

ANNUAL REPORT

OF THE

New Jersey

Board of Fish and Game

Commissioners

974.901

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FOR THE

Fiscal Year Commencing July 1, 1921, and Ending
June 30, 1922.

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

ERNEST NAPIER, *President*..... East Orange
 WM. B. BOULTON, *Treasurer*..... Morristown
 ALEX. H. PHILLIPS..... Princeton
 HARRY J. BURLINGTON..... Montvale
 WM. A. FAUNCE..... Atlantic City
 CHAS. F. HUNTER..... Palisade
 LEWIS SPINKS..... Jersey City

WALTER H. FELL, *Secretary*
 Office of the Board, State House, Trenton, N. J.

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

STRATTON, JAMES M., *Protector*..... Long Branch
 MATHIS, HOWARD, *Assistant Protector*..... Atlantic City
 CUDNEY, HARRY E., *Assistant Protector*..... Hackettstown

ASHWORTH, CHRISTOPHER..... Sussex
 AVIS, JOHN H..... Woodbury
 BAILEY, JOHN B..... Washington
 BOBERA, MICHAEL..... Trenton
 CONNER, FRED S..... Bridgeton
 COX, JOHN F..... Washington
 EVERNHAM, JAMES H..... Toms River
 DAVISON, ARTHUR..... Asbury Park
 DACKERMANN, FRED H..... Elizabeth
 ECGERT, JOSEPH S..... West Millington
 FOLKER, CHARLES W..... Camden
 HALL, FRED J..... Bloomfield
 HALL, GERVAS I..... Salem
 HUGG, JOHN R..... Jamesburg
 KELLEY, THOMAS..... Jersey City
 KLEIN, WILLIAM C..... Clifton
 LAWRENCE, HARRY R..... Newfoundland
 LODER, WILLIAM B..... Egg Harbor City
 MATHIS, HOWARD Z. JR..... New Gretna
 MIZELL, CHATHAM..... Elmer
 MORTON, CHARLES C..... Mount Holly
 MOTTRAM, FRANCIS..... Park Ridge
 PARK, JOHN J..... White House Station
 PHIFER, GEORGE W..... Millville
 RIDER, ANSON J..... Tuckerton
 ROE, JACOB D..... Newton
 SMALL, OTIS C..... Hammonton
 SMALL, WILLIAM HENRY..... Englewood
 STEEL, WILLIAM..... Cape May Court House
 STEUERWALD, CHARLES..... South Amboy
 WELSH, CHARLES E..... East Millstone
 YOUNG, WILLIAM E..... Chester

ANNUAL REPORT

Letter of Transmittal

To His Excellency, Edward I. Edwards, Governor, and to the Members of the Senate and General Assembly of the State of New Jersey:

Wm. B. Boulton, Commissioner at the date of this report, died Sept. 17, 1922.

As required by law, we submit herewith the annual report of the work of the Board of Fish and Game Commissioners for the fiscal year, covering a period from July 1, 1921, to June 30, 1922.

Very respectfully,

ERNEST NAPIER,
ALEXANDER H. PHILLIPS,
H. J. BURLINGTON,
W. A. FAUNCE,
CHAS. F. HUNTER,
LEWIS SPINKS,

Commissioners.

More fish and game for the increasing number of sportsmen is a dominant idea of our Board at this time. Conditions during the fiscal year were good and encouraging, but the Board's vision comprehends an enormous field for effort which should produce satisfactory results. While we believe that each department of our activities was alive and effective during the year, yet much more can be accomplished. The present situation shows great steps forward by comparison with conditions ten years ago.

Although our Game Farm, Fish Hatchery and two Branch Game Farms, our water and land patrol, increased license fees and close personal supervision by the Commissioners of the employees of the department, have contributed greatly to efficiency and development of our work, there remain important problems which must be solved if we are to gather the harvest which nature will permit us to gather.

Pollution of salt and fresh waters, forest fires, destruction of vermin, shortening of the open seasons, proper bag limits and the question of Federal control of migratory fish are subjects which come to mind in taking a view of the future.

While the Board has in mind the matter of fish and birds for sport and for food purposes, it has a great work in the protection of birds which destroy insects. The absolute necessity of protection of insectivorous birds is now generally well understood by all classes. It is admitted that plant life would soon be a thing of the past were it not for the constant warfare waged by birds on insects which destroy or injure growing crops.

We have no love for the English sparrow (*passer domesticus*), and it is generally understood that this bird has no practical value to mankind, but we learn from a recent report by W. L. McAtee of the U. S. Department of Agriculture, that even this bird, which has often been extensively destroyed as a pest, feeds among the seventeen year locust, asparagus beetle, locust leaf miner, tent caterpillar, canker worm, army worm and drop worm. Professor McAtee also says that ducks have been used as exterminators of mosquitoes when kept on ponds or marshes, where they feed upon the larvae or young.

POLLUTIONS

A very adequate answer to the question of why fishing in this State is not better is in the word "pollution." There are now many

streams, which, on account of pollution, produce only a small proportion of the fish life of which they are capable. Our Board fully recognizes the claims of the industries of the State in respect to their relation to the prosperity of the community, but it does not and will not lose sight of the fact that there are successful methods of disposing of industrial waste without destroying the value of streams to produce food for the people.

It appears that the State Board of Health has no jurisdiction in the territory covered by the Passaic Valley Sewage Commission, but we understand that with the completion of drains in the Passaic Valley district, which is expected shortly, that the Passaic Valley Commission will take vigorous steps to prevent pollutions in its district.

While it would appear from the reading of our fish and game laws that we could take effective steps in the matter of pollutions, yet legal proceedings have shown that our laws do not fully meet the situation. With this in mind the Board approved of the following bill "with teeth in it," which was introduced in the Legislature, but which met with defeat:

"It shall be unlawful for any person or corporation to put or place in any of the waters of this State any drug or any poison bait or to allow any dyestuff, coal or gas tar, coal oil, sawdust, tan bark, cocculus indicus (otherwise known as fish berries), lime, vitriol or any of the compounds thereof, refuse or trade waste from gas houses, oil tanks, tanneries, or any factory or business establishment, or any deleterious, destructive or poisonous substances of any kind or character, to be turned into or allowed to run, flow, wash or be emptied, or find its way, into any of the waters of this State in quantities destructive of life or disturbing the habits of fish inhabiting the same, or injurious to the propagation of fish therein, or destructive of fish food of any kind or character therein. Any person violating any of the provisions of this section shall, on conviction thereof, be subject to a penalty of five hundred dollars."

The Board investigated several cases of pollution during the year, and took such steps as were possible, and while no convictions were obtained we believe that good results followed our investigations. In one case laid before the Attorney General, he declined to prosecute for the lack of sufficient evidence; in another case where the Board desired to make a test case, it appeared that our experiments at the Hatchery with water taken from the polluted streams, did not bear out a claim made that the polluted water at the time was detrimental to fish life.

In connection with a complaint to the State Board of Health respecting a complaint against the Chemical Works of America, we learned from that Board that they had inspectors at the place in the week of October 22nd, that the company's disposal plant was

working effectively, and that the inspectors found a large amount of algae coming into the river, and it is believed that the algae caused the death of a number of fish.

There were a couple of cases where containers or pipes of factories broke and polluted the waters, but no prosecution was brought inasmuch as it appeared clearly that they were accidents beyond the control of the owners, and the defects were immediately repaired.

We frequently have complaints of dead fish being found in fresh waters, and the first explanation given generally is that their death was caused by some pollution. However, experience shows that fish frequently die in large numbers due to purging of the water or an excess of algae in the waters. In this connection, it is interesting to learn that the Fisheries Biological Station at Fairpoint, Iowa, conducted an investigation on a serious mortality of fish in various Minnesota lakes during the summer of 1921. It was concluded from the observations made that the mortality arose from insufficient oxygen supply due to the exceptionally hot, dry and calm summer with low oxygen absorption in the surface of the water and poor distribution of the absorbed oxygen by wave action.

Complaint was made that a large number of fish had died in the early summer in the South Branch of the Raritan river, and two sources of pollution, a paper mill and an iron works, were suspected. Our warden service in connection with the State Board of Health took up the matter. It appeared that in May the Taylor-Wharton Iron Works at High Bridge suffered a leakage in their oil pipes and a great quantity escaped into the river, causing the company a loss of several thousand dollars. The company immediately repaired the break and built pits to gather seepage.

On May 26th the paper mill started to produce paper pulp, and on that date dead fish were noted. It is estimated that the total amount of wash water which escaped to the stream was equal to 27,000 gallons plus a small amount which was used to wash the pulp on the wet machine. The officers did not care to inform the inspector of the character of the chemicals used to remove colors and ink from paper in treatment, except that it was an alkaline solution of the soda family. After the raw material has been treated in the beaters the water is allowed to run through a 65 mesh screen directly to the stream, etc., etc. The estimated dilution is about one in one thousand. The inspection did not indicate the pollution to be serious.

In the inspection of the leakage of oil at the Taylor-Wharton Iron Works, former Fish and Game Commissioner Chrystie, who is connected with the works, informed the inspector that fish were

dying in the stream above the factory, and numerous dead fish were found there. This information would indicate that the death of the fish was due to other sources than either of the two above mentioned factories. Above this point there is nothing located on the river except a small creamery.

The game warden informed the inspector that the river had been very low and that the warden had never seen the river purge worse than during the two weeks before the investigation. The Board of Health inspector says "It is quite possible that this purging of the river absorbed the available dissolved oxygen, although a sample taken at this time indicated a per cent saturation of dissolved oxygen of over 90. However, since the fish died, severe storms followed by a heavy run-off have occurred. It may be that copper sulphate or other chemicals have been used on the upland stretches of the stream in order to clean out mill ponds of algae or vegetable growth and that such a dose has been excessive."

FEDERAL CONTROL OF MIGRATORY FISH

Federal control of migratory birds is an accomplished and beneficial fact, and it is now supported by many who formerly opposed it. The great benefits of the migratory bird act which practically resulted in a restocking of the nation with wild water fowl is now set up as a clinching argument in favor of federal control of migratory fish. The subject has been taken up by leading conservationists and a Migratory Fish Conservation Committee was organized at the Seventh Annual Convention of the American Game Protective Association, with George Shiras, 3rd, of Washington, D. C., as Chairman of the campaign of Ways and Means Committee and Jos. P. Howe, Secretary and Treasurer, Room 2273 Woolworth Bldg., New York City.

The once seemingly inexhaustible supply of Atlantic and Pacific salmon, sturgeon, striped bass, blue fish, white fish of the Great Lakes and other species, is believed to be approaching a vanishing point. It is stated that for all practicable purposes the Atlantic salmon and sturgeon have gone.

In a word, the proposition is for a law controlling migratory fish and for a measure that will provide liberally for present fishing and a rational regard for fishing in the future. Regulations of the various states differ as to the same streams as to size, season and nets. The fish consuming public and sportsmen and the commercial fishermen not blind to the supply of fish in the future, must make themselves felt on the nation's legislators.

Federal control and a treaty with Great Britain will preserve for

this nation a lasting and adequate supply of food and game fish. It would be perhaps the ideal way if the various states could come together and agree, but this has been prevented, it is said, by powerful commercial fishermen's influence in various states who do not desire restrictions other than of their own making.

For many years New Jersey has attempted to have concurrent legislation with Delaware, but after several conferences and considerable communications there was no desirable result. It is difficult for New Jersey to insist on proper restrictions while in the neighboring state everything is wide open.

The catch of white fish in the Great Lakes in 1880 was over 21,000,000 pounds, while in 1917 the catch was but little over 6,000,000 pounds. In New Jersey the decrease in the shad industry over years ago is a matter of common information. The decrease is shown by the following figures:

Decrease in boats and nets in 1921 over 1920	40.	
Decrease in men engaged same period,	42.	
Decrease in number of shad caught in same period,		23,622
Decrease in value of shad caught in same period,		\$59,985.
Decrease in value of nets and boats used,		\$38,950.

Our population is growing, our fish supply is decreasing.

Mr. Joseph P. Howe, Secretary of the Migratory Fish Conservation Commission, well says that at a conference called by Secretary of Commerce Hoover, Washington, D. C., June 16, 1921, in which our Board was represented, the opinion was practically unanimous that Federal Government should control by legislation the pollution of water as being destructive of fish and shell fish, but when efficient control and regulation of the fisheries is suggested, at once those who should be most interested in fish conservation cry out illegal, unconstitutional and unnecessary. Mr. Howe continues: "If you are sick whose advice will you take, that of a physician whose interest is in a live man or of an undertaker whose financial interest is in the dead."

FOREST FIRES

While our Board has no jurisdiction in the matter of forest fires, yet the subject is closely related to cover for game and stream supply, and our wardens made reports to Protector J. M. Stratton on the extent of the spring fires in their territories.

The fires devastated some of the best game cover in Sussex, Morris, Passaic, Middlesex, Ocean, Burlington, Atlantic, Cumberland and Cape May counties. One fire warden reported in Burlington county

that he saw as high as six rabbits at one time run out of the fire and run back again and they were undoubtedly destroyed.

Near Chatsworth, an area five miles long and two miles wide considered to be the best deer woods in Burlington county was burned, but it is believed that if any deer were destroyed they were small ones, as the older ones are able to take care of themselves in a fire. It is estimated that nearly one-half of the forests in Ocean county was burned over, and in Atlantic county probably one-half of the area in the mainland was burned.

There is no doubt but that the fires destroyed considerable game such as woodcock, rabbits, and partridges. The fire occurred at the time when partridges were nesting, when rabbits were in the nests and woodcock were barely able to leave the ground.

Following the fire between Farmingdale and Colts Neck on May 15th, seven deer appeared in the town of Allenhurst. One of the does, weighing about 125 pounds, became entangled in a woven wire fence and died from its injuries.

No longer in the minds of the public is there any question as to the value of support of laws to safeguard our forests, as the products of the woods reach out in every avenue of civilization. Every sportsman should look upon every tree as his friend.

Almost half of New Jersey, two million acres, is forest land. A preliminary check by the Department of Conservation and Development, Forest Bureau, which is in charge of Mr. C. B. Wilbur, showed that there were 94,000 acres burned over with the loss of \$360,000. in April and May.

For many years we have carried on our fish and game folder, "Every forest fire destroys a game cover; be sure not to cause any."

Mr. Wilbur forcibly sums up the situation as follows:

"Game feeding and particularly game cover is intimately dependent upon the maintenance of woodlands. Good fishing streams depend upon an adequate, sustained supply of water and on its condition, and stream flow is largely regulated by the cover on the watersheds. Woodlands check erosion, they provide a surface sponge to hold back the water as it falls. They retard surface evaporation; they therefore are an indispensable ally of the man who loves a rod or gun, and they have one implacable, ever present enemy which the sportsman must help conquer; this is fire."

ORGANIZATION

The Board held its organization meeting December 20th and re-elected Commissioner Napier as President and Commissioner Boulton, as Treasurer, and Commissioner Burlington, Acting President, to serve during the absence of the President.

At the meeting held April 11th, Wm. A. Faunce, of Atlantic City, Atlantic county, who served as a member of the Board from November 1911 to November 1919, appointed to succeed Commissioner Jasper Lynch; Lewis Spinks of Jersey City, Hudson county, who had been appointed to succeed Commissioner Robertson S. Ward; and Dr. Charles F. Hunter of Palisade, Bergen county, who had been appointed to succeed Amos H. Radcliffe of Paterson, Passaic county, in accordance with chapter 96, Pamphlet laws of 1917, appointments to be for five years, dating from March 23, 1922, (that is immediately after midnight of March 22nd) were present, and each stated that he had qualified as Commissioner by taking the oath of office, which had been filed with the Secretary of State. The appointments were made by Governor Edwards.

The records of the Secretary of State show that Hon. Harry T. Hagaman, of Lakewood, was appointed by Governor Edwards to succeed Ernest Napier, whose term of office will expire November 26th, 1922, (immediately after midnight of the 25th).

At the meeting at which the new Commissioners appeared, President Napier appointed the following committees:

- Hatchery Committee—Commissioners Phillips-Boulton.
- Game Farm Committee—Commissioners Phillips-Burlington.
- Boats Committee—Commissioners Phillips-Faunce.
- Automobiles Committee—Commissioners Burlington-Spinks.
- Prosecutions Committee—Commissioners Hunter-Spinks.
- Legislation Committee—Commissioners Burlington-Hunter.
- Finance Committee—Commissioners Boulton-Faunce.
- Branch Game Farm Supplies Committee—Commissioners Phillips-Burlington.

The counties were allotted for direct supervision by the Commissioners as follows:

- Commissioner Napier—Warren, Union and Ocean.
- Commissioner Phillips—Mercer, Burlington and Monmouth.
- Commissioner Boulton—Morris, Somerset and Hunterdon.
- Commissioner Burlington—Hudson, Bergen and Sussex.
- Commissioner Faunce—Atlantic, Cape May and Cumberland.
- Commissioner Hunter—Essex, Middlesex and Passaic.
- Commissioner Spinks—Camden, Gloucester and Salem.

GAME REFUGES

The Board renewed, on October 3, 1921, a five years' lease with the Rossiter Realty Company, for the Worthington Game Preserve of 5,000 acres known as Buckwood Park in the townships of Knowl-

ton, Blairstown and Pahaquarry, in the county of Warren, in accordance with the act of March 31, 1916, entitled "An Act providing for the establishment of game refuges by the Board of Fish and Game Commissioners, and for the protection of game in such refuges," at a rental of \$1. for the term of the lease. Our Board has full control of the property which enables us to put into effect any experiment for the preservation, protection and security of game within its boundaries, subject to minor stipulations which in no manner affect the property as a game refuge. It is agreed that no game shall be killed by lessor or lessee, and the Board has the right to capture and remove alive to any other place in the State such game birds and game animals as in their judgment shall be deemed advisable. The lessor at his own expense erected and maintained a wire fence, and the Board had signs erected calling attention to the fact that the land was State land and trespass was forbidden.

In accordance with the act for the establishment of game refuges, the Board took steps to lease from the estate of Amy H. Green about 900 acres, situated in Ringwood Manor, Pompton Township, Passaic county, and from Eleanor G. Hewitt and Sarah Cooper Hewitt about 600 acres, similarly located. These leases give the Board the right to plant and take fish from the waters by net for the purpose of stocking other streams in the State.

PUBLICITY

Continued development of interest in hunting and fishing in New Jersey is indicated by the increased number of newspapers which are conducting an outdoors page or section with special attention devoted to fish and game. This applies to many weekly newspapers as well as to the dailies. News bulletins from the Commission and special articles dealing with the interests of New Jersey sportsmen have had wide circulation. It is interesting to note that the editorial comment on fish and game development in the state has been universally favorable.

Numerous exhibitions have been made of the moving pictures, showing activities at the Game Farm and Fish Hatchery. Letters from the exhibiting clubs and other organizations have indicated the interest with which these subjects were viewed. The fact that the Commission is arranging hereafter to loan these reels to responsible parties, without cost except for transportation, presages a wide showing of the films during the coming year.

The Board made a second distribution of posters entitled "Cats," asking the public to make certain that cats were controlled during

the breeding season from May 15th to August 15th, and also of a poster which read as follows:

HUNTERS AND FISHERMEN

The man who violates the
FISH AND GAME LAWS
is cheating YOU.

Help us to educate him, or
to punish him if he is
a wilful offender.

New Jersey Fish and Game Commission.

HELP EXTERMINATE THE BIRD KILLING CAT.

Every destructive insect is on
the bill-of-fare of one or more
of our native birds.—United
States Department of Agriculture.

Every native bird that destroys
insects is on the menu of our
New Jersey cats.—New Jersey
Fish and Game Commission

The wardens were furnished with a number of linen posters which read as follows:

WARNING TO DOG OWNERS

It is unlawful for any owner,
lessee or custodian of any dog
to permit such dog to run at
large in woods or fields, ex-
cepting during the open sea-
son for quail and rabbits, un-
der penalty of \$20. for each
offense.

The wardens have been
instructed to enforce this law
in every locality.
Fish and Game Commission

There were issued 15,000 books giving the fish and game laws, and 100,000 folders giving summary of laws.

The Board had 5,000 circulars printed showing the stocking of the streams of the State for the fiscal year ending June 30, 1921, which were greatly appreciated by the fishermen.

RECEIPTS, LICENSES, FINES, ETC.

The amount received by the State Treasurer during the fiscal year on account of the Hunters' and Anglers' License Act of April 9, 1914; also act of April 14, 1915, was \$176,054.43.

The aggregate of fines collected for violations of the fish and game laws amounted to \$16,080.80.

For licenses to steamers and sailing vessels to take menhaden with purse nets within the three-mile limit of our coast during the fiscal year there was received \$5,350. For the calendar year ending December 31, 1921, there were 23 steamers and 22 sailing vessels licensed to take menhaden.

On account of licenses for the operation of fish pounds in the Atlantic Ocean and Sandy Hook Bay the receipts during the fiscal year were \$6,130. For the calendar year ending December 31, 1921, there were 152 licenses granted, 113 for the Atlantic Ocean and 39 for Sandy Hook Bay.

Under the law prohibiting aliens to be possessed of firearms, 54 guns were confiscated. The proceeds from the sale of guns were \$177.

Under the law, which allows a citizen above the age of 10 years and below the age of 14 to hunt when provided with a special license, and when accompanied by a holder of a regular license above the age of 21 years, there were 48 licenses issued for the fiscal year the proceeds being \$48.

There were 1,176 foxes reported killed during the fiscal year in the various counties.

President Napier and Commissioner Boulton carefully supervised the making of the budget for 1922-23, which was laid before the Governor and approved by the Committee on Appropriations of the Legislature without change. By reason of the fact that the Board lives upon its receipts, and the fact that at certain times the receipts are larger than others, it has appeared in the past at the close of business of the fiscal year the Board has had a large cash balance on hand at that time, but there must be deducted from the cash balance on hand the amount of requisitions outstanding against the same.

Still more there must always be money enough on hand in case of opportunity to purchase a large quantity of game.

At the close of the fiscal year ending June 30, 1921, the cash balance in the State Treasury was \$74,411, but subject to about \$8,000 requisitions and orders outstanding, and our receipts in the first few months of the fiscal year are small. Referring to this cash balance, we beg to say that from July 1st to October 9th, it was necessary to take out requisitions amounting to \$91,176.34, while the receipts during the period were but \$35,990.27. Included among the requisitions taken out was \$7,050.00 for the purchase of fish and \$6,562.00 for fish eggs.

FORD CARS MOTORCYCLES, SMALL BOATS

New Ford cars were supplied as follows: Howard Mathis, Assistant Protector, Atlantic City; Wardens—John J. Park, Hunterdon county, William E. Young, Morris county, and John F. Cox, Warren county.

Ford cars are operated by the following:

Assistant Protectors—Howard Mathis, Atlantic City, Atlantic county and Harry E. Cudney, Hackettstown, Warren county.

Wardens—Otis C. Small, Hammonton, Atlantic county; Wm. H. Small, Englewood, Bergen county; Charles C. Morton, Mount Holly, and Howard Z. Mathis, Jr., New Gretna, Burlington county; William Steel, Cape May Court House, Cape May county; Fred S. Conner, Bridgeton, Cumberland county; Fred J. Hall, Bloomfield, Essex county; John J. Park, White House Station, Hunterdon county; Arthur Davison, Asbury Park, Monmouth county; William E. Young, Chester, Morris county; James H. Evernham, Toms River, Ocean county; Wm. C. Klein, Clifton, Passaic county; Thomas Kelley, Jersey City, Hudson county; Michael Bobera, Trenton, Mercer county; Gervas I. Hall, Salem, Salem county; Jacob D. Roe, Newton, Sussex county, and John F. Cox, Washington, Warren county.

Superintendents—Charles O. Hayford, two cars, Hatchery, Hackettstown, Warren county; Duncan Dunn, two cars, Game Farm, Forked River, Ocean county.

Warden Charles C. Morton, Mount Holly, Burlington county, also operates a motorcycle.

New boats purchased:

Canoe to be used in streams in Sussex county. Power boat "Jim" for waters of Atlantic county.

Small power boats were operated by the following wardens:

William B. Loder, Egg Harbor City; Atlantic county; William H. Small, Englewood, Bergen county; William Steel, Cape May Court House, Cape May county; Fred S. Conner, Bridgeton, Cumberland county; Anson J. Rider, Tuckerton, Ocean county; James H. Evernham, Toms River, Ocean county; Jacob D. Roe, Newton, Sussex county, and Arthur Davison, Asbury Park, Monmouth county.

Row boats are in use at the following places: One boat, equipped with an Evinrude motor, on Budd's Lake; one on Lake Hopatcong; one on Greenwood

Lake, and two are in service when netting is being done in reservoirs, one being equipped with an Evenrude motor; one at the Hatchery; one at the Farm, and a canoe in the streams of Sussex county.

Three Garford trucks and one International truck are stationed at the Fish Hatchery for distribution of fish, etc., and one International truck is used at the Game Farm.

During the year we equipped our Ford cars and trucks with hubometers with a view of having a check of mileage on the wear of tires.

POUNDS

Following is a summary of the pound fisheries' report for the year ending December 31, 1921:

Approximate value of all pounds.....	\$832,635.10
Proceeds derived from sale of fish.....	\$1,177,816.82
Number of pounds of fish caught and disposed of.....	43,333,347
Licenses issued:	
Atlantic Ocean.....	113
Sandy Hook and Raritan Bays....	39
Number of pounds operated.....	151
Number of men employed.....	687

PROSECUTIONS

During the fiscal year there were 767 prosecutions. Of this number 751 were convicted, 15 acquitted and one case is still pending. Twenty of the defendants were committed to the county jail for periods of 10 to 30 days for nonpayment of fines. By reason of old age, youthfulness, extreme poverty, furnishing warden with information; or other extenuating circumstances, 37 cases were suspended by the defendants paying their costs; 19 cases were appealed to the Common Pleas court; 19 licenses were revoked after the defendants were convicted of violating the act; 1 breeder's license was revoked after conviction of the holder thereof for violating the law; one boy was held for the juvenile court.

During the year there were 54 guns confiscated from aliens.

The above number of prosecutions is 18 in excess of any previous year in the history of the Fish and Game Commission. The greatest number previously recorded was for the year ending June 30, 1921, when there were 749 arrests made.

It is sometimes stated by persons who are not favorable to law enforcement that the wardens do not use good judgment and many unwarranted arrests are made. This statement is not borne out by the above figures as it will be noted that more than 98% of the persons arrested were convicted.

FISH

For list of waters stocked see back of report.

During the fiscal year ending June 30, 1922, the grand total of fish planted was as follows:

FROM THE HATCHERY

Brook Trout Fingerlings.....	2,220,950	
Brook Trout Adult.....	57,740	
Rainbow Trout Fingerlings.....	2,000	
Rainbow Trout Adult.....	57,378	
Brown Trout Fingerlings.....	223,550	
Brown Trout Adult.....	20,640	
Large Mouth Black Bass Fingerlings.....	95,075	
Small Mouth Black Bass Fingerlings.....	6,550	
Perch, fry.....	72,000,000	
		74,683,883

FROM NEW YORK AQUARIUM

White Fish.....	400,000
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FROM TORRESDALE HATCHERY

Perch, fry.....	9,000,000
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FROM BOONTON RESERVOIR AND OTHER PRIVATE SOURCES

Large Mouth Black Bass Adults.....	2,759	
Large Mouth Black Bass Fingerlings.....	118	
Small Mouth Black Bass Fingerlings.....	40,000	
Perch.....	41,748	
Crappie.....	825	
Pickrel.....	965	
Cat Fish.....	5,031	
Bait Fish.....	3,500	
Sun Fish.....	225	
Miscellaneous.....	17,268	
		112,439

Making a Grand Total of fish planted.....	84,196,322
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Favorable winter conditions on the streams and freedom from destructive spring freshets, combined with the greatest restocking program ever undertaken by the State, gave the anglers sport de luxe during the trout season opening April 1.

Ten years ago the Jerseyman who wanted big trout fishing had to seek it in distant western and northern states. The expense put the sport beyond the reach of the average citizen. The Jersey sportsman today, however, can find right at home good trout fishing which we hope to make equal to any state in the country. A decade

ago the native or brook trout was the only species found in New Jersey streams. The angler today can take his pick of brook, brown or rainbow trout, all three kinds having been extensively planted during recent years, with a record distribution during the year. Trout planted by us have ranged in size from fingerlings to larger fish, six to twelve inches in length and ready to furnish immediate sport for the angler. New Jersey's best trout fishing will be found in the counties in the upper half of the state, which contain the natural trout streams. The recent introduction of the brown trout, however, is extending the sport to many of the warmer streams in southern counties.

In conjunction with the Department of Fisheries of Pennsylvania there were planted in the Delaware river 9,000,000 perch fry. These fish were hatched at the Torresdale Hatchery and delivered to Trenton by the Pennsylvania authorities, at which point they were taken in charge by our wardens and planted in the Delaware river from Belvidere to Bushkill, Pennsylvania.

Excellent reports were received from the distribution of 5,000 trout 5" to 7", 30,000 trout 6" to 8" and 15,000 trout 7" to 9" purchased from the Penn Forest Trout Company. In one case, in transporting four loads from Mauch Chunk, liberated in Monmouth county, the longest distance the fish were carried, there was but one dead fish.

In May the Board placed an order for delivery, late in the year 1922, for 10,000 7" to 9" brook trout, and 20,000 6" to 8" brook trout.

PATROLLING WATERS

The State launch "New Jersey" patrolled the Atlantic ocean and Delaware Bay and river to look after menhaden steamers, beam trawls, lobster fishermen, and for the enforcement of the law respecting the use of nets, and the boat "Amos" patrolled Sandy Hook and Raritan Bay and down to Toms River to look after persons engaged in catching lobsters, etc. In several cases lobstermen enroute from their boats to the Highlands and other places have thrown lobsters overboard when they saw the "Amos" chasing them.

We continued the effort to break up the sale of undersize lobsters and there were several arrests and convictions, and it is believed that violations of the lobster law are now reduced to a minimum.

The crew of the "New Jersey," assisted by wardens in small boats paid particular attention to the lower part of the Delaware Bay to see that the new law which provides that persons using a 50 fathom gill net shall have the meshes not smaller than 3½ inches. The former law permitted the meshes of nets to be 2¾ inches. There were many nets being fished but no violations were found. The fish caught were of a much larger size by reason of the larger mesh.

Some of the fishermen stated that the fish caught in the small mesh nets on the Delaware side of the Bay brought from \$2.00 to \$4.00 a barrel, while the fish caught on the Jersey side near Port Norris in the larger mesh nets brought from \$8.00 to \$20.00 a barrel.

The Board purchased for use in Atlantic county at the cost of \$1100.00 a 28 foot gasoline power boat, named "Jim." It was found necessary to have a boat of greater speed than the boat which was in use, inasmuch as those likely to violate the law had vessels which could outspeed the old boat. The old bank skiff "Bill" was disposed of for \$350.00.

BASS, PIKE, PICKEREL

It is with great pleasure that the Board learned from fishermen that black bass are again thriving in fairly fine numbers in the Delaware river between Trenton and Easton. Prior to last year, for several years, bass in these waters had almost become extinct, and pollution was held to be the chief cause of their scarcity.

For many years there has been an insistent demand that the bass and pickerel season shall open on the same date. It was a common experience for fishermen in taking pickerel to hook bass, which under the law should not be retained. The pickerel season has been opened in the past about 25 days before the bass season. There is no doubt but that a large percentage of the bass returned to the water died. It further appeared that up to the 15th of June the bass were on their spawning beds and the destruction of the parent bass prevented thousands of small bass from reaching maturity.

A bill opening both the bass and pickerel season the same date became a law, and the effect will be carefully noted. On the other hand the claim is made that pickerel are in great abundance in our streams and that they prey on other fish and that they should not be further protected in the interest of conserving the bass, as this protection will so increase their numbers as to make them a real menace to the bass.

SURVEY OF STREAMS

The Board ordered continued the work of the biological survey of the streams of the State.

Application was made to the Board by the Commissioners of Palisade Interstate Park for fish for stocking waters in the Bear Mountain-Harriman section of the Park, inasmuch as a large number of New Jersey residents fished in these waters. The Interstate Park Commissioners stated that there were no waters in the New Jersey section of the park suitable for fishing except the Hudson river.

The Board did not see its way clear to stock the waters which were within the jurisdiction of New York, as it was believed that it would be unwise to furnish fish for stocking waters outside of the State.

SUNDAY FISHING AND LICENSES FOR DELAWARE RIVER

Our Board is not authorized by law to make prosecutions in the case of angling on Sunday, and we are informed by N. R. Buller, Commissioner of Fisheries, Harrisburg, that when residents of his state made inquiry as to fishing on Sunday on the Delaware river they were advised that the law governing fishing in the Delaware river makes no provision covering Sunday fishing with rod, hook and line, other than their act of April 22, 1794, known as the Sunday law.

No license is required by New Jersey to fish in the Delaware river throughout its entire length, nor in tide water, and following the passage by the Pennsylvania legislature of an act providing for fishing licenses from citizens of Pennsylvania, we made inquiry as to the attitude of Pennsylvania respecting licenses and the Delaware river. Commissioner Buller wrote as follows:

"As to a license would state that under the Resident Fishermen's License Act which was approved the 16th day of May 1921, effective January 1st, 1922, all citizens of the State of Pennsylvania, male or female, over twenty-one years of age must take out a license to fish or angle in the waters of this commonwealth or in the waters bounding or adjacent thereto. This includes the Delaware river and Lake Erie. The Department therefore requires that all citizens of the State of Pennsylvania must secure a license before fishing in the Delaware river.

"As to residents of New Jersey, we have advised that they could fish in that portion of the Delaware river which lies between the states of Pennsylvania and New Jersey without a license but if they landed on the Pennsylvania shore and fished, then they would have to take out a Nonresident Citizen's Fishing license, the cost of which is \$5. dollars.

"The above information covers only the Delaware river and would have nothing to do with the tidal streams emptying into the Delaware or any of the inland waters."

KINGFISHER

With the increased stocking of our streams complaints were received that numerous kingfishers were thriving on our fish, and we ascertained that the kingfisher was not protected under the Migratory Treaty Act or the act to give it effect, and a bill was introduced in the Legislature removing the bird from the protected list in which classification it had been for many years. While there were some arguments objecting to removing the kingfisher, yet the facts were so much against continuing the protection of the bird that the bill became a law. It was shown that one kingfisher caught in this State contained the remains of 13 of our small native brook trout, and

the bird was of no value to agriculture inasmuch as it does not feed on insects of any kind. It was also found that other states did not protect the kingfisher, as he is greedy for the finest trout and other edible fish, operating remote from habitation where he would take more fish each day than the average fisherman.

PROTECTION TO SHAD FISHERMEN.

The Board took up with the U. S. Engineers Department, New York City, a complaint of shad fishermen that boats of a towing line ran into their nets and stakes in the Hudson river between Englewood Ferry and Shadyside. It appeared from information received from the Engineers' office that the nets in the Hudson river were without authority of law as far as the U. S. Engineers' office was concerned and that there was no legal redress against parties that may damage or destroy nets which were without legal status. The U. S. Engineers suggested that the shad fishermen apply for legalization of their fishing operations by securing permits next year. We took up the matter also with the towing company, who requested that we report to them specifically instances of any future trouble as it was their wish that the operations of their tugs should not interfere with other legitimate river enterprises.

FISH HATCHERY.

Charles O. Hayford, Superintendent of the State Fish Hatchery at Hackettstown, in his tenth annual report for the year ending June 30, 1922, says:

"The output of the Hatchery for the past fiscal year is shown by the enclosed tabulation.

	Raised July 1, 1921 to June 30, 1922	Disposed of	Estimated number on hand
Lake trout 2-6.....	25,000		25,000
Brook trout 1.....	437,000	437,000	
Brook trout 2-4.....	1,843,950	1,783,950	60,000
Brook trout 5-10.....	64,740	57,740	7,000
Brown trout 2-8.....	393,550	223,550	170,000
Brown trout 6-10.....	22,640	20,640	2,000
Rainbow trout 1-2.....	252,000	2,000	250,000
Rainbow trout 4-8.....	100,000		100,000
Rainbow trout 6-12.....	57,378	57,378	
Large Mouth Bass fing.....	195,075	95,075	100,000
Small Mouth Bass fing.....	56,550	6,550	50,000
Yellow Perch fry.....	72,000,000	72,000,000	
	75,447,883	74,683,883	764,000

"Fair Exhibits Fish exhibits during the past year were given at the Interstate Fair, Trenton; Mount Holly Fair at Mount Holly; Morristown Fair at Morristown, and at the State Poultry Growers Association, Newark.

"Farm Crops. Harvested and threshed 35 bushels winter wheat, 275 bushels buckwheat, 75 bushels oats, 20 tons corn, 20 loads of hay and 400 tons ice.

"I attended the annual convention of the American Fisheries Society held at Allentown, Pennsylvania.

"During the year there were about 25,000 visitors to the Hatchery.

"There were purchased from the Penn Forest Brook Trout Company, 50,000 brook trout from 5 to 9 in. These trout were distributed in large natural brook trout streams and are included in above table.

"Construction Work. Bass Lake No. 4, \$3,000. State House Commission Permission, dated January 22, 1921, was completed in time for operation November 1st.

"\$900. Board Permission for building flume, two bridges and grading. Completed June 30th.

"700. Board Permission for repairs on assistant superintendent's residence. Completed November 1st.

"\$10,797, State House Commission Permission work granted May 11th, described in last year's report was completed on June 30th, and has provided a very valuable asset. With the new machinery installed we are enabled to do all wood and automobile work with our own men, permitting a very substantial saving in both time and money.

"At the March meeting the Board granted \$300. permission for the construction of six small rearing ponds for raising insects for bass food in the summer time and fingerling trout in the early spring. This work was finished June 30th.

"State House Commission Permission \$8,400. granted for work next fiscal year will permit the development of five large springs which will fill a 12 in. pipe with pure 52° spring water, constant, besides enabling us to build nine additional brook trout ponds, 8 ft. wide 3 ft. deep, and 100 ft. long each, and two new bass lakes. This work will enable us better to control all bass ponds during the heavy rainy periods which cause an undesirable amount of turbidity. The first month of the young bass is the most vital period; after they attain the size of 1 inch or over, the greatest destruction occurs through cannibalism.

"Bass. During the year interesting and valuable methods have been introduced in the artificial propagation of aquatic insects for food for young bass. Heretofore we were not able to get food in sufficient quantities to raise bass after they had become 1¼ inches long. This food shortage began to occur about July 1st. Although this has been a very unusual year due to the continuous rain we had no difficulty in securing food in quantities large enough to feed our fingerling bass regularly two and three times a day. This additional food with the natural food in the ponds, permitted rapid growth with much less cannibalism than in the past.

"Next year's output of fingerling bass will not be as large as hoped for, due to the unusual long period of hatching, which resulted in those that hatched first getting a start on the later hatch. Those that hatched first are now two inches long, where the late hatch are only ¾." This great variation encourages cannibalism.

"Fish Disease. May 15th we had an epidemic known as furunculosis appear in small brown trout fingerlings 2 to 3 inches long. These fish were immediately transferred to the coldest spring water ponds, as this disease is not generally

very virulent in cold spring water of 55 degrees F. Every precaution was taken with these diseased trout in order to prevent spreading to other species. The advantage of having our hatchery ponds in 17 independent lines can be realized when we get trouble similar to above."

GAME-FARM AND BRANCH FARMS.

Duncan Dunn, Superintendent of the State Game Farm at Forked River, in his tenth annual report says:

"I hereby submit my yearly report for the fiscal year ending June 30th, 1922, together with a report of the Burlington County and Monmouth County Game Farms.

"During the year the following improvements were made at the State Game Farm.

"A new brick absolutely vermin proof feed room 20' x 50' was built.

"New shipping crates were built to replace the old ones, which were in such poor condition it was impossible to repair them.

"A new pen 900' x 300' was built to be used as a breeding pen, so as to be able to keep a larger number of breeding pheasants to supply eggs to the Branch Game Farms.

"The hatching house was moved from its old foundation to a new location, a distance of 1000 ft. so as to get it away from any noise around the barn which disturbs the hens and causes them to break some of the eggs. An addition of 40 ft. was added to this house, greatly enlarging the capacity.

"The stumps have all been dug out and carted away from ground which we have been clearing for another new pen.

"All the rearing coops, hatching boxes and feeding boxes were repaired, and 30 new hatching boxes, 30 new feeding boxes and 100 new rearing coops and 200 new bottom boards were built.

"Fifteen hundred feet of new water troughs were made and put in the pens to replace the old ones which had rotted through. Several hundred loads of dirt were carted to grade up around the new feed house and the hatching house.

"The old house which we used for feed, was moved to a new location and converted into a chicken house.

"The Game Farm now consists of 537 acres of land divided approximately as follows: 300 acres of woodland, 150 acres of meadows, 54 acres under cultivation, 18 acres of building and grounds, 10 acres not cultivated, 4 acres of orchards and one acre of truck.

"The usual work of preparing the equipment for the rearing of game was done, such as dipping coops, frames and bottom boards, placing sods in hatching boxes, disinfecting incubators, etc.

"Ten tons of hay and 1500 bushels of corn were harvested and two car loads of ice were carted from the depot and stored in the ice house.

"Fourteen acres of barley, 6 acres of millet and 4 acres of buckwheat were planted this spring.

"We had exhibits at Mount Holly, Morristown and Trenton Fairs, and at the Newark Poultry show and at the annual meeting of the New Jersey Conservation League, Newark, and they proved very popular.

"There were set at the Game Farm this spring 14,000 pheasant eggs and 125 wild turkey eggs, and 1800 pheasant eggs were sent to the Branch Farm

in Burlington county and 1500 pheasant eggs to the Branch Farm in Monmouth county.

"There were 9500 young pheasants and 75 young turkeys hatched at the State Game Farm. The record of pheasants follows:

"Birds on hand July 1, 1921.....	720	
Birds purchased and cared for.....	2,450	
Total Farm mature birds raised.....	4,973	
Estimated number of young birds on hand June 30th, May hatch.....	6,500	
		14,643

Farm birds liberated.....	4,793	
Purchased birds liberated.....	1,926	
		6,719
Purchased birds, dead and escaped.....		280
		6,999
Estimated number of young birds on hand June 30th, 1922, May hatch.....		6,500
Estimated number of breeders on hand June 30th, 1922.....		1,144
		14,643

"There were 20 wild turkeys liberated on order of the Board. I have on hand now 15 old turkeys, 125 mallard ducks, 800 chickens, 3 wild geese and 18 pheasants—golden, silver, Amherst and Reeves.

"During the year the following vermin were killed: 42 hawks, 25 owls, 24 opossum, 51 cats, 97 crows, 2 foxes and 1300 rats.

"The Farm Superintendent with Messrs. Donald MacVicar and Adam Scott introduced the ring-neck pheasant in the United States in 1887 (at the Tranquility Game Farm, Allamuchy, N. J., and it appears from the records of the U. S. Department of Agriculture that our State Game Farm was the third State Farm in the United States to be successfully operated.

"There is no doubt but that the pheasant is now thoroughly established in this State from stocking done from the Farm.

"It has been found that the pheasant destroys the Japanese beetle, efforts to check which by spraying, so far not having been successful.

"Despite the hard shooting of the increased number of gunners, there were plenty of breeders left over.

"Since the Farm was established 9524 vermin have been destroyed, including 6880 rats, 1036 crows, 448 Cooper's hawk and sharp-shinned hawk, 461 great horned owls and 399 cats.

"The Legislature has visited the Farm 5 times, and other visitors have numbered about 20,000 since the Farm was established.

"The total output of the Farm since 1912 in round numbers was 120,000 pheasant eggs, 40,000 pheasants, 1,000 quail, 152 rabbits, 42 deer, and 62 wild turkeys. It is estimated that the value of the above if sold would be \$160,000.

"We have constructed 30,400 linear feet of Knox fence, about 6 miles, around the farm 8 feet high, the wire on this fence being placed 3" apart for the first

3 ft. to keep out dogs, and gradually getting wider apart toward the top. We have also built 10,500 linear feet, about two miles, of Knox fence 4 ft. high along the driveway and down on the meadows.

"There are 6 large covered pens, constructed as follows: Boards for three feet above the ground and 4 ft. 1" mesh wire above the boards, making the pens 7 ft. high and covered over the top with 2" mesh wire; wire is also placed 18" in the ground to keep out vermin. These 6 pens cover 350,510 sq. ft. of ground. The above is equal to 140 city lots 25 x 100 ft.

"We also have 1,000,000 sq. ft. of open pens constructed as follows: 1" mesh wire 18 in. in the ground and 3 ft. above the ground and 4 ft. 2" mesh wire above that. The above is equal to 400 city lots 25 x 100 ft."

BURLINGTON COUNTY BRANCH GAME FARM

Charles C. Morton, Superintendent, and William A. Fenimore, Keeper, of the Branch Game Farm at Mount Holly, Burlington county in their second annual report under date of June 30, 1922, report:

"We beg leave to report on the operation of the Branch Game Farm which is located near Mount Holly, and is operated by the Burlington County Game Protective League, Incorporated, in accordance with the act of April 5, 1920. This report covers the fiscal year ending June 30th, 1922.

"This farm is located along the Rancocas creek near Mount Holly and contains forty-two acres of land, about twenty of which are enclosed with a six foot wire fence; it has a fairly good dwelling house and barn and other buildings necessary in the raising of game.

"We liberated from the Branch Game Farm four hundred and forty-one pheasants, as follows: Burlington county 331, Mercer county 104 and Morris county 6.

"We were visited by a colony of weasels during the first week in July and they killed about one hundred birds for us besides several bantams which were in the field with young birds. We managed to kill eight and have not seen one since that time.

"We have on hand at the present time besides the young birds one hundred and twenty-five bantams, twenty mallard and black ducks, three Canadian geese, golden silver and Amherst pheasants, five wild turkeys and a few California quail.

"During the year we have made the following improvements: Built new hatching house with cement floor, made so it would be as cool as possible; moved bantam house and rebuilt it; new side porch on house; cement walk around house; plowed and sowed and limed four acres in grass; mowed four tons hay for use of horse.

"We have killed during the year 90 rats, 6 cats, 1 opossum, 8 weasels, and 40 crows.

"We also furnished birds to help with the exhibits at Mount Holly and in the Armory at Trenton, which seemed to be the leading attraction at both places."

MONMOUTH COUNTY BRANCH GAME FARM.

William Hair, Game Keeper of the Branch Game Farm, P. O. Freehold, express Farmingdale, in his first annual report under date of June 30, 1922, reports:

"I hereby submit a report of the activities of the Branch Game Farm located in Howell Township, Monmouth county and operated by the Monmouth County Sportmen's Association in accordance with the act of April 5, 1920.

"The report covers a period of two months, May 1st to June 30th, 1922.

"The farm consists of 92 acres, of which there are approximately 50 acres of cleared land and the balance in woodland. On this farm there is a dwelling house, which has been shingled; also there is a barn and a hatching shed.

"We have built 100 each of rearing coops, feed boards and bottom boards; 13 hatching boxes and 6 feeding boxes. The Board of Fish and Game Commissioners supplied the material for these, and they were built by men hired by the Monmouth County Association. The Fish and Game Commission also supplied 8 rolls of ½ inch mesh wire to enclose the rearing field.

"As soon as the hatching boxes were ready I received 1500 pheasants eggs from the Game Farm at Forked River, which I set under hens that I had ready; 1000 young pheasants were hatched.

"During the two months I have killed 5 hawks, 2 owls, 6 cats and 10 blacksnakes."

BRANCH GAME FARMS.

Acting for the Board, Superintendent Dunn of the State Game Farm made an inspection of property in Morris county respecting its suitability for the establishment of a branch game farm in that county, the superintendent approving of a farm located about three miles from Morristown, known as the David Guerin property. No further action has been taken.

On April first the Board leased from the Monmouth County Fish and Game Association a farm of about 50 acres in the township of Howell, Monmouth county, lying on the east side of the public road leading from Grandins Hill to Farmingdale and on the south side of the public road leading from North Farmingdale to Joel Rayneirs, now Abram Shack, as a Branch Game Farm under the law of April 5, 1920, which provides that the Board of Fish and Game Commissioners may acquire by lease lands in any county of the State for the purpose of raising game birds and game animals thereon. Morris H. Ittner is President and George D. Hendrickson, Secretary. The lease is for one year.

The establishment of these branch game farms is more or less of an experiment, yet the results already obtained at the Branch Game Farm at Mount Holly indicate that they will provide excellent sources for the production of game.

The Board continued the lease with the Burlington County Protective League, Incorporated, for operation of the Burlington county branch game farm, and its operations during the year will be found in another part of the report.

GAME

There was a total distribution in the State of 7271 pheasants, 6,719 being liberated from the Farm, 111 direct from dealers and 441 from the Mount Holly Branch Game Farm. There were also 20 wild turkeys liberated.

In the distribution of pheasants in March there were more male birds than female, and each warden was instructed to liberate a number of male birds where females were known already to be.

There was a sentiment for repealing the closed season on female pheasants, but the Board was against the movement. There is no doubt that under the law which has been in existence for several years, giving protection to the female, that pheasants have bred and multiplied in many places, and the present law gives general satisfaction to the hunter.

On the whole there was a very satisfactory season for upland game in 1921, and in some respects it was remarkable for the amount of game taken.

Woodcock. The woodcock season according to the wardens' reports was not up to former years throughout the State; owing to the dry weather the birds did not stop in the State, and by reason of the warm weather they did not make their flight until late. However, in Bergen, Burlington, Camden, Monmouth, Ocean and Somerset counties, more were killed than in former years.

Duck. Ducks were reported more plentiful than in former years in Atlantic, Bergen, Burlington, Cape May, Camden, Cumberland, Middlesex, Ocean and Salem counties.

In Essex, Passaic and Morris counties where the shooting is principally black and mallard ducks, the dry weather interfered with the number of ducks on the meadows where shooting is found in these counties.

There is no doubt but that the increase of ducks last year and in former years was due to Federal regulations prohibiting Spring shooting, and also due to the Federal regulations many black and mallard ducks are nesting in the State, and the woodduck is largely on the increase.

UPLAND GAME

Quail were plentiful in the southern part of the State, but very scarce in the northern part.

More than the usual number of ring-neck pheasants were killed throughout the State.

It is safe to say that more rabbits were taken than in former years, but only a few were reported killed in Middlesex and Passaic counties.

The reports indicate that the number of ruffed grouse is largely increasing. A few years ago ruffed grouse had become almost exterminated in the State.

A few Hungarian partridges were killed in Somerset county but during the winter several coveys were found and fed in Hunterdon county. There are also a few Hungarian partridges left in Salem county.

FEEDING GAME.

In the latter part of December a circular letter was sent to each warden advising him that if the snow was in such condition in his county as to make the feeding of birds necessary he should make every effort to locate and feed as many birds as possible and to enlist the cooperation of farmers and sportsmen in the work. A storm in December was severe in the southern part of the State and in some counties it was from 15 to 18" deep with drifts of 5 feet deep. There were many places, however, where the ground was bare and the birds could get feed and gravel, and as the snow melted soon after the storm, the birds did not suffer. In the northern part of the State the snow was not so deep. Generally the wardens' reports indicated that the birds have not suffered by reason of the snow or cold weather and that considerable game was located and fed.

During the year the Protector sent out several circular letters to the wardens regarding the enforcement of the laws.

SILVER BLACK FOXES

After investigating the subject, the Board has decided to grant permission to keep silver black foxes in the State for breeding purposes. The keeping of these foxes in the State will in no manner be a menace to our game. The animals sell from \$1,000. upwards, and it stands to reason that every precaution will be taken to prevent their escape.

It is probable that two permits to keep these foxes will be taken out in the near future. The usual manner of constructing fox pens is that each pair of foxes is confined in a pen about 25 feet by 50 feet square, built of one-half inch mesh galvanized woven wire; the wire is sunk into the ground 3 feet and is built above the ground about 8 feet; on the top of the wire, inward, there is an overhang 2

feet wide to prevent the animals climbing out. These pens are arranged in series, separated some 3 feet. Entirely enclosing the cluster of pens is another fence which is termed the guard fence, which is also built of heavy woven wire sunk into the ground 3 feet and is built about 8 or 9 feet high with an overhang both ways to prevent animals getting either in or out. A man is employed to watch the foxes.

A publication of the Bureau of Biological Survey shows 289 fox farms are listed in the United States.

HUNGARIAN PARTRIDGE

The State of Washington several years ago introduced a very small number of these birds, but did the wise thing by establishing a closed season at once for five years, and they are now very numerous. They are a most desirable game bird and would be a splendid acquisition to the game of our State if we could get them once thoroughly established. It is the intention of this Commission to purchase and liberate in the State of New Jersey at the first opportunity a considerable quantity of these birds for propagating purposes.

In the Spring of 1909 we put out 1757 Hungarian partridges, and 5,650 English pheasants. In the fall of that year the reports were very satisfactory as to the pheasants having hatched broods; the reports of the Hungarian partridge were not so favorable. In some places they disappeared entirely, but 15 coveys of 9 to 15 each were seen in Cumberland county, 5 in Ocean county, 6 in Cape May county and a few in Salem, Bergen, Morris and Middlesex counties.

In 1910 we put out 368 Hungarian partridges.

In 1911 we distributed 1000 Hungarian partridges. In December of that year a letter was written to each warden requesting him to ascertain the number of Hungarian partridges killed in his county, and the reports showed that the entire number killed in the State did not exceed 50. The report further shows that the birds nested and hatched their young, but would disappear in the early Fall. However, on the last day of the hunting season in 1911, 2 coveys were seen in Somerset county and 1 in Middlesex county, but none was killed as they were on lands where the owners did not permit shooting.

From 1912 to 1920 the birds only seemed to thrive in small numbers in Somerset and Salem counties.

During the hunting season of 1921 a few Hungarian partridges were killed in Somerset county, and during the early winter of 1921 several coveys were found and fed in Hunterdon county. The reports were that the bird had continued to thrive in small numbers in Salem county.

In a word, the partridge now only appears in Salem, Hunterdon, Somerset and Warren counties in small numbers.

At the suggestion of our Board in 1921 the Legislature passed a law fixing a close season on the bird for five years.

It is now regarded that it was a mistake in not having placed a close season on the bird when the first distribution was made.

We note the following from the report of the Game Commissioners of Pennsylvania for the year ending November 30, 1921, referring to their experience with the Hungarian partridge in that State.

"It is my opinion that when the birds were first stocked they were released in too limited numbers in each locality, and that in stocking a new species not less than from three to eight pairs should be released in close proximity to each other so that even though losses do occur there will be mates for breeding purposes. Sportsmen who have hunted these birds report they are a splendid game bird, are more difficult to kill than bob-white and seem to be able to care for themselves under more severe weather conditions than the bob-white."

BAG LIMIT

In our last annual report we called attention to the necessity for reduction in the bag limit with a view of conserving our supply of game.

The Board approved of the legislation providing for the following limit: 6 quail, 2 English or ring-neck pheasants, 2 Hungarian partridge, 6 woodcock, 2 ruffed grouse, 25 in the aggregate of all kinds of duck (except wood), 8 geese, 8 brant, 50 sora, 25 in the aggregate of all kinds of rails (except sora), including marsh hens, coots and gallinules; 15 in the aggregate of all kinds of black-bellied and golden plover and greater and lesser yellow legs, 25 Wilson snipe or jack-snipe, 6 rabbits, and 6 squirrels.

In urging this legislation we call attention that it was the conviction of the Board that unless the present bag limit was cut down substantially, quail, rabbits, squirrel and partridge were likely to be a thing of the past in a very few years.

There are 420 persons per square mile of territory in New Jersey, and our State ranks third in the United States as to density of population. With thousands of residents of New York and Pennsylvania and New Jersey hunting in our State, these figures show that it is more difficult to conserve and protect game in New Jersey than in any other State in the Union.

When it is considered that under our present bag limits one licensed resident may legally take 93 pheasants, 93 partridges, 310 quail, 310 rabbits and any number of grey squirrels, as well as 2500 brook trout

and 1500 black or Oswego bass, it can readily be seen that with nearly 150,000 licensed hunters and fishermen it is absolutely necessary that the Commission be given legislation whereby these bag limits may be reduced, if there is to be any genuine conservation of the fish and game that is left.

DEER

Since the passage of the law which allows authorized agents or owners of land or lessees of land to kill deer at any time when deer may be found upon land under cultivation, the carcass of any deer killed while trespassing becoming the property of the Fish and Game Commission, there has been very little complaint of damage done by deer. Under the law authorizing the killing of deer trespassing on cultivated land the owner or lessee must make a report to the Board within 48 hours, or to the fish and game warden of the county in which such deer was killed. The records show there have been but two cases where deer were reported killed. It is well to remember in connection with the reported damage done by deer that the Board in former years investigated several cases when it was definitely ascertained that the original claims made were greatly exaggerated. Practically no complaint at all is heard of damage by deer in the northern part of the State.

At the request of the Joint Legislative Committee of the State Federation of County Boards of Agriculture and of the State Grange, our Board has arranged for a conference with respect to game laws for rural districts.

During the general open season for upland game including the deer season, there were 5 persons killed, one being killed by a companion mistaking him for a deer and four were killed by accidental discharge of firearms. Seventeen persons were wounded by firearms during the hunting season.

The Board made an effort to purchase some deer with a view of introducing new blood. The large number of bucks killed the past few years it is believed has only left the younger bucks for breeding purposes.

We have placed an order for bucks with a firm in Michigan which supplied us with a fine lot of deer several years ago, and if possible the order will be filled during the winter of the next fiscal year.

The following is a list showing the number of bucks legally killed, the number of does found dead in the woods, the number of persons killed and the number of persons injured, in each county.

County	Bucks Legally Killed and Reported	Does found Dead in woods	Persons Killed	Persons Injured
Atlantic	174	3	—	2
Bergen	16	3	—	1
Burlington	248	7	1	3
Camden	9	—	2	—
Cape May	10	—	—	—
Cumberland	74	2	—	1
Gloucester	2	—	—	—
Hudson	—	1	—	—
Mercer	1	—	—	1
Monmouth	2	—	—	—
Middlesex	—	—	—	1
Morris	18	6	1	—
Ocean	121	7	1	1
Passaic	19	—	—	2
Somerset	—	1	—	—
Sussex	33	3	—	—
Union	—	1	—	5
Warren	44	2	—	—
	771	36	5	17

WOODCOCK

The old subject of the proper season for woodcock in this State came up again. By reason of our geographical position, woodcock appear at different periods. They appear in the northern part of the State in the early fall, and they disappear in the early part of November, after which they may be found for a short time in South Jersey. Some years ago the Board tried having separate seasons on woodcock for northern and southern New Jersey respectively, but there were many objections to this plan and it was abandoned. For many years the woodcock season has opened several weeks prior to the general upland game season, and it appeared that lawless persons went in the woods in October ostensibly to kill woodcock but killed game for which there was a closed season. Apprehension of these violators was difficult, and it is believed that they took a large quantity of game. If the opening date of the woodcock season was fixed for November 10th, the opening date of the upland game season, then it would follow that those in northern New Jersey would be deprived of woodcock hunting as woodcock would have left by that date.

To meet the situation a bill became a law providing that persons hunting woodcock in that part of the season from October first to November tenth should take out a special license for that purpose. It is believed that with the woodcock hunters carrying a special license, to be obtained from the office of the Board, that it will minimize the number of persons who would attempt to go in the fields and woods

from October first to November ninth, and this special woodcock license feature would make it possible for sportsmen in northern New Jersey to hunt woodcock immediately after October first. The woodcock season is now fixed from October first to November 30th and is the same as now fixed in the adjoining states of New York and Pennsylvania.

RABBITS

The Board took up the matter of the advisability of the purchase of snowshoe rabbits. It appeared that a number of years ago the Board unsuccessfully experimented with the snowshoe hare and more recently an experiment in stocking the snowshoe hare by the Middlesex County Fish and Game Protective Association was a failure. When the snowshoe hare was found in this State they only appeared in small quantities in the mountains of North Jersey and their southern range was the Sourland Mountains. With the cutting off of the forests in the State it was believed that it would be a waste of money to attempt to purchase these hare for stocking purposes.

The Board endeavored to purchase rabbits from the west in large quantities, but it appeared that the dry weather of the past few years had killed off a number of rabbits and we were unable to secure shipments.

CATS

The Board renewed its fight against the destructive house cat and the vast number of ownerless cats which get their living from our game. While the bill prepared by the Board passed both houses it was not approved by the Governor, yet the Board is hopeful that in a short time an adequate measure to lessen the destruction by cats will ultimately become a law of the State. Every year sentiment in favor of the control of the cat grows as its ravages become better known. The bill which passed both houses was prepared by our Board after careful consideration and it would seem to meet the situation fully. A copy of the bill follows:

1. If any person owns or harbors any cat which shall kill, injure or destroy any insectivorous or game bird, or any game animal, then said person owning or harboring said cat which shall kill, injure or destroy any insectivorous or game bird or game animal shall be liable to a penalty of five dollars for each insectivorous or game bird or game animal killed, injured or destroyed.
2. Any cat that may be found in the woods or fields shall be considered a public nuisance, and may be killed by any officer charged with the enforcement of any of the laws of this State, or by any other person without civil or criminal liability.

3. This act shall be enforced by the persons authorized by and in accordance with the provisions of an act entitled "An act to provide a uniform procedure for the enforcement of all laws relating to fish, game and birds, and for the recovery of penalties for violations thereof," approved March twenty-ninth, eighteen hundred and ninety-seven, and the supplements thereto and amendments thereof.

SPRAYING AGAINST GYPSY MOTH

In the early Spring we were advised that the State Department of Agriculture was about to spray woods in Bernardsville Township, Somerset county, where the gypsy moth had made its appearance and we were informed that property owners had been warned to keep their cattle from grazing where the chemical was sprayed. Game has been abundant in the vicinity and we sought information from A. K. Fisher, Acting Chief of Bureau of Biological Survey, Washington, D. C., as to whether spraying would be detrimental. Under date of April 21st, Mr. Fisher wrote as follows:

"Replying to your letter of April 13 in regard to poison used for Gypsy Moths, would say that I do not believe that the spraying of the trees and shrubs will have much effect on the game birds which inhabit the region. I am basing this opinion on the experiences in Connecticut and Massachusetts where vast amounts of poison have been used. So far as I know, very few, if any, game birds have been killed although it is alleged a few song birds have died from the effect of drinking the poisonous mixture.

"I am glad to learn that you still have a good deal of game in your State."

NORWEGIAN PTARMIGAN, JAP SIKA DEER, ETC

In reply to an inquiry, the Board gave out information to the effect that there would be no prosecution for the sale in this State of frozen Norwegian ptarmigan and white grouse if properly tagged by any state authorities, and English venison properly tagged in the State of New York when sold only by restaurants in this state, provided that the New York regulations as to tagging were observed in every particular, and the New York tag should remain on the venison in New Jersey until entirely disposed of so that the same could be fully identified.

Also that the Jap Sika deer and the Peruvian and fallow deer were not intended to be covered by the provisions of our breeders' license law, which law undoubtedly refers to the possession of live Virginia deer, which are protected by the laws of our State.

TRESPASS

We beg again to call attention that it is advisable for land owners and hunters and fishermen to cooperate in respect to the matter of

posting lands. The last Legislature passed a stringent trespass act which follows:

1. It shall be unlawful for any person or persons to trespass upon the occupied lands of any other person or persons within this State for the purpose of hunting with a gun or fishing, killing or catching any game or fish enumerated in the statutes, after public notice on the part of the owner, occupant, lessee or licensee thereof, forbidding such trespass, such notice being posted conspicuously adjacent to the highway binding on said land or adjacent to any usual entrance-way to said lands; and every person violating this act shall be punished by a fine not exceeding twenty dollars and costs, and every justice of the peace, police court or recorder shall have the jurisdiction to try such offenders, and pronounce sentence as herein provided.

2. It shall be unlawful for any person or persons to trespass upon the occupied lands of any other person or persons within this State for the purpose of hunting with a gun or fishing, killing or catching any game or fish enumerated in the statutes, after being forbidden so to trespass by the owner, occupant, lessee or licensee thereof; and every person violating this act shall be punished by a fine not exceeding twenty dollars and costs, and every justice of the peace, police court or recorder shall have jurisdiction to try such offenders and pronounce sentence as herein provided.

3. Any persons guilty of violating any of the provisions of this act may be arrested without warrant by the owner, occupant, lessee or licensee, or any officer of the law and taken for trial before any of the justices or courts mentioned in this act as having jurisdiction. On failure of any person convicted of violating the provisions of this act to pay a fine imposed as provided in this act, the said justice or court before whom the conviction is had may commit such persons to the county jail until such fine is paid. In any prosecution for violation of the provisions of this act, the failure of the defendant to produce a written permit to hunt and fish on the lands upon which he is charged with trespassing signed by the owner, occupant, lessee or licensee thereof shall be prima facie proof that he was forbidden so to trespass by such owner, occupant, lessee or licensee.

4. One-half of all moneys recovered as fines for any violations under this act shall be paid to the owner, occupant, lessee or licensee, or officer of the law who arrests the defendant, and one-half thereof shall be paid to the Board of Fish and Game Commissioners for the uses and purposes of said Board of Fish and Game Commissioners.

It appears on investigation that much land has been posted in self defence from the hunter or fisherman who needlessly abuses his privilege and destroys property or interferes with personal rights, tramping down fences, gardens, etc., but that property owners were not adverse to allowing well behaved hunters and fishermen to enjoy themselves on their property provided permits were received from the owner. In this manner the owner could provide against those who would be a detriment to his lands. The importance of this subject is shown in the fact that the Board will not stock lands which are posted, and with the growing tendency to posting lands it is believed that hunting and fishing associations could do much in their localities to take up the matter of having land owners permit hunting

and fishing on their lands. The land owner will receive the benefit of stocking from the State.

It should be stated that our Board has no jurisdiction in the matter of trespass.

NEW WARDENS APPOINTED

At a special meeting of the Board held January 3d, the following wardens were appointed:

Christopher Ashworth—Sussex.
 Fred Dackermann—637 Franklin St., Elizabeth.
 Jos. S. Eggert—West Millington.
 John R. Hugg—Jamesburg.
 Harry Lawrence—Newfoundland.
 Howard Z. Mathis—New Gretna.
 Francis Mottram—Park Ridge.
 Chatham Mizell—Elmer.

In the assignment of these wardens to their localities it was found that territories heretofore not fully patrolled will be under close supervision.

The appointments were made for the probationary period of three months. The work of the new wardens was carefully checked up in that period and there appeared no reason why the appointees should not be retained.

RETIREMENT SYSTEM

On January 1, 1922, the State Employees Retirement System, created by Chapter 109 of the laws of 1921, went into effect and up to date 36 employees of our Department have joined the system. The system provides a plan for retirement benefits for those who grow old in the service, for those who are disabled in the service, to those who are impaired through service accidents, and to the dependents of those killed in service. The plan also furnishes a method for an automatic saving for those who will not remain to receive retirement allowance.

Each month the amount of the member's dues is deducted from his monthly salary.

Retirement is compulsory at the age of 70 years and a member has the right to retire 30 days after he has attained the age of 60. On separation, regardless of length of service, before resignation or dismissal, a member may collect a refund of his entire contributions with compound interest at four percent. Membership was optional with those in the service at the time of the commencement of the system, but is compulsory for employees in the classified service commencing work after January 1, 1922. No contributions may be withdrawn

while in service. The fund is administered by a Board of Trustees composed of the following: John P. Dullard, Wm. T. Read, and Alex. S. Ward, with J. A. Wood, Secretary.

MURDER OF WARDEN HOBLITZELL

William Hoblitzell, of Rahway, Union county, for many years an energetic and intelligent warden and who was one of our best wardens, was found dead in a field near Kenilworth, Union county, on September 18th with a bullet wound through his heart and one in his groin. When found, the warden had his eye glasses on and a cigar in one hand. He was last seen alive by John Lynch of Elizabeth, R. D. No. 1 with whom he was talking on the day before concerning a report that pheasants had caused damage to Mr. Lynch's crops. Mr. Lynch had complained to the office of the damage by pheasants and the complaint was passed on to Warden Hoblitzell for investigation. During their conversation shots were heard nearby and Warden Hoblitzell started to investigate the same.

It appear on September 15th Warden Hoblitzell asked Protector Stratton for some assistance for Saturday the 17th. He stated he could not tell him over the phone the nature of the work to be done. Wardens Fred J. Hall and Arthur Davison were ordered to meet Warden Hoblitzell at his home in Rahway at 9 o'clock on the 17th. These two wardens report that Mr. Hoblitzell directed them to go to a certain place near Rahway to watch for violators while he went to another place to look up a complaint of damage done by pheasants, but he did not tell them the location or the name of the person whom he intended to see, but told them to meet him in Rahway at one o'clock P. M. Wardens Hall and Davison followed Hoblitzell's directions and made three arrests, then waited at Rahway for Warden Hoblitzell until late in the afternoon and then went to his home and waited until 9 o'clock that evening. Mrs. Hoblitzell told them that he seldom telephoned home when delayed and it was unnecessary for them to wait any longer, and with this understanding the wardens went home.

The next day a search party was instituted by friends and wardens with whom he had been cooperating in the county and he was found dead not far from where he had left Mr. Lynch.

After conference with the Governor and Prosecutor Walter L. Hetfield, of Union county, Burns detective agents were employed in the case. The New Jersey Fish and Game Conservation League offered a large reward for the apprehension of the murderer. Both the Burns Detective Agency and the Prosecutor of Union county conducted a very searching investigation in the matter, but no arrest has as yet been made.

In accordance with chapter 95, laws of 1911, of the State Compensation laws the name of Mrs. Wm. Hoblitzell, widow of the late Warden, was placed on our payroll for payment to her for 300 weeks of 35% of her husband's salary, and under the law the Board paid \$100. on account of cost of burial of her husband.

The Board ordered paid a bill of \$1,225.78 to the Burns Detective Agency for services in efforts to run down the murderer.

MISCELLANEOUS

The Legislature visited the Hatchery on November 30th on a special train furnished by the Delaware, Lackawanna and Western Railroad and visited the State Game Farm December 14th on a special train furnished by the Central Railroad of New Jersey. The Lackawanna Railroad Company furnished a luncheon to the Hatchery party, and Mr. A. J. Murphy, Manager of the Laurel House, Lakewood, entertained the Game Farm party with a luncheon at the Laurel House.

An incident out of the usual routine was the fact that B. Frank Ogden, of Clayton, reported that on the first day of the deer season of the fall of 1916 he killed a doe deer contrary to law, and that he placed himself in the hands of the Board. We were advised by the Attorney General that we could not bring prosecution for the violation as the statute of limitation was operative in the case.

During the year permits were issued as follows to persons to band migratory birds in connection with the work of the U. S. Government in the study of the migration of birds.

T. Donald Carter,	324 Morris Ave., Boonton.
Louis S. Kohler,	Van Houten Ave., Clifton.
T. E. McMillen,	551 Bailey St., Camden.
F. Allatt,	118 E. Broad St., Westfield.

We are informed by Hon. E. W. Nelson, Chief of the Bureau of Biological Survey, that the list of United States Game Wardens and United States Deputy Wardens is as follows:

P. K. Hilliard,	31 Loraine Ave., Pleasantville,	U. S. Warden
Geo. B. Hooley,	26 Almira St., Bloomfield,	U. S. Deputy Warden,
Henry Kammerer,	William St., Delawanna,	" "
Frank Pierce,	Salem,	" "
Herbert A. Small,	Englewood,	" "
Samuel J. Taylor,	Mount Holly,	" "
Edward Von Steeg,	472 Davis Ave., Arlington,	" "
Henry E. Willetts,	Smithville,	" "

While daylight saving time was general in the State during last year and this year, yet directions were sent to our wardens that Standard time should be observed as to the time mentioned in the fish and game laws.

The Board adhered to its policy of not issuing permits to persons to collect birds, their nests and eggs. In brief it is held that there are now enough ghastly specimens in existence to answer all scientific needs. In connection with this matter the Board had an application from a scientific man of high standing, outside of the State, for the appointment of a person to assist him in collecting specimens. Because of the fact that every permit granted breeds other applications for permits in the name of science and that there seemed to be no real necessity for the issuance of the permit in question, the Board refused to grant the same. Upon notification of the refusal, the scientist who applied for the appointment of the assistant wrote to the Board that he fully understood the attitude of the Board and while he believed that his application would not affect the wild bird life of the region yet he understood the necessity of a hard and fast ruling in the matter.

During the year the Board granted several permits to owners of ponds to draw off the water for the purpose of repairs etc., and in each instance the warden of the county took steps to see that no fish suffered in drawing off the water.

The Board made exhibits at the Interstate, Mount Holly and Morris county fairs, and poultry show at Newark, (R. O. Lipton, Secretary), and the Agricultural week at the Trenton Armory, in charge of Charles Dilts.

In December, Commissioner Boulton presided over the National Game Conference of the American Game Protective Association, which met at Hotel Astor, December 12th and 13th, and members of the Board and several employees of the Department were the Commissioner's guests at the Game Conference annual dinner.

In December the Protector at the request of Colonel Schwarzkopf and the Attorney General's Department made an address at the State Police Training School at Sea Girt, where about 50 men were in training for State police work. The State Police law gives the State police authority to enforce our laws. Also later a training school for State police conducted at Trenton Junction was supplied with copies of our laws and legal blanks and manuals of instructions to our wardens.

SECOND CONVICTION

An effective step to get at the habitual violator of our game laws was taken when a bill became a law providing that a violator of

the fish and game laws convicted the second time should have his license revoked, and that no license should be issued to such person within a period of two years from the date of his second conviction.

FUR BEARING ANIMALS

The act of 1914 respecting fur bearing animals contained a provision which permitted the taking of skunk, mink, muskrat and otter during the season with firearms and lights in Salem county above Mill creek. This provision was intended to allow for a greater bag in fur bearing animals in view of the market for pelts, but it was found that the provision was abused, and that gunners under the guise of hunting for fur bearing animals went out at night and killed ducks. The Legislature passed a bill and the Governor signed the same repealing the provision permitting shooting.

SUPPLEMENT TO 1920-1921 REPORT

INCOME

Balance as per statement in last printed report.....	\$74,411.00
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EXPENDITURES

Chapter 353, Laws of 1920, paid after June 30, 1921, on requisitions for 1920-1921.....	\$ 5,468.69
To Balance.....	68,942.31
	<hr/>
	\$74,411.00

FINANCIAL STATEMENT

From July 1, 1921 to June 30, 1922.

INCOME

Balance July 1, 1921		\$ 68,942.31
Receipts:		
Hunters' and Anglers' Licenses, Chap. 152, Laws 1914,.....	\$176,054.43	
Chapter 41, Laws 1908:		
Menhaden Licenses,.....	\$5,350.00	
Pound Licenses,.....	6,130.00	
Sundries,	1,614.07	
Sales, Farm and Hatchery.....	743.91	
Breeders' Licenses.....	710.00	14,547.98
Fines, Chapter 247, Laws 1911.....		16,080.80
		<hr/>
		206,683.21
		<hr/>
		\$275,625.52

EXPENDITURES

Chapter 137, Laws of 1921.....	\$206,956.52
To Balance.....	* 68,669.00
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	\$275,625.52

*Balance subject to outstanding Requisitions and Orders amounting to..	\$6,613.45
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NEW JERSEY FISH AND GAME LEGISLATION IN 1922

Chapter 13, Assembly Bill No. 31, makes open season for pike, pickerel and pike-perch from June 15th to November 30th, and from January 1st to January 20th.

Chapter 22, Senate Bill No. 71, repeals the act which made a closed season at all times on reed bird. Open season for hunting reed birds September 1st to October 30th.

Chapter 29, Senate Bill No. 18, fixes closed season for nets in the inland tidal waters of Atlantic county or in the waters of Great Bay, Little Egg Harbor Bay, Rainbow Bay or Great Harbor Bay adjacent thereto, between the 15th of June and the first day of September, both dates inclusive.

Chapter 31, Senate Bill No. 38, gives Fish and Game Commissioners the right to carry weapons.

Chapter 43, Assembly Bill No. 45, makes closed season on Hungarian partridge until March 2, 1927.

Chapter 69, Senate Bill No. 104, repeals the provision which permitted shooting skunk, mink, muskrat and otter in Salem county above Mill creek.

Chapter 96, Senate Bill No. 209, fixes a penalty of \$20. for any person to trespass upon occupied lands for the purpose of hunting or fishing after proper notice on part of owner, etc., forbidding trespass.

Chapter 125, Assembly Bill No. 67, provides for a special license to hunt woodcock from October 1st to November 9th, both dates inclusive, in addition to the other regular hunting license. Special license costs \$2., and shall be obtained from the office of the Board, State House, Trenton, N. J.

Chapter 126, Assembly Bill No. 68, provides that in case of a second conviction for violation of the general fish and game act any fishing license or any hunting and fishing license shall be revoked, and no license shall be issued for two years from date of conviction.

Chapter 158, Assembly Bill No. 192, fixes the open season for deer the last two Wednesdays in December and the first two Wednesdays in January.

Chapter 197, Assembly Bill No. 395, repeals an act relative to sturgeon in the Delaware river and bay which act was ineffective because the State of Delaware had not concurred in the same.

Chapter 221, Senate Bill No. 10, changes the size of mesh of 50 fathom drifting gill nets from 2¾" to 3½" in the Delaware river and bay lying between the states of New Jersey and Delaware and all tributaries of said river and bay within said limits wherein the tide ebbs and flows.

Chapter 228, Assembly Bill No. 140, removes the kingfisher from the list of birds protected at all times.

STOCKING OF NEW JERSEY WATERS

BY THE NEW JERSEY BOARD OF FISH AND GAME COMMISSIONERS

FOR THE FISCAL YEAR ENDING JUNE 30, 1922

Total Number of Fish Planted, 84,196,322

Key to Abbreviations

FISH		FISH	
B. T.....	Brook Trout	Per.....	Perch
Brn. T.....	Brown Trout	Pic.....	Pickerel
R. T.....	Rainbow Trout	R. B.....	Rock Bass
L. M. B....	Large Mouth Bass	S.....	Sunfish
S. M. B....	Small Mouth Bass	C.....	Catfish
B.....	Bait Fish	W. F.....	White Fish
Cr.....	Crappie	Misc.....	Miscellaneous
SIZE	Fg...Fingerling	F....Fry	A....Adult

ATLANTIC COUNTY

Hammonton Lake—400 Brn. T. A., 600 L. M. B. Fg., 750,000 Per. F.
Park Lake—750,000 Per. F.

BERGEN COUNTY

(Hackensack River System)

Asmus Brook—500 Brn. T. Fg.
Cresskill Brook—500 Brn. T. Fg.
Closter Brook—1,000 Brn. T. Fg.
Dorrotokie Brook—1,200 Brn. T. Fg.
Hackensack River—20 Per., 20 Cr.
Kipp Brook—300 Brn T. Fg.
Musquasink Brook—3,500 Brn. T. Fg., 500 R. T. A.
Oradell Reservoir—25 Per., 25 Cr., 1,200 L. M. B. Fg., 500,000 Per. F.
Ortle Lake—50 L. M. B. A., 18 Cr.
Tennekille Brook—2,000 Brn. T. Fg., 700 R. T. A.
Teller's Brook—100 B. T. A., 250 B. T. Fg.
Washington Spring Brook—250 B. T. A., 9,500 B. T. Fg.
West Washington Spring Brook—250 B. T. A., 2,000 B. T. Fg.

(Passaic River System)

Diamond Brook—1,000 Brn. T. Fg.

(Pascack Creek System)

Woodcliffe Lake—500,030 Per. F., 1,200 L. M. B. Fg., 30 Cr
 Bear Brook—10,000 B. T. Fg., 350 B. T. A.
 Electric Lake—25 L. M. B. A., 75 Cr., 10 Pic., 500,000 Per. F., 1,200 L. M. B. Fg.
 Harring Lake—75 Cr.
 Pascack Creek—6,000 B. T. Fg., 1,250 B. T. A., 1,600 R. T. A., 15 Per., 10 Cr.
 West Pascack Brook—10,500 B. T. Fg.

(Ramapo River System)

Black Ash Swamp Brook—1,200 B. T. Fg., 1,200 Brn T. Fg.
 Halifax Brook—4,500 B. T. Fg., 2,000 Brn. T. Fg.
 McMamee Pond Outlet—3,400 B. T. Fg.
 Ormand's Brook—3,000 B. T. Fg., 3,000 Brn. T. Fg.
 Panther Brook—750 B. T. Fg., 750 Brn. T. Fg.
 Ramapo River Tributaries—8,600 B. T. Fg.

(Saddle River System)

Halley's Brook—3,000 B. T. Fg.
 Hopper Brook—5,250 B. T. Fg., 350 Brn. T. Fg.
 Saddle River—52,000 B. T. Fg., 2,000 B. T. A., 2,500 R. T. A.
 Sprout Brook—12,000 B. T. Fg.
 Suydam Brook—5,000 B. T. Fg.
 Tallman's Brook—4,500 B. T. Fg.
 Van Buskirk's Brook—1,500 B. T. Fg.
 Washington Mill Brook—6,000 B. T. Fg.
 Havemeyer Estate—500 L. M. B. Fg. (Exchange for Breeders)

BURLINGTON COUNTY

Brindle Park Lake—500,000 Per. F.
 Birmingham Lake—1,000 L. M. B. Fg.
 Mirror Lake—500,000 Per. F.
 Norcross Lake—250,000 Per. F.
 New Lisbon Lake—300 L. M. B. Fg.
 Pine Mill Lake—1,150 L. M. B. Fg.
 Rancocas Lake—1,000 L. M. B. Fg.
 Sylvan Lake—500 R. T. A., 600 L. M. B. Fg.
 Smith Lake—750 L. M. B. Fg.
 Smithville Lake—250,000 Per. F.
 Vincentown Lake—1,450 L. M. B. Fg., 500,000 Per. F.

CAMDEN COUNTY

(Cooper Creek System)

Kirkwood Lake—100 L. M. B. A., 50 Cr., 20 Pic.

(Timber-Creek System)

Brown's Run—40 R. T. Fg.
 Black Run—60 R. T. Fg.
 Big Lebanon Run—300 R. T. Fg.
 Rattle Snake Run—120 R. T. Fg.
 Crystal Lake—250,000 Per. F.
 Evans Lake—100 L. M. B. Fg.
 Gibbsboro Lake—250,000 Per. F.
 Grenlock Lake—100 L. M. B. Fg., 500,000 Per. F.
 Gibbs Lake—250,000 Per. F.
 Haddonfield Lake—500,000 Per. F.
 Haddon Lake—250,000 Per. F.
 Kirkwood Lake—100 L. M. B. Fg., 250,000 Per. F.
 Laurel Lake—100 L. M. B. Fg., 250,000 Per. F.
 Lakeview Lake—100 L. M. B. Fg.
 Overbrook Lake—250,000 Per. F.
 Pilling Lake—100 L. M. B. Fg., 250,000 Per. F.
 Silver Lake—250,000 Per. F.

CAPE MAY COUNTY

Lilly Lake—300 L. M. B. Fg., 500,000 Per. F.
 Ludlam Lake—300 L. M. B. Fg., 500,000 Per. F.
 Rio Grande Lake—300 L. M. B. Fg., 500,000 Per. F.
 Shepperd's Lake—300 L. M. B. Fg.

CUMBERLAND COUNTY

Buckshootum Lake—500,000 Per. F.
 Cedarville Lake—250,000 Per. F.
 East Lake—250,000 Per. F.
 Little Mill Lake—500,000 Per. F.
 Mary Elmer Lake—250,000 Per. F.
 Seeley's Lake—250,000 Per. F.
 Silver Lake—250,000 Per. F.
 Sunset Lake—250,000 Per. F.
 Tumbling Dam Lake—300 L. M. B. Fg.
 Union Lake—300 L. M. B. Fg., 100 L. M. B. A., 1,000,000 Per. F., 50 Cr.

ESSEX COUNTY

(Passaic River System)

Branch Brook Park Lake—750,000 Per. F., 50 L. M. B. A., 25 Pic., 775 Pic.
 Brookdale Run—2,000 B. T. Fg.
 Green Brook—150 B. T. Fg.
 Notch Brook—550 R. T. A., 16,000 B. T. Fg.
 South Mt. Reservation—4400 R. T. A.
 Yantecaw River—10,000 B. T. Fg., 700 B. T. A., 500 R. T. A.
 Weequoic Park Lake—750,000 Per. F., 84 L. M. B. A., 344 Per., 3 Cr., 31 Pic.
 900 Misc.

(Rahway River System)

Cable Lake—4 L. M. B. A., 241 Per., 69 Cr., 3 C.

GLOUCESTER COUNTY

Almonesson Lake—500 L. M. B. Fg., 500,000 Per. F.

Alderson Lake—500 L. M. B. Fg.

Bell's Lake—1,000 L. M. B. Fg.

Fries Lake—700 L. M. B. Fg.

Malaga Lake—200 L. M. B. Fg.

Moore's Lake—500 L. M. B. Fg.

Prickett's Lake—500,000 Per. F., 500 L. M. B. Fg.

Silver Lake—200 L. M. B. Fg.

Warner's Lake—500 L. M. B. Fg., 120 L. M. B. A., 500,000 Per. F., 150 Cr., 15 Pic.

HUDSON COUNTY

Hudson Park Lake—1,700 R. T. A.

West Side Lake—1625 R. T. A.

HUNTERDON COUNTY

(Delaware River System)

Duckworth Creek—17,858 B. T. Fg.

Hakihokake Creek—15,000 B. T. Fg., 900 B. T. A.

Holland Brook—15,000 B. T. Fg.

Spring Mill Brook—20,357 B. T. Fg.

Wickecheoke Run—600 R. T. A.

(Lamington System)

Besembury Mt. Brook—6,857 B. T. Fg.

Cold or Skillman Brook—14,457 B. T. Fg.

Clark Brook—12,975 B. T. Fg.

Rowe Brook—16,475 B. T. Fg.

(Musconetcong River System)

Creveling Brook—8,657 B. T. Fg.

Dairy Brook—1,850 B. T. Fg.

Hawk Brook—2,857 B. T. Fg.

Ludlow Creek—2,857 B. T. Fg.

Penwell Creek—7,157 B. T. Fg.

(South Br. Raritan River System)

Beaver Brook—2,290 B. T. Fg.

Cole Brook—3,000 B. T. Fg.

Conover Brook—4,500 B. T. Fg.

Cress Beds—2,285 B. T. Fg.

Frog Hollow Brook—9,785 B. T. Fg.

Frace Run—4,000 B. T. Fg., 200 B. T. A.

Hoovers Brook—550 B. T. A., 700 C.

Little Brook—4,000 B. T. Fg.

Mt. Kipp Brook—2,000 B. T. Fg.

Philhower Brook and Tributaries—5,000 B. T. Fg.

Point Mt. Creek—2,857 B. T. Fg.

Prescott Brook—4,000 B. T. Fg.

So. Brn. Raritan—1,500 Brn. T. Fg., 1,900 Brn. T. A., 100 R. T. A.

Rhinehart Lake—10 L. M. B. A., 7 Pic., 300 Misc.

Spruce Run & Tributaries—7,000 B. T. Fg., 11,000 Brn. T. Fg.

Tetertown Brook—12,685 B. T. Fg., 3,000 Brn. T. Fg.

VanNoÿ Run—10,000 B. T. Fg.

(Rockaway River System)

Crystal Spring Brook—4,000 B. T. Fg.

Farley Brook—4,200 B. T. Fg.

Groondyke Brook—4,200 B. T. Fg.

North Branch Rockaway—2,350 R. T. A.

South Branch Rockaway—2,285 B. T. Fg., 850 B. T. A., 650 R. T. A.

Small Tributaries Rockaway—3,000 B. T. Fg.

(North Br. Rockaway River System)

Apgar Run—4,285 B. T. Fg.

Burrell Brook—3,000 B. T. Fg.

Guinea Hollow Brook—6,000 B. T. Fg.

Ramsey Run—2,000 B. T. Fg.

Reed Brook—4,000 B. T. Fg.

Tietz Run—3,285 B. T. Fg.

(Spruce Run System)

Black Brook—350 B. T. Fg.

Bryant Brook—2,000 B. T. Fg.

Charlestown Mt. Brook—350 B. T. Fg.

Field Run—2,000 B. T. Fg., 150 B. T. A.

Mulhockaway Creek—15,000 B. T. Fg., 1,550 B. T. A.

Rocky Run & Tributaries—3,000 B. T. Fg.

Willoughby Creek—3,000 B. T. Fg.

MIDDLESEX COUNTY

(Mandalapin River System)

Wigwam Brook—1,600 B. T. Fg.

(Rahway River System)

Sage or Sucker Brook—850 R. T. A.

Spring Brook—11,000 B. T. Fg.

(Raritan River System)

Dismal Brook—300 R. T. A.
 Mill Brook—550 R. T. A.
 Jamesburg Lake—1,930 L. M. B. Fg.
 Milltown Lake—1,930 L. M. B. Fg., 500,000 Per. F.
 Parson's Lake—1,730 L. M. B. Fg., 500,000 Per. F.
 Spring Lake—730 L. M. B. Fg.
 Weston's Lake—1,930 L. M. B. Fg., 123 L. M. B. A., 500,104 Per. F., 50 Pic., 12 Cr.,

MERCER COUNTY

Bahrenburg's Lake—200 L. M. B. Fg.
 Carnegie Lake—6,400 L. M. B. Fg., 1,500,000 Per. F.
 Cripp's or Lakeside Park Lake—1,850 L. M. B. Fg.
 Harris or Hutchinson Pond—650 L. M. B. Fg.
 Yardville Lake—1,000 L. M. B. Fg., 500,000 Per. F.
 Reed's Pond—500,000 Per. F.
 Spring Lake—500 L. M. B. Fg.
 Whiteheads Pond—500,002 Per. F., 18 L. M. B. A., 6 C., 6 S. F.

MONMOUTH COUNTY

(Atlantic System)

Cranberry Brook—2,000 B. T. Fg.
 Eatontown Brook—5,400 B. T. Fg.

(Matchaponia System)

Topenemus Brook—9,266 B. T. Fg.

(Raritan River System)

Orr's Brook—1,200 B. T. Fg.
 Wemrock Brook—10,668 B. T. Fg., 850 B. T. A.

(Shark River System)

Jumping Brook—2,300 B. T. Fg.
 L. Y. Brook—2,900 B. T. Fg.
 Shark River—26,668 B. T. Fg., 1,550 B. T. A.
 Sarah Green's Brook—500 B. T. Fg.
 Topenhomey Brook—100 L. M. B. A., 100 Per.

(Swimming River System)

Abrey Brook—1,800 B. T. Fg.
 Hockhocks Brook—12,966 B. T. Fg., 850 B. T. A.
 Marlboro Brook—1,000 B. T. Fg.
 McCampbell's Brook—2,500 B. T. Fg.
 Pine Brook—11,466 B. T. Fg., 850 B. T. A.
 Snyder's Brook—2,600 B. T. Fg.
 Thompson's Brook—400 B. T. Fg.
 Willow Brook—10,366 B. T. Fg., 850 B. T. A.
 Yellow Brook—2,000 B. T. Fg.

(Wreck Pond System)

North Br. Wreck Pond Brook—2,700 B. T. Fg.
 South Br. Wreck Pond Brook—750 B. T. Fg.
 Allaire Lake—1,150 L. M. B. Fg., 250,000 Per. F.
 Allentown Lake—650 L. M. B. Fg.
 Como Lake—250,000 Per. F.
 Ely Lake—650 L. M. B. Fg., 250,000 Per. F.
 Imlays Pond—250,000 Per. F.
 Jamesburg Pond—500,000 Per. F.
 Millhurst Lake or Black Mills Lake—1,500 L. M. B. Fg.
 Oakland or Little Mills Lake—350 L. M. B. Fg., 250,000 Per. F.
 Red Valley Lake—250,000 Per. F.
 Spring Lake—250,000 Per. F.
 Stillwell Pond—250,000 Per. F.
 Tintern Manor Brook—2,650 L. M. B. Fg.

MORRIS COUNTY

(Musconetcong River System)

Good Brook or Mine Hill Brook—10,000 B. T. Fg.
 Gulick Brook—9,500 B. T. Fg.
 Harrigan Brook—6,500 B. T. Fg.
 Hurd Brook—2,900 B. T. Fg.
 Saunder's Brook—9,000 B. T. Fg.
 Schooley's Mt. Brook—17,066 B. T. Fg.
 Weldon Brook—4,900 B. T. Fg.
 Wills Brook—125 B. T. Fg.

(Passaic River System)

Beaver Brook—700 R. T. A.
 Cobb Brook—3,000 B. T. Fg.
 Connett Brook & Tributaries—24,300 B. T. Fg., 1,650 B. T. A., 700 R. T. A.
 Dismal Brook—17,166 B. T. Fg., 700 R. T. A.
 Hibernia Brook—7,500 Brn. T. Fg., 1,600 Brn. T. A.
 Ledell Brook—125 B. T. A., 7,000 B. T. Fg., 125 R. T. A.
 Malapardis Brook—2,500 B. T. Fg.
 Mill Brook—10,000 B. T. Fg., 2,050 B. T. A.
 Morris Plains Brook—5,000 B. T. Fg., 700 R. T. A.
 Passaic River—2,000 B. T. Fg.
 Rockaway River—700 R. T. A.
 Tributary Rockaway River—2,500 Brn. T. Fg.
 Sand Spring Brook & Tributary—4,000 Brn. T. Fg.
 Spring Brook—8,000 B. T. Fg., 125 B. T. A.
 Troy Brook—4,500 B. T. Fg., 1,600 Brn. T. A.

(Pequanac River System)

Takeout Brook—125 B. T. A., 5,250 B. T. Fg.

(Primrose Brook System)

Primrose Brook & Tributaries—8,000 Brn. T. Fg.

LIST OF STREAMS

(Raritan River System)

Black River—4,000 B. T. Fg., 900 B. T. A., 150 R. T. A.
 Bryant Brook—1,500 B. T. Fg.
 Cramer Brook—1,400 R. T. A.
 Ledgewood Brook—1,900 B. T. Fg.
 Pitney Brook—12,150 B. T. Fg.
 Rhinehart Brook—22,450 B. T. Fg.
 Tanner's Brook—8,500 B. T. Fg.

(North Br. Raritan River System)

Burnett Brook & Tributaries—23,500 B. T. Fg., 850 B. T. A., 700 R. T. A.
 Cooper Brook—1,600 B. T. Fg.
 Creager Brook—3,000 B. T. Fg.
 Delicker Brook—6,000 B. T. Fg.
 Harden's Brook—7,950 B. T. Fg.
 Indian Brook—21,000 B. T. Fg., 850 B. T. A., 700 R. T. A.
 Peapack Brook—14,750 B. T. Fg., 850 B. T. A., 700 R. T. A.
 Thompson's Brook—1,000 B. T. Fg.
 Tiger Brook—2,000 B. T. Fg.

(South Br. Raritan River System)

Budd Lake—125 L. M. B. A., 30 Pic., 1,240 Misc.
 Budd Lake Streams—50,700 B. T. Fg.
 Carey Brook—4,566 B. T. Fg.
 Drake's Brook—14,170 B. T. Fg.
 Flander's Brook—10,166 B. T. Fg.
 Pleasant Grove Brook—4,000 B. T. Fg.
 So. Brn. Raritan River—2,450 B. T. A., 26,000 B. T. Fg., 2,000 R. T. A.
 Stoney Brook & Tributary—10,266 B. T. Fg.
 Turkey Brook—12,566 B. T. Fg.

(Rockaway River System)

Badgely Brook—2,500 B. T. Fg.
 Davis Brook—10,500 B. T. Fg.
 Fox Pond Brook—1,500 Brn. T. Fg.
 Lake Hopatcong—10,000 S. M. B. Fg., 10,200 L. M. B. Fg., 22,000,000 Per. F.
 Cedar Lake—125 L. M. B. A., 36 Pic.
 Jackson Brook (upper)—5,000 B. T. Fg., 2,000 Brn. T. Fg.
 Kincaid Brook—900 B. T. Fg.
 Mathews Brook—1,000 Brn. T. Fg.
 Morris Spring Brook—1,000 Brn. T. Fg.
 Parsippany Brook—2,500 B. T. Fg.
 Rainbow Lake—25 L. M. B. A. 30 Pic., 15 C., 500 Misc.
 Rockaway River & Tributary—700 R. T. A. 2,500 Brn. T. A.
 Stephens Brook—4,000 Brn. T. Fg.
 Taylortown Brook & Tributary—12,500 B. T. Fg., 850 B. T. A.

LIST OF STREAMS

(Whippany River System)

Black Swamp Brook Headwaters—118 R. T. A., 125 B. T. A.
 Brookside Brook—1,666 B. T. Fg.
 Burnham Park Lake—25 L. M. B. A., 1,800 Misc.
 Crooked Brook—700 R. T. A.
 Gilbert Lake—25, L. M. B. A., 30 Pic., 700 Misc.
 Jaque Lake—700 Misc.
 Mt. Freedom—1,668 B. T. Fg.
 Pochantas Lake—125 L. M. B. A., 9,000 Per. F., 6,000 Misc., 1,600 R. T. A.

OCEAN COUNTY

Lake Carasaljo—6,800 L. M. B. Fg., 1,000,000 Per. F.

PASSAIC COUNTY

(Greenwood Lake System)

Belcher's Creek—10,000 B. T. Fg., 500 R. T. A.
 Black Creek—9,000 B. T. Fg.
 East Boiling Spring Brook—4,500 B. T. Fg.
 West Boiling Spring Brook—3,000 B. T. Fg.
 Cooley Brook—10,500 B. T. Fg., 500 B. T. A.
 West Milford Brook—17,200 B. T. Fg., 500 B. T. A., 2,000 R. T. Fg.
 McDonald Brook—7,500 B. T. Fg.
 Morsetown Brook—13,500 B. T. Fg.

(Belcher's Creek System)

Luddy & Jackson Pond—675 R. T. A.

(Passaic River System)

De Boer Brook—1,000 B. T. Fg.
 Frew Brook—1,000 B. T. Fg.
 Nellis Brook—2,000 B. T. Fg.
 Notch Brook—6,000 B. T. Fg.
 Preakness Brook—4,000 B. T. Fg.
 Wanaque Brook—3,000 Brn. T. Fg., 1,150 R. T. A.
 West Brook—48,000 B. T. Fg., 2,000 B. T. A.

(Pequanic River System)

Cedar Pond—20 L. M. B. A., 2,500 Per., 50 Pic.
 Crosses Pond—6,500 Per., 70 Pic., 400 Misc.

(Ramapo River System)

Haycock Brook—3,000 B. T. Fg., 3,000 Brn. T. Fg.
 North Haycock Brook—1,000 B. T. Fg., 1,000 Brn. T. Fg.

(West Brook System)

Bailey Brook—2,400 B. T. Fg., 75 B. T. A.

(Wanaque River System)

Beaver Dam Brook—6,000 B. T. Fg.
 Blue Mine Brook—15,000 B. T. Fg.
 Burnt Meadow Brook—17,000 B. T. Fg., 75 B. T. A.
 Cyclone Brook—6,000 B. T. Fg.
 Decker Brook—11,400 B. T. Fg.
 Dry Fall Brook—17,000 B. T. Fg.
 Geng Brook—4,000 B. T. Fg.
 Green Mine Brook—4,000 B. T. Fg.
 High Mt. Brook—6,000 B. T. Fg.
 Long House Creek & Tributaries—4,000 B. T. Fg.
 Rhinesmith Brook—8,100 B. T. Fg., 200 B. T. A.
 Sindle Brook—12,000 B. T. Fg.
 Stevens Brook—2,100 B. T. Fg.
 Echo Lake—1,501,500 Per. F., 20 Pic.
 Greenwood Lake—1,500,000 Per. F., 250,000 W. F. F.
 Hanks Pond—10,000 S. M. B. Fg.
 Pompton Lake—8,600 L. M. B. Fg., 20 L. M. B. A., 1,503,000 Per. F., 150,000 W. F. F., 20 Pic.

SALEM COUNTY

Avis Lake—100 L. M. B. Fg., 250,000 Per. F.
 Cedar Lake—100 L. M. B. Fg.
 Centertown Lake—200 L. M. B. Fg., 250,000 Per. F.
 Cobb's Lake—250,000 Per. F.
 Diamond Lake—200 L. M. B. Fg., 177 L. M. B. A., 500,192 Per. F., 627 Calico B., 86 Cr., 219 B., 28 Misc.
 Elmer Lake—250,000 Per. F.
 Woodmere Lake—250,000 Per. F.

SOMERSET COUNTY

(Millstone River System)

Clark Brook—1,400 R. T. A.
 Hamil or Ten Mile Run—325 R. T. A.

(Raritan River System)

Middle Brook—500 R. T. A.
 West Branch Middle Brook—600 R. T. A.
 Millstone River—29 L. M. B. A., 77 L. M. B. Fg., 57 Cr., 28 Pic., 3,500 C.
 Peapack Brook—550 R. T. A.
 Raritan River—41 L. M. B. Fg., 63 Cr., 800 C.
 North Branch Raritan River—600 R. T. A.

SUSSEX COUNTY

(Black or Pochunk Creek System)

Black Brook or Pochunk Creek—2,450 B. T. A., 734 R. T. A.
 Double Kill—50 B. T. A., 300 R. T. A., 550 Brn. T. A.
 Glenwood Lake—750,000 Per. F.
 Race Track Brook—5,000 B. T. Fg.
 Simpson's Brook—6,000 B. T. Fg.

(Clove Brook System)

Clove Brook & Tributaries—75 R. T. A., 200 Brn. T. A., 17,000 Brn. T. Fg.

(Big Flat Brook System)

Tributaries Big Flat Brook—800 B. T. A., 5,000 B. T. Fg.
 Headwaters Big Flat Brook—6,100 B. T. Fg.
 Fairview Lake—600 S. M. B. Fg., 1,000,000 Per. F.
 Kettle Spring Brook—4,000 B. T. Fg.
 Lake Owassa—1,000,000 Per. F.
 Morris Spring Brook—5,000 B. T. Fg.
 Quick's Pond—1,000,000 Per. F.
 Snooktown Brook—5,500 B. T. Fg.
 Snook Brook—4,000 B. T. Fg.
 Tuttles Corner Brook—12,000 B. T. Fg.

(Little Flat Brook System)

Ambers Brook—1,000 B. T. Fg.
 Alberton Brook—4,900 B. T. Fg.
 Crown Brook—7,000 B. T. Fg.
 Little Flat Brook—850 B. T. A., 12,000 B. T. Fg.
 Lateer Spring Brook—6,000 B. T. Fg.
 Sawmill Brook—7,200 B. T. Fg.
 Shay or Bierskill Brook—12,000 B. T. Fg.

(Millbrook System)

Chamberland Brook—5,000 B. T. Fg.
 Rea Brook—5,100 B. T. Fg.

(Millville or Shimers Brook System)

Cole Brook—1,000 B. T. A., 10,000 B. T. Fg.
 Millville or Shimers Brook—1,850 B. T. A., 2,000 B. T. Fg.
 Weinwrights Brook—4,000 B. T. Fg.
 West Brook Spring Brook—4,000 B. T. Fg.

(Musconetcong River System)

Waterloo Pond—75 L. M. B. Fg., 150 S. M. B. Fg.

(Papakating River System)

Papakating River and Tributaries—75 R. T. A., 1,050 Brn. T. A., 23,000 Brn. T. Fg.

(Paulinskill River System)

Alms House Brook—12,000 B. T. Fg.
 Brick Kiln Brook—7,500 B. T. Fg.
 Cases Brook—6,000 B. T. Fg.
 Coursen Brook—17,200 B. T. Fg.

Culver's Lake—10,000 L. M. B. Fg., 12,000 S. M. B. Fg. 1,002,000 Per. F., 75 Pic., 500 Misc.
 Emmon's Brook—6,200 B. T. Fg.
 Hendershot's Brook—10,400 B. T. Fg.
 Losey Spring Brook—3,700 B. T. Fg.
 Morris Brook—12,000 B. T. Fg.
 Myrtle Grove Brook—9,000 B. T. Fg.
 Olleya Brook—3,000 B. T. Fg.
 Paulinskill River—2,050 B. T. A., 1,741 R. T. A., 100 Brn. T. A.
 Roy Brook—700 B. T. Fg.
 Ross Brook—375 R. T. A.
 Rutan Spring Brook—6,000 B. T. Fg.
 Sherred Brook—5,000 B. T. Fg.
 Spring Brook—15,500 B. T. Fg.
 Swartswood Spring Brook—3,700 B. T. Fg.
 Big Swartswood Lake—6,700 L. M. B. Fg., 116 L. M. B. A., 1,252,000 Per. F., 50 Pic., 1,350 Misc.
 Little Swartswood Lake—3,200 L. M. B. Fg., 1,000,000 Per. F.
 Washer's Brook—5,200 B. T. Fg.

(East Branch Paulinskill River System)

Ackerson Brook—15,700 B. T. Fg.
 Pullis Brook—17,700 B. T. Fg.
 Sparta Jc. Brook—850 B. T. A., 19,700 B. T. Fg.

(Pequest River System)

Harden & Far Hill Brook—18,200 B. T. Fg.
 Hibler Brook—3,000 B. T. Fg.
 Hunts Brook—5,500 B. T. Fg.
 Iliff's Lake—2,525 Per. F., 50 Pic., 50 Misc.
 Pequest River—750 B. T. A., 700 R. T. A.
 Smith Pond—2,200 L. M. B. Fg., 500,000 Per. F.
 Trout Brook—5,000 B. T. Fg.

(Rockaway River System)

Bear Pond—300 L. M. B. Fg., 2,000,000 Per. F.
 Lake Hopatcong—300 L. M. B. Fg.

(Wallkill River System)

Beaver Lake—2,000 Per., 40 Pic., 400 S. M. B. Fg.
 Cranberry Lake—1,300 L. M. B. Fg., 1,500,000 Per. F.
 Franklin Pond—75 L. M. B. A., 1,250 Per. F., 50 Pic.
 Grinnel Lake—75 L. M. B., 1,250 Per. F., 50 Pic.
 Lake Lackawanna—2,500 L. M. B. Fg., 1,500,000 Per. F.
 Margerum Brook—375 R. T. A.
 Marshalls Brook—8,125 B. T. Fg.
 Meadowroad Brook—8,000 B. T. Fg.
 Normans Brook—9,000 B. T. Fg.
 Parker or Burrows Brook—1,500 B. T. Fg.
 Pine Swamp Brook—1,500 B. T. Fg.

Rundle Brook—5,000 B. T. Fg.
 West Mt. or Halsey Brook—7,000 B. T. Fg.
 Wallkill River—8,000 B. T. Fg., 500 Brn. T. A.
 Headwaters Wallkill River—2,125 B. T. A., 4,000 B. T. Fg.

UNION COUNTY

(Rahway River System)

Barclay Brook—7,000 B. T. Fg.
 Normahiggin Brook—3,000 B. T. Fg.
 Rahway River—625 R. T. A., 730 L. M. B. Fg.
 Silver Lake—730 L. M. B. Fg.

(Raritan River System)

Blue or Drake Brook—2,500 Brn. T. Fg.
 Echo Lake—730 L. M. B. Fg., 500,000 Per. F.
 Middlesex Water Works Lake—300 L. M. B. Fg., 250,000 Per. F.
 Rahway Water Work Lake—300 L. M. B. Fg., 250,000 Per. F.
 Reformatory Lake—600 R. T. A.
 Seeley's Pond—1,150 R. T. A., 2,030 L. M. B. Fg., 500,000 Per. F.

WARREN COUNTY

(Delaware River System)

Allen's Sawmill Brook—500 B. T. Fg.
 Bransville Brook—4,000 B. T. Fg.
 Buckhorn Creek—49,000 B. T. Fg., 850 B. T. A.
 Dunnfield Creek—3,700 B. T. Fg.
 Lominson's Glen Brook—7,000 B. T. Fg.
 Lopatcong Creek—15,000 B. T. Fg., 850 B. T. A., 600 R. T. A.
 Musconetcong River—7,600 B. T. Fg., 3,625 B. T. A., 5,060 R. T. A., 13,200 Brn. T. Fg., 150 Brn. T. A.
 Paulinskill River—1,250 B. T. A., 1,890 Brn. T. A., 1,400 R. T. Fg., 1,430 R. T. A.
 Pohatcong Creek—23,000 B. T. Fg., 850 B. T. A.
 Pophundusing Brook—2,000 Brn. T. Fg.
 Van Campens Brook—11,000 B. T. Fg., 1,000 B. T. A.

(Lopatcong River System)

Kline Run—500 B. T. Fg.
 Wolf Run—600 B. T. Fg.
 From Torresdale Hatchery 9,000,000 Per. F.

(Musconetcong River System)

Anderson Brook—1,000 B. T. Fg., 600 Brn. T. Fg.
 Apgar Run—500 B. T. Fg.
 Birds Lock—1,000 L. M. B. Fg., 500,000 Per. F.
 Fitz Run—500 Brn. T. Fg.
 Good Springs Run—800 Brn. T. Fg.

Guard Lock—1,300 L. M. B. Fg., 500,000 Per. F.
 Hance Brook—1,000 B. T. Fg.
 Hatchery Brook—10,000 B. T. Fg., 10,000 Brn. T. Fg.
 Hatchery Pools—246 L. M. B. Fg., 3,500 B.
 Rockport Brook—1,000 B. T. Fg., 2,100 Brn. T. Fg.
 Sampson—500 Brn. T. Fg.
 Saxon Falls—1,100 B. T. Fg.
 Shurts Brook—550 B. T. Fg.
 Slack Springs—2,000 B. T. Fg.
 Smith Run—500 Brn. T. Fg.
 Springtown Brook—9,000 B. T. Fg.
 Stevens Brook—8,000 Brn. T. Fg.
 Van Atta Run—500 Brn. T. Fg.

(Paulinskill River System)

Blair Creek—8,000 B. T. Fg., 32,200 Brn. T. Fg., 600 R. T. A.
 Blair Half Run—2,000 B. T. Fg., 500 Brn. T. Fg.
 Clark Run—500 Brn. T. Fg.
 Jacksonburg Creek—10,950 B. T. Fg., 500 Brn. T. Fg.)
 Kalarama Brook—500 Brn. T. Fg.
 Kaiser Run—600 Brn. T. Fg.
 Knee Creek—700 Brn. T. Fg.
 Marshall Run—2,500 Brn. T. Fg.
 Observatory Brook—600 Brn. T. Fg.
 Van Campens Run—600 Brn. T. Fg.
 Wilson Run—1,000 Brn. T. Fg.
 White Lake—1,500,000 B. T. Fg., 16,600 Brn. T. Fg.
 Yettters Run—500 Brn. T. Fg.

(Pequest River System)

Atens Run—3,000 B. T. Fg.
 Bacon Run—11,500 B. T. Fg.
 Barker Brook—2,500 B. T. Fg.
 Bear Creek or Dark Moon Brook—43,800 B. T. Fg., 850 B. T. A.
 Beaver Brook—4,000 B. T. Fg., 400 B. T. A., 500 R. T. A.
 Cox. Brook—8,000 B. T. Fg.
 Huff Brook—3,500 B. T. Fg.
 Johnsonburg Brook—11,500 B. T. Fg., 10,000 Brn. T. Fg.
 Mountain Lake—75 L. M. B. A., 1,505,000 Per. F., 112 Pic., 1,525 Misc., 1,000
 L. M. B. Fg., 1,000 S. M. B. Fg.
 Muddy Brook (Buckaloo Swamp)—17,400 B. T. Fg.
 Oxford Furnace Brook—6,000 B. T. Fg.
 Pequest Springs—2,800 B. T. A., 110,350 B. T. Fg.
 Pequest Creek—2,720 Brn. T. A., 40 B. T. A.

(Pohatcong River System)

Hoffman Run—1,000 Brn. T. Fg.
 Kennedy Brook—500 Brn. T. Fg.
 Lows Hollow Brook—15,600 B. T. Fg.
 Mill Brook—20,300 B. T. Fg.
 Roaring Rock Creek—27,000 B. T. Fg., 1,000 B. T. A., 3,500 Brn. T. Fg.
 Springtown Run—2,000 B. T. Fg., 250 Brn. T. Fg.
 Trout Brook—1,000 B. T. A., 28,000 B. T. Fg.