

ANNUAL REPORT
OF THE
BOARD
OF
Fish and Game Commissioners,
OF THE
STATE OF NEW JERSEY.

For the Year Ending October 31st,
1903.

CAMDEN, N. J.:
SINNICKSON CHEW AND SONS COMPANY.
1904.

ANNUAL REPORT

OF THE

BOARD

FISH AND GAME COMMISSIONERS

OF THE

STATE OF NEW YORK

FOR THE YEAR ENDING DECEMBER 31, 1903

1904

LETTER OF TRANSMITTAL.

To His Excellency, Franklin Murphy, Governor, and to the Members of the Senate and General Assembly of the State of New Jersey:

In accordance with the provisions of law we herewith submit the annual report of the doings of the Board of Fish and Game Commissioners for the year ending October 31st, 1903.

Very respectfully,

BENJ. P. MORRIS,

President;

RICHARD T. MILLER,

DAVID P. McCLELLAN,

PERCY H. JOHNSON,

Commissioners.

LETTERS OF TRANSMITTAL

TO THE DIRECTOR, BUREAU OF LAND MANAGEMENT
WASHINGTON, D. C.

FROM: [Illegible]

SUBJECT: [Illegible]

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List of Fish and Game Commissioners Holding Office
at the Date of this Report.

BENJ. P. MORRIS, President,
Long Branch, N. J.

RICHARD T. MILLER,
Camden, N. J.

DAVID P. McCLELLAN,
Morristown, N. J.

PERCY H. JOHNSON,
Bloomfield, N. J.

Lincoln and Care Commission Report
at the State of New York

REPORT OF THE

COMMISSIONERS

OF THE

STATE

OF

THE

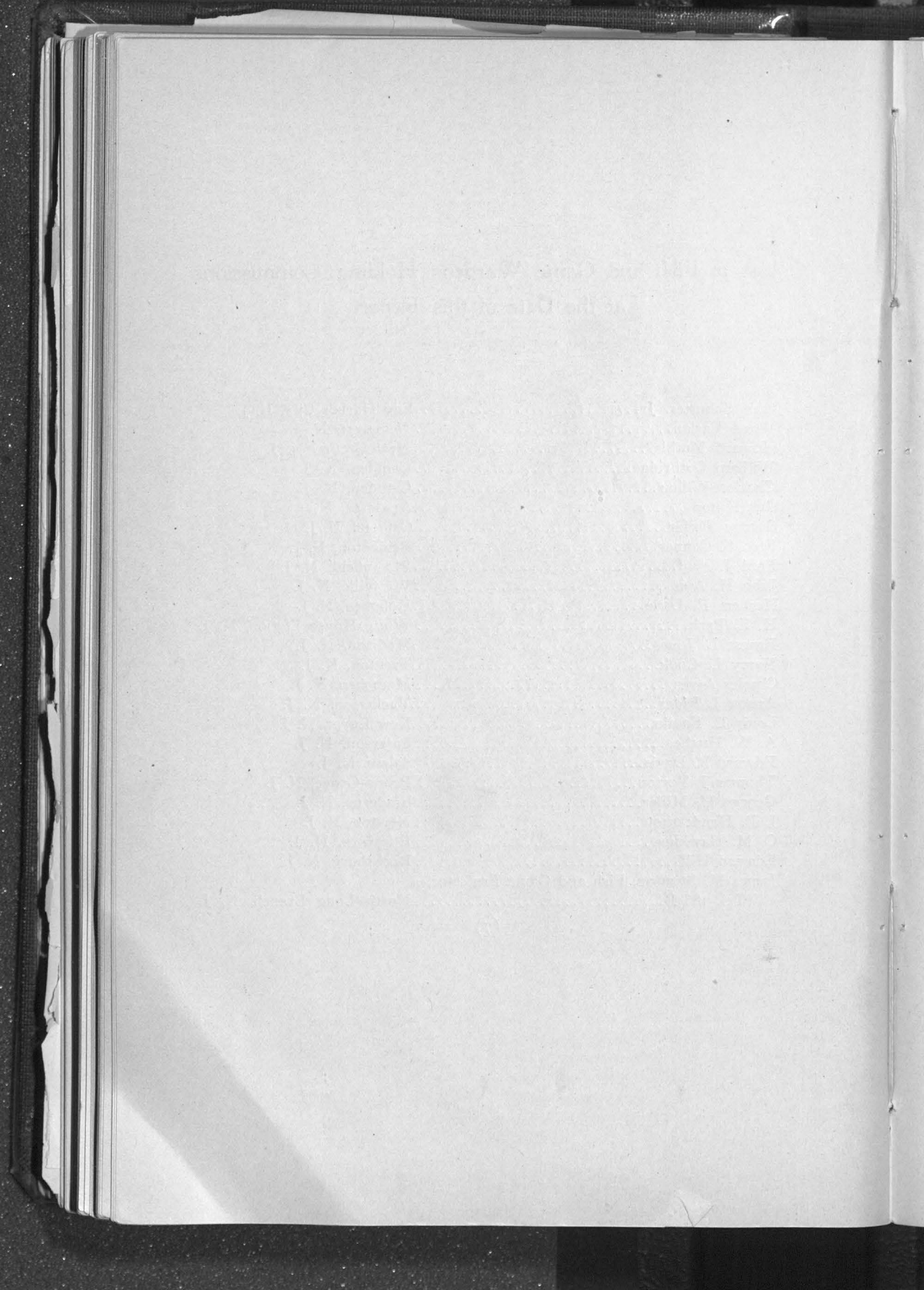
LANDS

AND

MINES

List of Fish and Game Wardens Holding Commissions
at the Date of this Report.

John Schuster, Jr.....	Egg Harbor City, N. J.
Ward Varian.....	Demarest, N. J.
Howard Mathis.....	New Gretna, N. J.
William Guthridge.....	Camden, N. J.
Charles Wilbur.....	Camden, N. J.
Gus Hilton.....	Anglesea, N. J.
George Phifer.....	Ormond, N. J.
Fred S. Conner.....	Bridgeton, N. J.
Fred J. Hall.....	Bloomfield, N. J.
John H. Avis.....	Westville, N. J.
Herbert E. Dane.....	Hoboken, N. J.
H. E. Park.....	White House Station, N. J.
Ernest L. Jones.....	Madison, N. J.
Harry L. Cook.....	Trenton, N. J.
Charles Ayres.....	Metuchen, N. J.
Anson J. Rider.....	Tuckerton, N. J.
Louis E. Foulks.....	New Egypt, N. J.
A. W. Hughes.....	Paterson, N. J.
Edward R. Davis.....	Salem, N. J.
Thomas J. Torton.....	Penns Grove, N. J.
George H. Miller.....	Finderne, N. J.
J. B. Hendershott.....	Newton, N. J.
C. M. Hawkins.....	Elizabeth, N. J.
Edward Hill.....	Rocksburg, N. J.
James M. Stratton, Fish and Game Protector, Tel. 186 B.....	North Long Branch, N. J.



ANNUAL REPORT

Of the Board of Fish and Game Commissioners of the
State of New Jersey for the Year Ending
October 31st, 1903.

It is now nearly a decade ago since the work of stocking the waters of the State with fish not indigenous to them was begun with some system. Previous to that time attempts had been made at stocking, both by the State authorities and by private individuals, but it was done in a rather haphazard way and frequently with little knowledge of the requirements of the fish sought to be introduced. Fish culture has made little progress, and when the first black bass were brought to New Jersey there seemed to be a prevailing idea that all that was necessary for the propagation of fish was water. The success which attended this early stocking was calculated to confirm this theory.

As far as the angling fraternity was interested, the ponds of the State some fifty years ago were divided into "pickerel ponds" and "perch ponds." The former also included pike, for no attention was paid to the difference between pike and pickerel. Although some of our larger lakes and streams contained both pickerel, pike and perch, there were many ponds which contained only the one variety, in addition, of course, to the sunfish, catfish, and the different varieties of small fish generally designated as "bait." Perhaps the first stocking that was done in New Jersey was the planting of pickerel in perch ponds, and of perch in pickerel ponds. The success of this is at the present day attested by hundreds of the smaller sheets of water in the State. Next came the black bass. Residents of New Jersey in territory adjacent to that of New York had heard of the gamey qualities of the two varieties of the bass and there was naturally a desire to see what these fish would do in New Jersey. According to statements

made by the older residents along the shores of Greenwood Lake, that large body of water was originally stocked with fifteen black bass, seven of the small-mouthed variety and eight of the large-mouthed. Five years afterwards Greenwood Lake afforded the best black bass fishing ever known there. It will be conceded that the early attempts at stocking in New Jersey met with gratifying success.

The first appointment of Fish Commissioners in New Jersey was made principally for the protection of the shad industry in the Delaware River, and the Commissioners were given no authority whatever over game. They were simply authorized to propagate fish and protect them. New Jersey made little attempt at the propagation of shad, for no appropriation whatever was made for that purpose for a number of years. The successful attempts of the federal authorities in the artificial propagation of shad and the growing importance of the shad industry were the causes of steps being taken for the proper enforcement of the laws. The United States Government might stock our streams with shad, but it had no authority to regulate the taking of the fish; consequently for many years nine-tenths of the work done by the state commission was on the lower Delaware. But it did not take long before the shad fishermen themselves recognized the value of restrictive legislation and it is a pleasure to record to their credit the fact that they are the most law-abiding of all persons engaged in the pursuit of fish.

When the present system of fish protection was inaugurated in this State the Commissioners accordingly found little work to do along the Delaware; the United States Government stocked the stream amply every year and there were few violations of the law. The Commissioners accordingly turned their attention to the fresh water streams and ponds and when, subsequently, the legislature enlarged the purview of their duties by placing in their charge the propagation and protection of game, a large field of usefulness was opened before them, and they seized with avidity upon the opportunities for good work which presented themselves. Although New Jersey had laws governing hatcheries, there were no hatcheries in the State; other states had provided railroad cars with approved appliances for the transplanting of fish, but nothing of the kind had ever been seen in New Jersey,

and what was more, there was little chance of anything of the kind being used, on account of the very limited appropriation placed at the disposal of the Commissioners. It was in an ordinary freight car, with washtubs garbage cans, and similar receptacles, that the first fish were brought to New Jersey from the Great Lakes. It was a mere experiment but it was successful. Hitherto the distribution of pike, perch and other fish had been accomplished by means of fry—certainly a very precarious method and successful only in very few instances. At the present day New Jersey has few more conveniences than it had when the first freight car of fish came from Toledo to Greenwood Lake. Thousands of the fish have been brought on from Lake Erie, and although the facilities for aeration and the carriage of the fish have been improved, freight cars are still used. It has frequently been suggested that the nature and importance of the work would warrant the construction of a special car for the purpose such as are in use in other states, but the Commissioners never made any request for an appropriation for that purpose. Introducing new species of fish was at best an experiment; although the fish were brought to the State in excellent condition there was no guarantee that they would live, and if they did live, that they would propagate. Should the experiment prove a failure the money spent in a special car would have been practically wasted, and the smallness of the appropriation at the disposal of the Commissioners rendered strict economy necessary at all times. Such a car might have been used for the distribution of trout, but the demand in this direction was not sufficient to warrant the outlay, for with the numerous railroads crossing New Jersey in all directions trout could be conveniently distributed by means of the cans used in bringing fish on from the Lakes. The result of this work of stocking, extensive and laborious as the latter was, has vindicated the wisdom of the Commissioners in not using the State fund for the acquisition of a special car.

The work of stocking our streams and ponds with adult fish from the Great Lakes has been in progress for nearly a decade; time can only tell whether it has been a success; in the opinion of a great many people time should have told so long ago. Judged by the results of the introduction of the pickerel and black bass, the attempted introduction of pike, perch, channel catfish, calico

bass, crappies, and other fish from the west has been anything but a success. Although there is ample evidence to show that some of the fish have multiplied, they have not done so at the rate the pickerel and bass did. Your Commissioners have done all that can be expected of them. We can bring the fish here, but we cannot compel them to propagate. Nor do we believe that a persistence in this work would be warrantable at the present time, both in view of the doubtfulness of the experiment and the fact that our efforts can be directed in other ways less attended by experiment. If the fish brought on from the Great Lakes had found our waters as suitable to them as did the black bass, they would have testified so in a very decided manner, just as did the bass in Greenwood Lake a few years after their introduction. There are instances in fish distribution where the introduced species did not assert itself until many years after their first introduction; it is to be hoped that this will be the case in New Jersey, but the slight chance of the eventuation of this proposition does not, in our opinion, constitute a valid argument in favor of a continuance of bringing fish on from the west.

Why has the introduction of the fish from the west not been attended with more marked success? That question may, perhaps, be answered in the future, when fish culture shall have made more progress than it has at present; to-day it is unanswerable. There may be something in our water agreeable to the indigenous fish and the black bass but repugnant to the introduced species; the latter may find the food in our water foreign to them, or there may be enemies in our water destructive to the emigrants; in any one of these or many other events, the introduced fish fail to multiply even if their own existence were continued to the ordinary span of their lives. Persistent attempts at the introduction of fish which decline to multiply here would be injudicious. (It has been suggested that perhaps an addition to the food supply of our fish might be advisable.) The origin of the sustenance of fish is in the fertility of the soil under the water. It is this soil which produces the vegetation in the water; on this vegetation thrive the minute forms of animal life on which the small fish feed and these smaller fish are necessary for food to the larger. If one link in this chain is broken, all fails, and science has not advanced far enough to indicate what can

be done in the case of such failure. The farmer, no matter how well versed he may be in agriculture, cannot tell you how it is that one year he has an abundant apple crop and the next year not enough for pies for his own family; still the farmer has the trees, the soil and all the surroundings before him; in the water its surface frequently constitutes an impenetrable veil, a veil at least which science has so far failed to lift. The axiom in fish culture which is so frequently lost sight of is that a water's ability to produce fish is in direct proportion to the food supply in it. A farmer who has a pasture field in which ten sheep and their progeny can find sustenance for the season would be considered foolish if he were to place five hundred sheep there; still this is just what some people imagine the Fish and Game Commissioners should do; if a hundred fish do not find food in a certain water, put in a thousand; if these thousand starve, put in five thousand. Attempts at the distribution of what is commonly called baitfish have been made before. The fresh water herring, so abundant in Lake Hopatcong, are also found in many other large bodies of water, and attempts have been made to place them in other waters. We know of no single instance in which such attempt was successful in the measure we hoped for. In some instances the herring multiplied until, for lack of food, they were picked up dead in large winrows along the shore; they found the new water suitable to their domestic arrangements, but they and their progeny devoured all the food and by doing so not only destroyed themselves but also the other baitfish, and as a natural consequence, the larger fish. In other cases the herring were never heard of, just as was the case with the attempted introduction of the fresh water smelts in Greenwood Lake and other waters of this State, an attempt which was made by the Fish and Game Commissioners some seven or eight years ago. Although in the large waters of Maine the state commissioners do not introduce salmon, trout, and other of the nobler kind of game fish until the fresh water smelt of both the large and small varieties have been well established, their introduction in the waters of New Jersey proved an absolute failure. Any interference whatever with the admirable balance which nature has established in the animal kingdom is more apt to lead to failure or mischief than to success.

There is, however, no reason why the distribution of the black

bass, the pickerel, the pike and the perch should not be continued. The State's supply of these fish has been drawn from the Delaware & Raritan Canal and the taking of these fish from this water has served the double purpose of continuing their lives and placing them in water where their presence would be of value to the public. If left in the canal they would be destroyed by the wheels at Trenton; if removed, they infuse fresh blood into the same kind of fish found in other waters. This, however, occupies comparatively little time and for a limited period each year.

The time and money which will be left at the disposition of the Commissioners and wardens by the abandonment or curtailment of the introduction of fish from the Great Lakes we feel may be used with better results in looking after the supply of game, and this is not a question of experiment.

The ever-increasing population of the State, with the proportionate increase in the number of gunners and the continual reduction of the territory available for the propagation of game, have rendered legislation of a more and more restrictive character absolutely necessary. But the time is coming when even the most drastic of prohibitive measures will not meet the requirements and our game may be exterminated, no matter how short the open season may be. It is time we looked for replenishment in some other direction and the only method we can suggest is the establishment of game refuges in the State. At a first glance this proposition may seem a little too near akin to the establishment of preserves, something the people of New Jersey would not take kindly to, but we believe that a plan might be devised by which the public may have all the benefits arising from preserves without any of the objectionable features. New Jersey, populous as it is, is a State admirably adapted to the preservation of indigenous fauna, for hundreds of acres of wild land may be found within an hour's ride of the great cities of New York and Philadelphia.

The first matter to be considered in the establishment of a game refuge is the probable cost. This need not necessarily be large, and your Commission has no intention of applying for an additional appropriation for the purpose, feeling confident that the time and labor saved from trips out west after fish will be

sufficient to give the matter of game refuge a trial. We have no doubt that a large enough area of well-watered woodland can be secured in New Jersey at a low annual rental for the establishment of at least one refuge. A lease for five years, with the privilege of purchase, would involve an inconsiderable outlay of money and would be sufficient to test the availability of the project. The number of our wardens is sufficient to provide for the care necessary to be taken of such refuge; the artificial propagation of some of the fauna is a matter of exact science and what has been done profitably by individuals can be done in a like manner by the State.

The first purpose which such a refuge would serve would be the prevention of the extermination of our native birds. Absolute prohibition from shooting or tramping would, of course, be requisite to success and this could be attended by the wardens placed in charge. The instinct of all kinds of game is to seek places of security. It is the experience of all who have gunned on territory adjoining large preserves that when they once get a shot, say at a bevy of quail, the birds will at once betake themselves to the preserved territory, knowing that they are secure from molestation there.

In this way we would have a place where quail, ruffed grouse and hare might always be found, and from which the surplus of the quail and rabbits, at least, might be transplanted to other parts of the State, in addition to the good gunning to be found in the immediate vicinity of the refuge. If any of the foreign species of hare recently introduced in this country can be acclimated here the best opportunity therefor would be afforded by such a place of refuge and absolute security.

An advantage which would accrue to the benefit of the angler would be the more extensive distribution of trout. It is well known that by the artificial propagation of trout as high as ninety-five per cent. of the eggs have been brought to maturity, whereas if left to their natural resources it is a question whether even five per cent. of the eggs would develop into fish. Thousands of dollars have been expended in New Jersey for the distribution of fingerling trout and the larger part of this sum of money has gone as a profit to the owners of private hatcheries. All this might be saved, and that with an increase in the number of trout

to be distributed. Small hatcheries have been established in numerous places all over the country. The cost of establishing and maintaining a small hatchery, amply sufficient for all the demands of the streams of New Jersey, would cost but little more than the sums now annually expended in the purchase of trout from the hatcheries, and give the State a full supply.

But by far the greatest benefit reasonably to be expected from the establishment of a game refuge would be the introduction into the State, for the benefit of the public, of the Asiatic pheasant. Three kinds of pheasants, the English, the ring-necked, and the Mongolian, have been established in various parts of this country in latitudes as high as that of New Jersey. Our native grouse is becoming scarce, and we know of no bird at all suitable to take its place other than the Asiatic pheasant. This has been done elsewhere and there is no reason why it should not be done in New Jersey.

An attempt of this kind was made in New Jersey a number of years ago and proved a failure, but this can be readily accounted for. The State purchased considerable numbers of the ring-necked pheasants and distributed them in various parts of the State. There was no law whatever prohibiting the destruction and possession of this bird. A measure was passed by the legislature prohibiting their killing for three years, but it was vetoed by the Governor, as it was only a part of a general measure, some features of which did not meet the approval of the executive. Consequently the measure, with the good as well as the objectionable provisions, was vetoed. This gave gunners and others a full year in which not only to shoot, but to trap the pheasants. In no place were the birds secure, and, consequently, it is rather a matter of surprise that some were found as long as three and four years after their liberation. In addition to this, the fact must be considered that the birds were more or less of a domesticated nature, having been bred and reared in confinement.

Despite all these disadvantages, reports were received from several places in the State indicating that the birds did well the first year, and that their progeny showed nearly all the wildness of our native grouse.

By the establishment of a game refuge the cost of these birds would be materially reduced. Immediately before the breeding

season the market price of these birds ranges from four to six dollars a pair, and they are frequently difficult of procurement even at the higher figure. The hens are prolific in the laying of eggs, and although the best method of developing them is still by placing them under common barnyard fowl, it has been shown by ample evidence that the birds will develop their own eggs if not interfered with. At any rate, we see no reason why on a State game refuge we should not accomplish what is done every year on the large preserves in this and other states. The rearing of the birds can be accomplished by following the rules laid down in books written by men who have devoted their lives to the subject, and is attended with very little difficulty. In preserves in New Jersey as many as ten and twenty thousand birds have been reared in a season, and that with the attendance of men far less in number than the corps of our wardens. By far the larger proportion of these birds invariably remain within the boundaries of the preserve where they are reared, so that in the case of the State game refuge only the second generation, partaking more of a wild nature than the first, might be used for the purpose of distribution to other parts of the State.

Of the three kinds of Asiatic pheasants the preference undoubtedly would be given to the ring-necked variety. On the preserves in New Jersey the English bird is preferred, but this is due to the fact that it is less liable to stray away from the place of its rearing, and because it is not so hard a flyer, thus forming an easier mark for the gunner. A law prohibiting the killing of English birds altogether would be an injustice to the owners of these preserves, and such a law, as far as the pheasants to be reared on the State game refuge are concerned, would be an absolute necessity.

In some of the western states the Mongolian bird has done well and it would cost very little to try an experiment with a few of these birds, although their characteristic tendency in the west has been to travel many miles away from home. The ring-necked, although also given to roaming, but to a far more limited extent, would probably prove the better bird for the needs of New Jersey. A law prohibiting the killing of ring-necked and Mongolian pheasants for a term of years would do no injury to any person, for there are none of these birds at present in the

State, and such a law would be absolutely necessary to the successful establishment of a game refuge.

As far as the general fish and game laws of the State are concerned and also the special enactments applying to limited territory, your Commission desires to make no recommendations. A code satisfactory to all is an impossibility, and although the present law might be advantageously amended in some particulars, we believe it has given better satisfaction on the whole than any previous law. The people of the State know what the present fish and game laws are, and this in itself constitutes a strong argument in favor of making no changes.

STOCKING WATERS.

The past year has been in many respects the most successful in the history of your Commission. We have not branched out into any new experiments, but simply extended the work started of bringing wall-eyed pike, channel catfish, white bass and calico bass from Lake Erie, and placing them in the larger lakes, where the water is deep. We have also taken black bass, pickerel and white and yellow perch from the canal in the winter, after the traffic is closed, and distributed them in various waters throughout the State, and from our personal knowledge and information received from reliable sources, they have multiplied rapidly, thus giving to the resident of the State a valuable variety of food fish, also sport and pleasure for the angler, and it is the opinion of your Commission that it is only necessary to continue the supply and keep the lakes well stocked with bait, and arrangements have been made for a consignment of food and bait fish the coming year. It has also been demonstrated beyond any doubt that muscallonge will live and thrive in our waters, as of two which were brought from Lake Erie and put in Greenwood Lake two years ago, weighing about eight pounds each, one was caught the past summer, weighing twenty-six pounds, this proving conclusively that New Jersey waters are suitable for all varieties of fish.

Owing to the severe cold weather and ice in the canal last winter your Commission was unable to fill all applications for black bass, pickerel and perch, but the fish taken from the canal were distributed in waters which we deemed most suitable, and in such quantities as the supply would permit, and it is our intention to put forth even a greater effort the coming winter, and hope to be able to supply every demand.

Removing fish so great a distance as intervenes between New Jersey and Lake Erie is a precarious undertaking, and the loss of some of the fish must be expected. After the fish are taken from the pound nets in the lakes, they are carted in cans to the cars, and placed in tanks. They must be watched every minute, day and night, by the wardens in charge until their arrival in New

Jersey water, but your Commission has endeavored to send only the experienced wardens on these missions—those that know just when to get a supply of fresh water en route, and are fully acquainted with every detail—as impure water or missing the connection of trains would result in the loss of every fish. But we are glad to report that ninety-five (95) per cent. of the fish purchased at Lake Erie last year were safely deposited in our lakes.

Your Commission has also contracted for a supply of brook trout, but it should be remembered that all streams cannot be successfully stocked with this beautiful and gamey fish. The temperature of the water must not be too high, nor the flow sluggish, although an unfavorable temperature is no serious obstacle if the speed of the current is great enough to insure a sufficient aeration of the water, or if there is clear spring water creeks, with deep holes and well shaded, flowing into main streams to which the fish can run. The best streams are those with gravelly bottom, clear, shallow water and steady current, and that contain a certain amount of natural food and suitable places for spawning. Your Commission will endeavor to select only the streams that will meet these requirements, and we believe that a smaller number of fish three or four inches long will give better results than a greater number of fry or fingerlings, as the trout is a carnivorous fish and when very hungry does not hesitate to devour its own kind.

In bringing the fish from Lake Erie to our waters we are under obligations to the Pennsylvania Fish Commission for the use of tanks; the Erie R. R. & D. L. & W. R. R. for the free transportation of cars and men in charge; also to Mr. Samuel Kennedy, station master at Erie, Pa., for valuable services rendered in placing cars, furnishing water, etc., for we feel that without their assistance our efforts would not have been so successful.

The following is a list of lakes and streams stocked during the past year, with the number of fish placed in each:

Beaver Brook.....	100	Catfish.
Pequest Stream.....	200	Catfish.
Pompton Lake.....	200	Bass, 121 Pickerel,
Pompton Lake.....	278	Perch and 23 Crappie.
Raritan River.....	263	Bass, 63 Perch.
Mountain Pond.....	1,000	Catfish.
Warrington Pond.....	175	Bass.
Echo Lake.....	200	Bass.

FISH AND GAME COMMISSIONERS.

South Branch	400 Bass, 200 Perch.
Pompton Lake	400 Bass, 400 Perch.
Spring Lake.....	100 Bass, 300 Perch.
Hollywood Lake.....	100 Bass.
Almonesson Lake.....	25 Bass, 150 Perch.
Millstone Lake.....	296 Bass, 103 Perch.
Almonesson Lake.....	54 Bass.
Blackwood Pond.....	700 Perch.
Bell Pond	700 Perch.
Bell Pond	500 Perch.
Pole Hill.....	390 Perch.
Hopatcong.....	304 Bass.
Lake Hopatcong.....	1,600 Wall-eyed Pike
Lake Hopatcong.....	500 White Bass.
Lake Hopatcong.....	100 Channel Catfish.
Slabtown Brook.....	2,000 Trout.
Jacksonburg Brook.....	2,000 Trout.
Tappan Brook.....	2,000 Trout.
Greenwood Lake.....	100 Channel Catfish.
Greenwood Lake.....	1,000 Wall-eyed Pike.
Kinross Brook.....	5,000 Trout.
Hunt's Brook.....	2,000 Trout.
Cold Brook.....	2,000 Trout.
Sunset Pond.....	200 Bass, 75 Pickerel.
Greenwood Lake.....	300 Bass.
Greenwood Lake.....	400 Bass, 8 Crappies.
Freehold Lake.....	300 Bass, 50 Perch.
Hollywood Lake.....	50 Bass, 50 Perch.
Tackanasse Lake.....	50 Bass, 50 Perch.
Brindle Lake.....	40 Bass, 100 Perch.
Oakford Lake.....	40 Bass, 100 Perch.
Hockanask Lake.....	40 Bass, 100 Perch.
Green Pond.....	400 Bass, 200 Perch.
Pequest Stream.....	500 Catfish.
Greenwood Lake.....	2,000 Calico Bass.
Greenlock Lake.....	100 Calico Bass.
Goodintent Lake.....	100 Calico Bass.
Clementine Lake.....	100 Calico Bass.
Laurel Spring.....	100 Calico Bass.
South Branch.....	200 Calico Bass.
Tintern Lake.....	200 Calico Bass.
Freehold Lake.....	300 Calico Bass.
Jamesburg Lake.....	300 Calico Bass.
Greenwood Lake.....	1,200 Wall-eyed Pike.
Greenwood Lake.....	200 White Bass.
Greenwood Lake.....	80 Channel Catfish.
Spring Lake.....	300 Calico Bass.
Tintern Lake.....	300 Calico Bass.

QUAIL.

Your Commission is again obliged to report that they have been unable to secure a supply of quail from the west to stock our woods and fields as the result of the restrictions of the government officials, which we characterize as uncalled for and unjust. The shipment of game from one state or territory to another is a very important subject of legislation and very difficult to regulate. While we believe that certain laws should be enacted prohibiting the removal of game killed in a thickly settled state like New Jersey where the birds are becoming scarce, and but for the large supply obtained two years ago would almost be extinct, we fail to see the wisdom of an act that prevents us from obtaining a supply for propagation purposes, as one of the objects of the Lacy Act is to aid in the restoration of such game or other birds in those parts of the United States adapted thereto, where the same have become scarce or extinct. A free interchange of game birds for restocking depleted covers is a matter of mutual interest, and due provision should be made therefor, but statistics show that only fourteen states and Alaska permit the export of game intended for propagation, but we are pleased to learn that during the past year four more states have enacted laws permitting the shipment of game for propagating purposes and your Commission is advised that a supply may be obtained the coming spring.

LICENSING NON-RESIDENT GUNNERS AND REMOV-
ING GAME FROM THE STATE.

The law requiring non-residents to procure licenses before hunting or gunning in this State, and Sec. 22 of the General Law, making it a penalty to remove or attempt to remove certain game from the State, meets the approval of all sportsmen, and the residents throughout the State. New Jersey, populous as it is, is admirably adapted for game, and almost any portion can be reached within one hour's ride from New York or Philadelphia, but the increasing population of the State with the proportionate increase in the number of gunners and the continual reduction of territory available for game, have rendered this restriction absolutely necessary, as it has a tendency to decrease the number of gunners coming from other states, thus saving the game birds and animals for the people residing within our borders, and it is also in line with the policy adopted by other states, for at the present time thirty-one states and Canada require non-residents to secure licenses before gunning, and in thirteen states and two Canadian provinces a like restriction is imposed on residents, and every State in the Union (with the exception of Kentucky and Mississippi), prevent the export or removal of all or certain kinds of game. In several states, however, this restriction is not placed on game for propagating purposes.

BARNEGAT BAY AND TRIBUTARIES.

Much has been said in former reports about this body of water with its tributaries and connecting bays and the marshes on either side with numerous thoroughfares, known throughout this and other states as the paradise for the hunter and angler. We feel that it is only necessary to make a comparison between what it was in former years and what it is at the present time. A few years ago the locality was practically in a lawless condition. Ducks were shot on Sunday, at night, from sailboats, and in fact in any unlawful manner and at any time. The marsh hen, which are very plentiful on the meadows, were disturbed during the breeding season by the pot hunter, who gathered their eggs for food, and at times when the high tide covered the meadows hordes of people could be seen hunting and killing these birds with sticks, and while your Commission is not prepared to say that there are no violations in that locality, we do say that through the vigilance of the wardens it is in much better condition than ever before. Shooting from sail boats and on Sunday has practically ceased; shooting at night is seldom heard. The net fishermen have learned that if a law interferes with their livelihood, it is better to have it amended by the legislature than to lose their nets and be prosecuted, and the past summer twelve wardens were sent to the marshes between Beach Haven and Atlantic City three days before the open season for marsh hen, in quest of violators. Not one arrest was made or a shot fired on the marshes during their three days' stay and the people, who only a few years ago threatened to kill the wardens, now willingly acknowledged that a great work has been accomplished.

CARP AND SUCKERS.

At the last session of the legislature a law was passed authorizing the Board of Fish and Game Commissioners, at their discretion, to grant permits to properly accredited persons to take carp and suckers from the waters of the State by means of nets of not less than four inch mesh; also requiring that all other food and game fish should be returned to the water uninjured, as it has been the custom in the past to take carp and other fish below the Trenton Falls in any manner. This law has met with some opposition in two counties, namely, Salem County and Gloucester. While it is the feeling of your Commission that the carp and suckers should be taken from the waters, we believe that it should not be done by persons who have no regard for other game and food fish, and in order that these permits should be placed in the hands of proper persons, your Commission had printed blank applications for permits to be filled in by the applicant, giving name, residence, name of stream in which nets were to be used, and to be signed by three residents of the county, preferably members of the Senate and General Assembly, and the warden in the county, and in no case where the applicant has complied with these conditions has one application been refused. While your Commission has no desire to interfere with any persons taking carp and suckers, only so far as our duties require in the protection of fish and game, but knowing that a net of four inch mesh is sufficiently small for the taking of carp and suckers, we feel that by placing the above restriction on them that a great number of small food and game fish may be saved thereby.

DELAWARE RIVER SHAD FISHING.

This body of water, which forms the western boundary of the State, is inhabited by food and game fish of nearly every variety, among them being shad, striped bass, black bass, wall-eyed pike, white and yellow perch, carp and channel catfish, thus affording not only a source of pleasure but of profit to the residents along its shores.

The shad fishing is the most important industry, as the Delaware River is one of the principal shad waters of the United States. The shad being an anadromous fish, which spends a greater part of its life in the ocean, comes to the Delaware early in the spring, first making their appearance usually about the twentieth of March, for the purpose of reproduction, depositing their eggs in the fresh waters, and after remaining for a period of time during the summer, makes its return to the ocean.

During this migratory period or during the shad season, which usually begins about the twenty-fifth of March and ends the fifteenth of June, the net fishermen reap their harvest. With the exception of a few hauling seines, the fishing is done with drift gill nets, which if carried on successfully, the fishermen must take advantage of every tide, both day and night, thus giving them very little time for rest or sleep from Monday morning until Saturday night. In order to give an idea of the magnitude of the shad fishing industry of the Delaware River by New Jersey residents alone, we give the following statistics, which are as nearly accurate as could be obtained:

There are in use from Trenton Falls to Bayside, four hundred and fifty (450) fishing skiffs, average value two hundred dollars (\$200.00) each; total, ninety thousand dollars (\$90,000.00); four hundred and fifty (450) nets, average value one hundred and fifty dollars (\$150.00) each; total, sixty-seven thousand five hundred dollars (\$67,500.00); number of men employed, one thousand; number of shad caught, one million; average per boat,

2223; average price of shad, twenty-five dollars (\$25.00) per hundred; average earnings per boat, five hundred and fifty-six dollars (\$556.00); total earnings, two hundred and fifty thousand and two hundred dollars (\$250,200.00). Four steamers are employed to carry the fish to market. Average length of nets, four hundred and fifty fathoms each.

The drift nets together with the haul seines if attached together would reach a distance of over two hundred (200) miles, or from Jersey City to Sandy Hook, following the coast line around Cape May and up the Delaware Bay and River to Camden.

The catch of shad the past year was the smallest ever recorded in the history of the State, but the fish were much larger than ever before, and the prices much higher; the lowest market price being seventeen dollars (\$17.00) per hundred, and the highest ninety-five dollars (\$95.00) per hundred, while a number of fishermen did not send their fish to market, but sold them at the wharves and landing places, realizing one dollar and one dollar and twenty-five cents (\$1.00 and \$1.25) each for roe shad.

The small number of shad caught during the past two years proves beyond a doubt that some means should be devised to increase the supply, and as it is very well known, there are but two sources of supply, natural and artificial, but if a sufficient number of fish do not reach the spawning ground it is impossible to multiply from either source, and under the present law which applies to the Delaware River, it is unlawful to set nets from sunset on Saturday night until twelve (12) o'clock on Sunday night, thus giving but one day during which their passage is unimpeded, and it is the opinion of your Commission that this closed period should be extended. While this legislation probably would not meet the approval of the commercial fishermen, we feel that it would be but a short time before they would be greatly benefited thereby.

NEW JERSEY FISHERIES.

Scope and General Value of the Fisheries and Fishery Products.

As New Jersey is almost surrounded by water, with the Hudson River and Atlantic Ocean, with the numerous bays, rivers and creeks on one side, and the Delaware River with its tributaries on the other side, it is not at all surprising that the fishing industry should reach vast proportions. Lying, as the State does, between New York and Philadelphia, gives New Jersey the largest as well as the most accessible markets for fishery products in the United States. These fortunate conditions have resulted in a steady yearly increase in the number of men engaged, capital invested, and value of our fisheries. Fish have now become a staple article of diet throughout the Union, and few people realize the enormous quantity yearly consumed. Of shad alone, over 55,000,000 pounds are yearly caught on the Atlantic coast, while the same district yearly furnishes over 68,000,000 pounds of herring, or alewives.

By adding the numerous other varieties of food fish caught, it plainly shows that hundreds of millions of pounds are yearly required to satisfy the general craving for sea food. Statistics show that the consumption of fish per capita has increased forty per cent. in this country during the past fifty years. This increase has no doubt been caused by improved methods of preservation, as well as our modern transportation facilities for quickly distributing the products of our fisheries in a fresh condition to the remotest inland districts.

In comparison with other states, New Jersey ranks with the highest in regard to value of fishery products. This is the more significant when we take into consideration that practically the entire industry is conducted in waters solely within the jurisdiction of the State, while some other states in computing the value

of their ports which are obtained from the 'deep sea fisheries many miles outside the three mile limit. The following statistics have been prepared with much labor and are reasonably accurate.

FISH AND FISHERY PRODUCTS OF NEW JERSEY.

People employed in the fisheries and in handling the products, 12,598; value of products, \$3,615,452; capital invested, \$2,847,-496.00; number of vessels, boats, scows and fleets used in the fisheries, 8,328, value, \$1,333,448; number of seines, gill nets, fyke nets, pounds and other nets, 9,800, value, \$390,315; shore property and other apparatus not mentioned above, value \$816,-833. Cash capital, \$206,860.

SPECIES OF FISH CAUGHT AND MARKETED.

Herring, butterfish, cod, haddock, mackerel, yellow perch, shad, weak fish, suckers, blue fish, carp, eels, hake, menhaden, progie, sheepshead, striped bass, mullet, bonito, catfish, flounders, kingfish, white perch, sea bass, Spanish mackerel, sturgeon, tautog, pike and pickerel, black bass; also hard crabs, soft crabs, lobsters and turtles. Other products must be included in these statistics, such as caviar, fish oil and fertilizer.

Total estimate weight of fish marketed during the past year, 98,000,000 pounds. Of shad alone over 14,000,000 pounds were taken; weak fish, 10,000,000 pounds; blue fish, 6,000,000 pounds; sea bass, 3,250,000 pounds; herring, 3,100,000 pounds; perch, 1,500,000 pounds; eels, 1,100,000 pounds.

LOBSTERS.

One of the most important articles of food to a vast number of people throughout this and other states are lobsters and as statistics from the years 1887 to 1898 show a great decrease in the number caught, they also show a great increase in value. The total catch of lobster throughout the United States in the year 1887 was 28,882,180 pounds, value \$799,717, while in 1898 (which is the last statistics given), the total catch was 15,118,062 pounds, value \$1,318,299.00. The industry in New Jersey was quite extensive a few years ago, and does yet afford employment to many fishermen in the summer time. It is evident that unless protective steps are taken at once, this article of food will soon be depleted, and it is the opinion of your Commission that there is no better way than to protect the young by placing a limit on the size to be taken, as there is no law at present on our statute books regulating this. All the eastern states have protective legislation. Complaints have been made by the dealers that the fishermen persist in bringing lobsters three or four inches long to their markets and they are compelled to purchase them for the reason that the fishermen refuse to sell the larger ones if the smaller ones are not purchased, and the dealers throughout the State ask that a law be enacted prohibiting the taking of lobsters less than eight inches in length, as one of the smaller size is of no value for food.

STURGEON.

The great decline in the catch of sturgeon is attracting attention, not only in this country, but in all parts of the world where sturgeon fishing is prosecuted, and as the caviar which is made from the sturgeon's roe, and also the flesh, has attained such a high market value, it has become absolutely necessary to increase the supply by artificial propagation. That this can be successfully done was demonstrated years ago by Seth Green and A. Marks, of the N. Y. Fish Commission, and by the Central Fishing Association of Schlesweig Holstein, Germany, and as the greatest sturgeon waters in the United States are the Delaware River and Bay, your Commission is fully convinced that another attempt should be made in this line. Two years ago the legislature appropriated a small sum to co-operate with the Pennsylvania Fish Commission, to carry on this work, but that year no ripe sturgeon were caught. Very little of the money was spent and the balance returned to the State Treasurer, and no further effort was made; but during the past summer large catches were made in the Delaware, which proves that this species is not exterminated, and as the Pennsylvania legislature has again appropriated seven hundred and fifty dollars (\$750.00) to propagate this valuable fish, we feel that the New Jersey legislature should appropriate a like amount. The great difficulty in propagating sturgeon is to get the ripe male and female, at or nearly the same time, but we are certain that this could be accomplished, as the natural spawning grounds are in the Delaware Bay, in the vicinity of Benny's Buoy, which is a short distance from Bayside and near where the Cohansey River empties into the bay. At this place the milers and spawners are generally caught in large numbers, and by co-operating with the commercial fishermen, who would gladly furnish us with all the soft spawn, which is the only kind used by fish culturists, and is not used for caviar. The eggs after being fertilized could be taken to the Pennsylvania Hatchery at Bristol, and the work of propagation completed, and it is the opinion of your Commission that by this method the supply of this fish could be increased at very little cost.

ENFORCEMENT OF THE LAW.

This work is always attended with a certain amount of hardship and danger to the officers, who, in order to successfully apprehend the violators, must be on the alert at all times, both day and night, and in all kinds of weather, as the person seeking to violate the law invariably chooses the time when the condition is most suitable for his nefarious work. That the wardens have been vigilant during the past year is clearly demonstrated from the fact that three hundred and fifty-one (351) arrests were made, and the offenses were as follows:

For killing game birds and animals and possession of same.....	47
Sunday gunning	37
Illegal fishing	69
Permitting dogs to run at large during closed season.....	68
Killing insectivorous birds.....	64
For attempting to remove game from the State.....	21
Non-residents gunning without license.....	45

The fish and game laws are made to apply to the rich and poor alike, and are thus made very broad, so that no guilty one may escape, and your Commission has endeavored to have them enforced impartially, but in several instances when the poverty of the defendant has been called to our attention, we have, in order not to distress his family, recommended that the sentence be suspended on the payment of costs, and in cases when a deputy warden, who received no salary, has made an arrest that was not justifiable, but solely for the purpose of collecting the share of the fines they would receive in case of a conviction, we have not only ordered the money returned to the defendant, but have revoked the commission of the officer, and in no case has the fine been imposed or the defendant committed that was not justly merited.

FISH AND GAME COMMISSIONERS.

FINANCIAL REPORT.

Receipts and disbursements under an act entitled "An Act to provide means to increase the fish production of the water of this State," approved March 21st, 1895.

Long Branch, N. J., November 1, 1903.

The Board of Fish and Game Commissioners of the State of New Jersey,

In account with Hon. J. Willard Morgan, Comptroller.

	Appropriation.	Amt. Paid.
Appropriation for salaries of the Fish and Game Protector and Wardens for year ending October 31st, 1903	\$15,600 00	
Amount expended by the Commissioners from Nov. 1st, 1902, to October 31st, 1903, under the act approved March 21st, 1895.....		\$15,525 00
Returned to State Comptroller, unexpended balance		75 00
		<hr/> \$15,600 00
Appropriation for expenses of Fish and Game Protector and Wardens for year ending October 31st, 1903	\$5,100 00	
Amount expended by Commissioners from Nov. 1st, 1902, to October 31st, 1903, under the amendment to act approved March 21st, 1895, which amendment was approved May 4th, 1897.....		\$5,055 66
Returned to State Comptroller, unexpended balance		44 34
		<hr/> \$5,100 00
Appropriation for expenses of the Board of Fish and Game Commissioners for year ending October 31st, 1903	\$1,000 00	
Amount expended by Commissioners from Nov. 1st, 1902, to Oct. 31st, 1903, for Commissioners' expenses		\$1,000 00
Appropriation for stocking of waters and distribution of game	4,000 00	
Amount of appropriation expended for purchasing fish and game		4,000 00
	<hr/> \$25,700 00	<hr/> \$25,700 00

SH AND GAME COMMISSIONERS.

GENERAL EXPENSE ACCOUNT.

Long Branch, N. J., Nov. 1, 1903.

The Board of Fish and Game Commissioners of the State of
New Jersey,

In account with Benj. P. Morris, Treasurer.

RECEIPTS.

Balance on hand November 1, 1902, to credit of stocking fund....	\$7,472 99
Balance on hand November 1, 1902, to credit of gen'l exp. fund \	1,278 78
Balance on hand November 1, 1902, to credit of sturgeon fund....	675 86
Received from County Clerks for licenses issued by them to non- resident gunners from Nov. 1, 1902, to Oct. 31, 1903.....	3,010 00
Received from license fees to steamers and sailing vessels to catch menhaden from Nov. 1, 1902, to Oct. 31, 1903.....	3,125 00
Received from fines collected for violations of the fish and game laws, for the year ending Oct. 31, 1903, being one-third thereof, as provided by law.....	2,324 79
Received from A. J. Rider, for sale of sailboat.....	106 00
Received from permits to collect birds, &c., badges, &c.....	3 50
Received from Hon. J. W. Morgan, appropriation for salaries of Fish and Game Protector and Wardens.....	15,600 00
Received from Hon. J. W. Morgan, appropriation for ex- penses of Fish and Game Protector and Wardens.....	5,100 00
Received from Hon. J. W. Morgan, appropriation for stocking waters and distribution of game.....	4,000 00
Received from Hon. J. W. Morgan, appropriation for expenses of the Commissioners.....	1,000 00
	<hr/>
	\$43,696 92

DISBURSEMENTS.

Paid for salaries of Fish and Game Protector and Wardens.....	\$15,525 00
Returned to Hon. J. W. Morgan, unexpended balance of appro- priation	75 00
Paid for expenses of Fish and Game Protector and Wardens....	5,055 66

Long Branch, N. J., Nov. 1, 1903.

The Board of Fish and Game Commissioners of the State of
New Jersey,

In account with Benj. P. Morris, Treasurer.

Receipts from licenses to catch menhaden, to steamers and sailing vessels, under the provisions of an act entitled "An Act to regulate fishing by steam and other vessels with shirred or purse seines in the waters of the State of New Jersey, and to require license for such fishing," approved March 26th, 1896.

STEAMERS.

Licensee.	Name of Vessel.	Date of Issue.	Amt. Paid.
The Fisheries Company....	Nat Strong.....	July 9, 1903.....	\$200 00
The Fisheries Company....	Alaska	July 13, 1903.....	125 00
The Fisheries Company....	Annie E. Gallup.....	July 25, 1903.....	200 00
The Fisheries Company....	George F. Morse....	July 25, 1903.....	200 00
J. C. Fifield & Sons Co....	Nellie E. Rawson....	July 28, 1903.....	100 00
Newport Fertilizer Co....	Active	Aug. 10, 1903.....	100 00
Newport Fertilizer Co....	Adroit	Aug. 10, 1903.....	125 00
Newport Fertilizer Co....	Ardent	Aug. 10, 1903.....	125 00
Newport Fertilizer Co....	Nellie B. Dey.....	Aug. 10, 1903.....	125 00
Newport Fertilizer Co....	Albert Brown.....	Oct. 21, 1903.....	125 00
The Fisheries Company....	A. M. Hathaway....	Oct. 31, 1903.....	200 00
The Fisheries Company....	Walter Adams.....	Oct. 31, 1903.....	200 00
The Fisheries Company....	Quickstep	Oct. 31, 1903.....	200 00
The Fisheries Company....	Joseph Church.....	Oct. 31, 1903.....	200 00
The Fisheries Company....	Arizona	Oct. 31, 1903.....	200 00
The Fisheries Company....	Seaconnott	Oct. 31, 1903.....	200 00
The Fisheries Company....	George Curtis.....	Oct. 31, 1903.....	125 00

SAILING VESSELS.

Licensee.	Name of Vessel.	Date of Issue.	Amt. Paid.
New York Fish Company..	Edith S. Walen.....	May 19, 1903.....	\$25 00
N. Y. & N. J. Oil & Guano Co.....	Swan	June 9, 1903.....	25 00
N. Y. & N. J. Oil & Guano Co.....	Fenella	June 9, 1903.....	25 00
Harrison Vail.....	Nettie M. Rogers....	June 9, 1903.....	25 00
John Feeney & F. M. Redmond	Ruth E. Pemberton..	June 29, 1903.....	25 00
John J. Hines.....	S. W. Truslow.....	July 20, 1903.....	25 00

FISH AND GAME COMMISSIONERS.

Licensee.	Name of Vessel.	Date of Issue.	Amt.	Paid.
Fred Bishop.....	Lucy Bell.....	July 25, 1903.....	25	00
Charles Warner.....	J. H. Still.....	July 25, 1903.....	25	00
Henry Longworthey.....	Benj. W. Latham....	Aug. 6, 1903.....	25	00
George M. Tilton, Jr.....	J. E. De Blois.....	July 25, 1903.....	25	00
John J. Horgen.....	Carrie E. Parsons...	Aug. 12, 1903.....	25	00
Miller Longbotham.....	Lady Elgin.....	Aug. 12, 1903.....	25	00
Miller Longbotham.....	Julia I. Grattan.....	Aug. 12, 1903.....	25	00
Lynch & Co.....	Sir Knight.....	Aug. 12, 1903.....	25	00
William Armstrong.....	Esther Anita.....	Sept. 10, 1903.....	25	00

\$3,125 00

Long Branch, N. J., Nov. 1, 1903.

The Board of Fish and Game Commissioners of the State of
New Jersey,

In account with Benj. P. Morris, Treasurer.

Receipts from County Clerks for licenses issued by them to non-resident gunners under the provisions of an act entitled "An act to require non-residents to secure licenses before hunting or gunning within the State of New Jersey, and providing penalties for violation of its provisions," approved April 22, 1902.

County.	Number of licenses issued.	Amount paid.
Atlantic	2	\$20 00
Bergen	2	20 00
Burlington	2	20 00
Camden	205	2,050 00
Cape May	2	20 00
Cumberland	18	180 00
Gloucester	8	80 00
Hudson	20	200 00
Hunterdon	1	10 00
Mercer	3	30 00
Middlesex	1	10 00
Ocean	6	60 00
Passaic	1	10 00
Salem	11	110 00
Somerset	1	10 00
Sussex	7	70 00
Warren	2	20 00
Monmouth	9	90 00
	301	\$3,010 00