker, legal services, convicting J. B. King, etc., etc.....	150 00	
Feb. 1.	To amount paid Newton Dexter and John H. Bar- den, traveling expenses.....	15 00	
			----- \$998 34
	CR.		
Feb. 21.	By amount received to settle account..		<u>998 34</u>

JOHN H. BARDEN,	}	<i>Commissioners</i>
NEWTON DEXTER,		
ALFRED A. REED,		
		<i>on</i>
		<i>Inland Fisheries.</i>

PROVIDENCE, February, 1881.

APPENDIX A.

LIST OF FISH COMMISSIONERS.

Canada.

W. F. Whiteher.....Ottawa, Ontario.
S. Wilmot, Supt. of FisheriesNewcastle, Ontario.

New Brunswick.

W. H. Venning, Inspector of Fisheries.....St. John.

Nova Scotia.

W. H. Rogers, Inspector of Fisheries... ..Amherst.

Prince Edward's Island.

J. H. Dewar, Inspector of Fisheries.....Alberton.

British Columbia.

A. C. Anderson, Inspector of Fisheries.....Victoria.

United States.

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

Alabama.

This State had a Commission last year, but we have been unable to get a reply to letters addressed to them.

California.

S. R. Thockmorton.....San Francisco.
B. B. Redding “ “
J. D. Farwell.....Niles, Alameda Co.

Colorado.

W. E. Sisty.....Brookvale.

Connecticut.

W. M. Hudson.....Hartford.
 Robert G. Pike.....Middletown.
 G. N. Woodruff.....Sherman.

Georgia.

Thomas P. James.....Atlanta.
 (Commissioner of Agriculture, and *ex-officio* of Fisheries.)

Illinois.

N. K. Fairbank.....Chicago.
 S. P. Bartlett.....Quincy.
 (Mr. J. Smith Briggs, of Kankalee, was on the board, but his term
 has expired and no appointment has been made to date.)

Iowa.

B. F. Shaw.....Anamosa.

Kansas.

D. B. Long.....Ellsworth.

Kentucky.

Hon. John A. Steele.....Midway.
 Dr. Wm. Van Antwerp.....Mt. Sterling.
 A. H. Goble.....Catlettsburg.
 Hon. C. J. Walton.....Mumfordsville.
 Dr. S. W. Coombs.....Bowling Green.
 John B. Walker.....Madisonville.
 Wm. Griffith, President.....Louisville.
 W. C. Price.....Danville.
 P. H. Darby.....Princeton.
 Hon. J. M. Chambers.....Independence,
 Kenton Co.

Maine.

E. M. Stillwell.....Bangor.
 Henry O. Stanley.....Dixfield.
 (Commissioners of Fisheries and Game.)

Maryland.

T. B. Ferguson	Baltimore.
(Address 1,327 M Street, Washington, D. C.	
Thomas Hughlett	Easton.

Massachusetts.

Theodore Lyman	Brookline.
E. A. Brackett	Winchester.
Asa French	Boston.

Michigan.

Eli R. Miller	Richland.
A. J. Kellogg	Detroit.
Dr. J. C. Parker	Grand Rapids.

Minnesota.

Daniel Cameron	La Crescent.
Wm. W. Sweeney, M. D.	Red Wing.
R. Ormsby Sweeny, Chairman	St. Paul.

Missouri.

Hon. Silas Woodson, Chairman ...	St. Joseph.
Hon. H. Clay Ewing	Jefferson City.
John Reid	Lexington.

Nebraska.

R. R. Livingston	Plattsmouth.
H. S. Kaley	Red Cloud.
W. L. May	Fremont.

Nevada.

H. G. Parker	Carson City.
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New Hampshire.

Samuel Webber	Manchester.
Luther Hayes	South Milton.
Albina H. Powers	Plymouth.

New Jersey.

Dr. B. P. Howell.....	Woodbury.
E. J. Anderson.....	Trenton.
Theo. Morford.....	Newton.

New York.

Hon. R. B. Roosevelt, 76 Chambers Street....	New York.
Edward M. Smith.....	Rochester.
Richard U. Sherman.....	New Hartford, Oneida Co.
Eugene G. Blackford, 809 Bedford Avenue....	Brooklyn.

North Carolina.

P. M. Wilson, (Acting Com.).....	Raleigh.
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Ohio.

J. G. Fisher, President.....	Coshocton.
R. Cummings, Treasurer.....	Toledo.
L. A. Harris, Secretary.....	Cincinnati.

Pennsylvania.

H. J. Reeder.....	Easton.
B. L. Hewitt.....	Holidaysburg.
James Duffy.....	Marietta.
John Hummel.....	Selingsgrove.
Robert Dalzell.....	Pittsburg.
G. M. Miller.....	Wilkesbarre.

Rhode Island.

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

South Carolina.

A. P. Butler.....	Columbia.
(Commissioner of Agriculture and <i>ex-officio</i> Commissioner of Fisheries.)	

Tennessee.

W. W. McDowell	Memphis.
George F. Akers	Nashville.
Hon. W. T. Turley	Knoxville.

Texas.

J. H. Dinkins	Austin.
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Utah.

Prof. J. L. Barfoot (Curator Deseret Museum).	Salt Lake City.
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Vermont.

Dr. M. Goldsmith	Rutland.
Charles Barrett ..	Grafton.

Virginia.

M. McDonald	Lexington.
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West Virginia.

Henry B. Miller	Wheeling.
C. S. White	Romney.
N. M. Lowry	Hinton.

Wisconsin.

Gov. Wm. E. Smith, (<i>ex-officio</i>)	Madison.
Philo Dunning, President	"
J. V. Jones	Oshkosh.
C. L. Valentine, (Secretary and Treasurer) ..	Janesville.
Mark Douglas	Melrose, Jackson Co.
John F. Antidel	Milwaukee.
Christopher Hutchinson	Beetown, Grant Co.

APPENDIX B.

We append the following communication from Prof. Richard Rathbun, sent us by the kindness of Prof. S. F. Baird. It arrived after our report was in the printer's hands, and we are only able to give it here without comment.

THE HOMARUS AMERICANUS.

A few notes on the Size, Habits, Spawning, etc., of the American Lobster, (Homarus Americanus,) prepared for Newton Dexter, Esq., Fish Commissioner of Rhode Island, by Richard Rathbun, Assistant, in charge of Department of Invertebrates, United States National Museum.

We have at present very little reliable data concerning the spawning and other habits of the American lobster. Only two or three reports on the subject have as yet been published, and none of these cover the ground referred to in your letter of inquiry. They are, however, quoted at the end of this paper.

As a special agent of the United States Census, detailed to work up the edible marine invertebrates of our coast, I sent out some time ago a quantity of circulars to the principal lobster dealers and catchers, requesting information on many matters of interest. Some of the replies are undoubtedly trustworthy, and from these I have hastily put together the following notes in reply to the subjects you suggest. They do not cover all the ground, but may possibly assist you in the good work of aiding to protect our lobster, which is fast becoming exhausted along a large part of our coast.

My census report, which must be ready by June, will be as complete as possible, and by that time I hope to have more data that will be of service to you, and if so, I will gladly furnish it.

SIZE.

The average size of lobsters brought to three of the principal markets, as given by reliable dealers, is as follows, the length being exclusive of the big claws:

	Length.	Weight.
Boston.....	11 to 11½ inches.	1½ to 1¾ pounds.
New Haven.....	10½ “	
New York.....	10½ to 15 “	2½ pounds.

Mr. Fuller, of New Haven, says that the average size brought there now is about ten and one-half inches against thirteen inches twenty years ago.

The information received from catchers on the same subject varies, and cannot be as reliable as the above. Along the southern New England coast, however, most catchers agree in giving the average size of those caught and disposed of as from about ten and one-half to twelve inches. But one or two said as low as eight inches. On the coast of Maine, the average is rather higher, but not much.

As to whether the lobster had decreased in size or not, the universal answer was “yes”; but very few gave any figures. Some said the decrease in average size was slight; others, one-half. The decrease is probably greater than most lobster-men are aware of, and in this connection I will quote Mr. S. M. Johnson, of Boston: “They decreased rapidly until the law was enacted regulating the size of those brought to market, the enforcement of which arrested the apparent decrease.

“I would say here that the effect of a law regulating the size of those saved for food is, after a time, to bring a very large majority of those offered for sale to about the legal limit, and an improvement can only be looked for by increasing the limit from time to time.”

As to the annual rate of growth the replies of the lobster-men are without value, as they have no means of correct observation in a matter of this kind; their answers differed very widely. Neither can I find any published data on the subject, though some such may exist which I have overlooked. I am, therefore, unable to give the length of time required by a lobster to attain the adult size. I will, however, again quote Mr. Johnson, and can say that what are, perhaps, the most trustworthy observers agree more or less closely with him, as regards rate of growth between periods of shedding:

“The rate of growth, if estimated by weight, is probably about double at each shedding. If taken by measurement, my own observation has been directed to one size with this result: A lobster measuring just ten and one-half inches after having shed measured eleven and one-half and as high as twelve inches in some cases. The above fact I consider of great importance in seeking for the best way to protect the lobster fishery.”

SHEDDING.

Now the question naturally arises, how often does the lobster shed? One correspondent says:

“They shed, I think, during the greater part of the year, but principally from July to October. The process is more influenced by amount of food, (good pas-

tures, so to speak), than by the season or temperature. They must shed in order to grow, and if they get plenty to eat they will grow. In the early stages of their growth, the process of shedding goes on quite rapidly and becomes less frequent year by year as they attain age, and having become fully grown the process stops altogether."

They probably shed, when partially grown, only once a year, or, at any rate, not more than twice a year; but it must be remembered that the young have to undergo many changes in order to attain the length of even a few inches. The very young, however, shed very rapidly, going through many changes in the course of the first season or summer. A lobster eight inches long will, after shedding, measure about ten inches, but from the very young to eight inches my data is deficient.

I have written to Prof. S. I. Smith, of Yale College, on the subject of growth, but he was unable to give me any satisfactory answers. Prof. Smith is probably the best scientific authority on the subject in this country.

Just before shedding, the lobster is said to be full and heavy, but immediately after shedding it becomes thin and watery and unfit for food. Nevertheless soft-shell lobsters are said to be used in the lobster canneries of Maine.

SPAWNING.

The question was put to the correspondents, Do lobsters spawn all through the year? One-third answered, "No;" the remainder, "Yes." Lobsters with spawn can, most likely, be found at all seasons, but during certain parts of the year, probably only in small numbers. The summer seems to be the principal spawning season, and most of the statements I have indicate that the eggs begin to appear about March, and hatch from June to September. Still this statement must be tempered with the above; that some spawning lobsters are to be found all the year through.

We have no data as to the exact length of time any single lobster carries her spawn.

As to the size of the smallest lobsters seen with spawn, the correspondents differed in their answers, from eight inches to twelve inches. There seems to be no definite data as to the size and age of lobsters at maturity. It may vary at different points along the coast (with temperature), but, if so, we have no knowledge of it. I will quote the answer we have had from Mr. S. M. Johnson on this point. We consider him one of the very best authorities we have regarding the lobster:

"Have never seen caught east of Cape Cod more than two or three specimens that were under ten and one-half inches long (with spawn), and these, I think, were fully mature, but dwarfs. I think but a small proportion spawn under eleven inches in length, and I have always been of the opinion that this is the proper limit below which none should be saved for food, in order to fully protect the species."

The spawning lobster is probably more inactive, or torpid, than those without spawn.

REFERENCES.

The following publications will give additional data regarding the natural history of the American and European lobster:

The Norwegian Lobster Fishery and Its History, by Axel Bøck. [Report U. S. Fish Commission, Part III., pp. 223-258.]

On the Artificial Propagation of the Lobster (in Europe). [Fish Commission, Report III., pp. 267-269.]

The Metamorphoses of the Lobster and other Crustacea, by S. I. Smith. [Fish Commission Report, I., pp. 522-537.]

The Lobster (*Homarus Americanus*): Extent of the Fishery—The Spawning Season—Food—Shedding—Legislation. Wm. W. Wheildon. [Proceedings of the American Association for the Advancement of Science, XXIII., 1874, pp. 133-141.]

Forest and Stream, etc.

S. I. Smith. The Early Stages of the American Lobster. [Trans. Conn. Acad. of Sciences, Vol. II., pp. 350-381, 1873.]

Frank Buckland and others. [Reports on the Crab and Lobster Fisheries of England and Wales, Scotland and Ireland. London, 1877.]

Also by the same, other reports to the British Government on the same subjects.



