

# ANNUAL REPORT

OF THE

NEW JERSEY BOARD OF FISH

AND

GAME COMMISSIONERS



FOR THE

*Fiscal Year Commencing July 1, 1930*

*And Ending June 30, 1931*

STATE OF NEW JERSEY  
BOARD OF  
FISH AND GAME COMMISSIONERS  
TRENTON

To His Excellency, Morgan F. Larson, Governor, and Members of the Senate and General Assembly of the State of New Jersey:

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 the period from July 1, 1930, to June 30, 1931.

Very respectfully,

H. J. BURLINGTON, *President*,  
CHARLES F. HUNTER,  
LEWIS SPINKS,  
ALEXANDER H. PHILLIPS,  
GEORGE C. WARREN, JR.,  
HARRY M. ARMSTRONG,  
JAS. R. HENSLE, R,  
B. W. COOPER,  
GEO. S. McCARTY,

*Commissioners.*

List of Fish and Game Commissioners Holding Office  
at the Date of This Report  
June 30, 1931

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H. J. BURLINGTON, *President* ..... Montvale  
CHARLES F. HUNTER, *Vice-President* ..... Palisade  
HARRY M. ARMSTRONG, *Treasurer* ..... Jersey City  
ALEXANDER H. PHILLIPS ..... Princeton  
GEORGE C. WARREN, JR. .... Summit  
LEWIS SPINKS ..... Nixon  
JAMES R. HENSLE, R ..... Toms River  
BENJAMIN W. COOPER ..... Moorestown  
GEORGE S. McCARTY ..... Newfield

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WALTER H. FELL, *Secretary*

ANNE E. SULLIVAN, *Assistant Secretary*

Office of the Board, State House, Trenton, N. J.

DUNCAN DUNN, *Superintendent of Game Farms*, P. O. Hackettstown.

MALCOLM DUNN, *Assistant Superintendent of Game Farms*, Forked River.

CHARLES O. HAYFORD, *Superintendent of Fish Hatchery*, Hackettstown.

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

STRATTON, JAMES M., <i>Protector</i> .....	Long Branch
CUDNEY, HARRY E., <i>Assistant Protector</i> .....	Hackettstown
DAVISON, ARTHUR, <i>Assistant Protector</i> .....	Belmar
KELLEY, THOMAS, <i>Assistant Protector</i> .....	Jersey City
MATHIS, HOWARD Z., <i>Assistant Protector</i> .....	Collingswood

BAILEY, JOHN B. ....	Washington
BAKER, EDWIN .....	Haleyville
BAKLEY, ALFRED F. ....	Andover
BERNIUS, HENRY F. ....	Madison
BROOKE, GEORGE B. ....	Blackwood
CARSLAKE, WILLIAM C. ....	Columbus
CARSON, ROY R. ....	Medford
COX, JOHN F. ....	Washington
CROWLEY, HAROLD M. ....	Tuckerton
DACKERMANN, FRED H. ....	Elizabeth
EGGERT, JOSEPH S. ....	West Millington
EVERNHAM, JAMES H. ....	Toms River
GRAHAM, JOHN W. ....	Swedesboro
GROVES, GEORGE E. ....	Hammonton
HALL, FRED J. ....	Montclair
HALL, GERVAS I. ....	Salem
HILL, CHARLES C. ....	Somerville
HUGG, JOHN R. ....	Jamesburg
LARSON, LEWIS .....	Clinton
LAWRENCE, HARRY R. ....	Succasunna
LYELL, M. HOWARD .....	Freehold
MILLER, JOHN C. ....	Absecon
MIZELL, CHATHAM .....	Elmer
NOLAN, THOMAS F. ....	Trenton
PAUL, GEORGE R. ....	Perth Amboy
PHIFER, GEORGE W. ....	Millville
ROACH, ALBERT A. ....	Butler
RUTH, ALBERT J. ....	Woodcliff Lake
SAXTON, DANA J. ....	Barnegat
SMALL, WILLIAM H. ....	Teaneck
STEEL, WILLIAM .....	Cape May Court House
TRELOAR, JAMES H., JR. ....	Franklin
WILLIAMS, ROY H. ....	Pompton Lakes

# GENERAL

## PROGRESS STATEMENT

The President reports the following progress made by the State Board of Fish and Game Commissioners in the propagation and distribution of fish and game in New Jersey for the last fiscal year against the previous fiscal year.

### GAME DISTRIBUTION

	<i>Pheasants</i>	<i>Rabbits</i>	<i>Quail</i>	<i>Turkeys</i>
1929-30 .....	22,709	14,900	720	80
1930-31 .....	30,668	20,661	722	...

17,214 of the above pheasants were propagated and distributed from our own game farms.

5,363 raised by the public from eggs sent from our farms.

8,091 purchased from dealers in the State at a cost of \$26,167.50.

In addition to this we purchased 1,000 birds for a new strain of blood and propagating purposes and sent them to our Farms, at a cost of \$ 3,250.00  
 The rabbits were purchased from the West and cost ..... 17,973.00  
 The quail were purchased from the South and cost ..... 2,050.00  
 The market value of the birds distributed from our Farms was ..... 73,375.25  
 We also distributed 33,795 eggs at a market value of ..... 8,449.00

### FISH DISTRIBUTION

	<i>Trout over 6"</i>	<i>Trout under 6"</i>	<i>Bass</i>	<i>Yellow Perch Fry</i>	<i>Shad Fry</i>	<i>Sunfish</i>	<i>Other Fish</i>
1929-30 ..	446,882	203,300	131,000	113,800,000	3,094,000	391,950	1,725,500
1930-31 ..	467,390	*90,400	102,239	112,450,225	**763,000	142,150	296,869

\*It will be noted that the trout distributed under 6" is decreasing every year while the trout over 6" a greater percentage of which are 10 to 14" is increasing every year.

\*\*The reduction in the number of shad fry put out this year is on account of being unable to procure the shad eggs in the Delaware river.

The market value of the fish put out by the Commission from the Hatcheries was \$192,958.68 and the reservoir fish \$22,845.75.

### CENSUS OF FISH AND GAME TAKEN IN 1929 AS COMPARED WITH 1928

	1928	1929
Pheasants .....	82,479	76,760
Rabbits .....	447,620	469,727
Grey Squirrels .....	.....	60,349
Grouse .....	4,818	* 1,247
Quail .....	58,046	56,510
Woodcock .....	8,966	8,651
Geese .....	5,009	4,664
Ducks .....	63,959	71,673
Trout .....	264,294	300,431
Bass .....	87,774	103,955
Pickeral .....	177,571	203,539
Deer .....	1,415	1,331

\*The small number of grouse killed is accounted for by reason of a closed season in 1929 in 12 counties.

The estimated value in dollars and cents of the game and fish reported taken in 1929 is \$1,343,178.00. The figures do not include fish and game taken by the farmer or property owner on his ground, who does not require a license, and only cover 35% of the total number of licenses issued in the State.

Following is the number of destructive birds and animals taken in 1929 by our wardens and sportsmen as reported by them.

Cats	10,522
Weasels	7,095
Hawks	161
Crows	184
Foxes	1,069
Owls	3
Dogs	28
Skunks	9
Woodchucks	1
Snakes	23
Mink	1
Opossum	1

**LICENSES ISSUED**

1929	202,040 (including special woodcock licenses)
1930	202,218 (including special woodcock licenses)

**PROSECUTIONS FOR VIOLATIONS OF THE LAWS**

1930	1355
1931	1419

**GENERAL**

The Commission has five reels of moving pictures showing the work of the Farms and Hatcheries, also the distribution of game and fish throughout the State, and upon proper application furnishes the same to clubs and schools throughout the State.

The Board inaugurated a system of furnishing pheasants' eggs to persons, who would raise birds at their own expense to the age of ten weeks, when the Board will pay them \$1.00 for each bird raised. The demand was greater than the supply of eggs. Next year we expect to fill every application.

The law was changed at the last session of the Legislature, making it mandatory to report the amount of game and fish taken before a new license can be obtained, and this will give us the actual number taken for future census.

After January 1, 1932, the receipts of the Board will be practically doubled under a law increasing the fee of the resident license from \$1.50 to \$3.00, one-third of the same to be placed to the credit of a fund to be known as the "Public Hunting and Fishing Grounds Fund," from which fund the Board will acquire land and water in all sections of the State by lease, purchase or otherwise, on which the public may fish and hunt during the open seasons unmolested.

There were a great many abatement notices sent out respecting pollution of inland waters, and in four cases prosecutions were brought, the others having complied with suggestions made to them for the elimination of pollution by their plants. A bill was introduced by us for the elimination of pollution of our coastal waters which was sunk in committee.

The following shows the comparison of the output of game and fish last year as against ten years ago.

**GAME**

	Pheasants	Rabbits	Turkeys	Quail
1920-21	5,933	201	6	
1930-31	30,668	20,661		722

**FISH**

	Trout over 6"	Trout under 6"	Bass	Yellow Perch Fry	Shad Fry	Sunfish	Other Fish
1920-21	78,723	1,337,662	119,363	61,553,138		2,100	214,664
1930-31	467,390	90,400	102,239	112,450,225	763,000	142,150	296,869

It will be noted that over a million trout under 6" were distributed in 1921 and only 78,723 over 6". This is practically reversed in 1931 when approximately a half million legal size trout were planted.

**AN ASSET FOR ALL**

Where once the Board of Fish and Game Commissioners was regarded as a body catering for a chosen few, it is now admitted that it is an outstanding feature of the State Government.

The only natural resource which New Jersey has belonging to all the people of the State is the fish and game. It directly furnishes considerable food and recreation for at least a quarter of a million persons. It makes the State attractive to non-residents. The expense of the Board's administration of this resource is supported by hunting and fishing license fees, fines from violators and other receipts, making the Board self-sustaining.

The Commissioners receive no salaries or fees.

The estimated value of game and fish taken in the State in the year is about three million dollars and at least five million dollars are expended annually by the sportsmen for firearms, ammunition, fishing tackle, guides, boats, etc.

The following pages set forth some outstanding features of the Board's administration during the year.

**PUBLIC HUNTING AND FISHING GROUNDS**

The Board has before it the matter of the purchase and leasing of lands and waters for the purpose of establishing public hunting and fishing grounds.

The work will be financed from revenues authorized by a law passed by the last Legislature providing for an increase of the resident hunting and fishing license fee from \$1.50 to \$3.00. One-third of every resident license fee shall be kept in a separate fund to be known as the Public Shooting and Fishing Grounds Fund.

The law referred to also requires all persons above the age of 14, including resident, non-resident and alien females to take out a proper license in order to fish. A lady member of the Assembly several years ago secured the passage of a law containing this provision, but as a section was erroneously amended, it had no effect.

In our past reports we have fully set out the necessity of public hunting and shooting grounds, calling attention that there is an increased amount of posting of lands each year. The Board is solicitous for the sportsman who has not influence or the means to enable him to enjoy himself on restricted lands. There is no doubt but what there will be a constant extension of posted areas.

The Board is very appreciative of the support it received from many fish and game associations when the bill to increase the resident hunting and fishing license fee was before the Legislature.

Already we are receiving offers for areas, but it must be remembered that funds for purchases and leases will only commence to be received after January 1, 1932, when the law goes into effect.

There are many problems to be solved in the acquiring of lands. In Pennsylvania where leases for the hunting rights were acquired, the consideration being the payment of the taxes, it was found that the taxes increased to such an extent that they became a burden and amounted to more than the land was worth, and such leases have been done away with through the outright purchase of the tracts in question. That State is of the opinion it pays better to buy lands for refuges and public

hunting grounds outright than to pay a rental. It is held that any other than an outright purchase results in simply improving and protecting the lands for the benefit of the land owner when the lease expires or when the rental ceases, and the owner can then set up a private hunting proposition on lands well stocked with game at the expense of the sportsmen as a whole.

A different condition exists as far as fishing is concerned. The State can annually replenish the fish which have been removed, but this cannot be accomplished with the upland game birds. It is proposed, however, by our Board, to secure rights for the public on desirable fishing waters.

In Pennsylvania streams are not purchased or leased, but they hope to have sufficient funds to do this later. That State is fortunate in having thousands of miles of fishable streams and hundreds of lakes and ponds open to public fishing, whereas in our State posting is on the increase.

In Connecticut the leasing of fishing rights on streams was inaugurated in 1925. That State's annual report shows 19 streams and 5 ponds under State control, there being 152 miles of streams. They found that the most expensive part of their work, other than providing adult stock, was the warden patrol service, there being a daily patrol of the streams.

#### PRIVATE BREEDING OF GAME

The More Game Birds in America Incorporated had introduced in the Senate a bill respecting licenses to breeders which failed to pass that body. Following its introduction there was a state wide protest on account of its provisions. The bill permitted shooting by owners and guests of game preserves over a longer period than accorded to the public, allowed indiscriminate killing of game birds by permittees and the guests, regardless of the laws controlling other shooters, the shooting of female pheasants and quail, and the sale of game birds other than those raised in captivity.

The Board carefully studied the bill and called for a conference of persons from various parts of the State interested in the subject, which conference appointed a special committee to consider the matter.

Standing with the Board, representing the licensed sportsmen of the State, were the New Jersey Fish and Game Conservation League, representing organized fishing and hunting clubs, and the National and New Jersey Audubon Societies, representing organized bird lovers.

The Board is in favor of any measure which will increase the breeding of game, but it appears that the proposed law adhered too closely to the shooting system on European estates. The Board was fearful that the proposed measure would encourage persons desiring special shooting privileges to purchase and lease large acreages of land to the detriment of the average sportsman, who is now cramped for shooting areas. It appeared possible that the best hunting lands could be taken up and controlled by wealthy persons for unrestricted hunting under the pretense of raising game.

The whole subject is still before the Board, the conference, and the committee of the conference.

#### SURVEY ON PHEASANTS AND QUAIL

The Board decided on the policy set forth as follows, which had been submitted by President Burlington:

After a survey of the records of the pheasant situation in the southern zone of New Jersey over a period of ten years, taking into consideration the kill of birds by counties, the reports of most wardens in the counties affected, actual hunting with good dogs over sections where great numbers of these birds have been liberated for a period of over ten years, reports from sportsmen and other reliable sources, it is generally known that pheasants are not furnishing the return to sportsmen consistent with the amount of money spent on their propagation in this section of the State. On the other hand quail, without much attention on the part of the Board, continue to give a good account of themselves, whereas in the northern counties quail are not increasing commensurate with the stocking and closed season accorded them for the past five years.

Regarding the pheasant situation in the southern zone many non-scientific reasons have been advanced to account for their not thriving in this section, the most outstanding being the fact that pheasants do not thrive in a wild state below the 42nd parallel, although they can be raised under wire with success. This would seem to indicate that the proper nutrition can be maintained under wire whereas the birds are not able to obtain the proper nutrition when they are turned loose. This applies to grain and plant life in different zones of New Jersey as well as birds and animals.

Whether or not the above is the prime reason for the unsuccessful propagation of pheasants in the past ten years in the southern zone of the State, is immaterial at this time; the fact remains that we are getting little results by continued planting of pheasants in this section in comparison with the time and money spent.

In the northern zone of the State the propagation and planting of pheasants has been in reverse ratio to the southern zone. Here the kill of pheasants has been phenomenal in view of the fact that every county in the State has had an equal distribution for the past ten years, the ratio of the kill to release being over ten to one, that is for every male bird released ten were bagged, indicating 9/10 of the kill represents birds raised in the wild.

In conclusion it is recommended that the planting of pheasants be confined to the northern zone for a period of five years except possibly in a few districts where it is known that pheasants are suited, and that the money saved from this be expended in restocking the southern zone with quail, which we know is suitable for this bird.

Out of 8,000 planted in 8 southern counties, only 7,030 killed.

Out of 13,000 planted in 13 northern counties, 69,730 killed.

#### ORGANIZATION

At the Board's annual meeting on December 9, 1930, President H. J. Burlington, Montvale; Vice-President Charles F. Hunter, Palisade; and Treasurer H. M. Armstrong, Jersey City, were re-elected to their positions for a term expiring on the first regular meeting of the Board to be held in December 1931.

The records show that President Burlington had been re-appointed as Commissioner for a new term of five years, commencing November 25, 1930, and expiring November 24, 1935, and that his commission for his new term had been forwarded to him by the Secretary of State.

The Committees on Hatchery, Game Farms, Autos, Game Sanctuaries, Financial, Legislation, Vermin Control, Deputies, Salt Water, Boats, Deer Damage, Prosecutions, Insurance, and Pollutions, were continued, and a new Committee on Publicity was appointed.

Counties of the State under direct supervision of a Commissioner follow:

Bergen and Passaic, President Burlington; Sussex and Morris, Commissioner Hunter; Middlesex and Warren, Commissioner Spinks; Hunterdon, Hudson, and Essex, Commissioner Armstrong; Union and Somerset, Commissioner Warren; Mercer and Monmouth, Commissioner Phillips; Burlington and Camden, Commissioner Cooper; Ocean, Atlantic, and Cape May, Commissioner Hensler; Gloucester, Salem, and Cumberland, Commissioner McCarty.

The wardens in these counties make a monthly report to the Commissioners in addition to their monthly reports to the Protector.

#### LEGISLATION

The Board conferred with various members of the fish and game clubs of the State and with the New Jersey Audubon Society respecting prospective legislation.

**Conservation.** A law in the interest of conservation of fish in the operation of fish pounds in the Atlantic Ocean was passed. The act made a change in the old law by providing that the mesh of fish pound nets shall not be smaller than two inches, and further providing that at the time of emptying such nets there shall not be retained a greater portion than five per cent of the total catch of fish smaller than permitted by the act, and the sizes mentioned in the act are those which are at present prohibited for sale by law.

**Greater Food Supply.** The Board approved of a bill, which became a law permitting pike-perch, and pike, legally taken in another State, to be brought into this State and sold at any time. Large quantities of these fish are taken legally in the Great Lakes and in New York State and shipped to markets in New York and Philadelphia after the season on the fish in this State is closed. Residents of New Jersey may now purchase this article of food, if the fish have been taken in another State, during the time our season is closed on the same.

**A Veto.** Governor Larson in vetoing Senate Bill 149 said:

"This bill increases the number of members of the Board of Fish and Game Commissioners to 21. There is no necessity for the bill, and it will, in my opinion, create an unwieldy and cumbersome commission. I am therefore withholding my approval."

Senate bill 149 was opposed by the Board, the New Jersey Conservation League, and organized sportsmen's associations.

**Training Dogs.** The bill introduced by Senator Edward P. Stout, of Hudson County, prohibiting the training of dogs during May, June, and July failed to pass.

**Federal Hatchery.** A law was passed authorizing the U. S. Commissioner of Fisheries to conduct fish cultural operations in New Jersey, which law is the basis for establishing a federal hatchery in this State.

#### PUBLICITY: MOVING PICTURES

The Board purchased two projectors for moving pictures, a Holmes and an Acme, for the showing of 35 mm. pictures, which is of the size suitable for theatres. There are five reels of films comprehensive of the work being done by the Board in the raising and distribution of fish and game.

A projecting machine and films may be obtained of the Board when the application is approved by the warden of the county. The Board delivers the machine and films to the place where they are to be shown. It is desirable that persons applying for an exhibit shall furnish a competent operator.

While the business recession affected adversely many activities, on the other hand it increased the public interest in and demand for outdoor recreations and especially in hunting and fishing. Thousands of men, forced to economize on vacations, have joined the ranks of licensed sportsmen and more are continually turning to these healthful sports which can be enjoyed at a relatively small expense.

Newspaper and magazine editors have been quick to recognize this trend and have been increasingly generous in the allotment of space to fishing and hunting news. Much basic information has been supplied directly and indirectly by the Commission. Assistance has been rendered special writers in preparing articles on various activities of the department. Department bulletins and news matter are supplied monthly to more than 500 newspapers, news agencies, magazines and correspondents in New Jersey and nearby metropolitan areas.

Commissioners and other representatives of the Commission have spoken during the year before numerous clubs and other gatherings, their talks generally being supplemented by an exhibition of departmental moving pictures. Several organized camps of boys' and girls' clubs and associations have furnished especially enthusiastic groups for these movie exhibitions.

Some typical pictures of the Board's films are as follows:

**Game**—Breeding pens at the game farms where the pheasants lay their eggs, scene of gathering eggs four times each day, setting eggs under hens, the appearance of baby pheasants after 24 days, birds in the rearing pens, the young pheasants with their foster mothers, preparing food for pheasants, transportation and distribution of birds.

**Fish**—The hatchery, which is one of the largest in the world, bass breeding ponds, five million gallons of pure spring water are used daily, a place where millions of trout and perch are hatched annually, preparing food, obtaining specimens to make daily microscopic examinations for parasites and ailments of fish, stripping eggs from female trout, hatching takes from 45 to 50 days, the progress of hatching, the first flash of life appears at 35 days, baby trout fed every two hours, six months old trout fed three times a day, grading trout to uniform sizes at the six month period to prevent cannibalism, trout one year old, about 5 to 7 inches long, are taken out of concrete pools and placed in rearing ponds; trout between 18 and 22

months old are between 8 and 12 inches long and ready for distribution, transportation of fish for stocking, fishing for trout in streams.

These films have been shown at the following places: Sportsmen's Association, Milltown; Carteret Club, Trenton; Long Hill Gun Club, South Orange; Summit Gun Club, Summit; Summit High School, Summit; Palisade; Veterans of Foreign Wars, Asbury Park; American Legion, Maywood Post No. 142, Maywood; Park Ridge Local; Bergen County Sportsmen's Association; Little Ferry Local, Bergen County Sportsmen's Association; Izaak Walton League, Paterson; Jersey City; Summit; Deputy Warden Association, Teaneck; Englewood High School, Englewood; Local Exchange Club, Newton; Nutley Lion Club; Elks Club, Belleville; Newton Academy, Newton; Telephone Company, Millburn; Izaak Walton League, Hawthorne Chapter; Camden County Fish and Game Association; Anglers Club of Absecon Island, Margate City; Tyrian Lodge No. 134 F. & A. M., Elizabeth; Bergen County Sportsmen Association, Branch No. 1, Fort Lee; Cliffside High School; Edgewater School; Boy Scouts of North Bergen, Fort Lee; Izaak Walton League, Cedar Grove.

The Board made an exhibit at the Atlantic City Fair, which was held in July and August 1931, and elicited favorable comment from thousands. The background of the exhibit was a painting 60' by 14' and showed four main geographical features of the State and in front of each geographical section were shown specimens of fish and birds inhabiting such sections. Vegetation of the various sections gave considerable life to the exhibit, which was quite a revelation to the many visitors of the fair, showing that New Jersey contains a wonderful variety of fish and game. A pamphlet giving a description of the activities of the Board was distributed. The exhibit was directed by Commissioner H. M. Armstrong and Miss Anne E. Sullivan, Assistant Secretary of the Board.

Other fair exhibits were made as follows: Monmouth County Poultry Show, Asbury Park. Hunterdon County Fair, Flemington. Sussex County Fair at Branchville. Inter-State Fair, Trenton.

#### TO OBTAIN OXYGEN IN WATERS

An important step has been taken in providing for obtaining the amount of oxygen in waters reported to be polluted. Oxidation of vegetable or deleterious matter reduces the supply of oxygen in waters thereby killing the fish. On the other hand, too much oxygen will suffocate fish, causing them to take on a condition known as pop-eyed, which excess oxygen is caused by the presence of algae.

Our four Assistant Protectors were instructed by Mr. LeRoy Forman, Chemist of the State Board of Health, how to obtain samples which would show the oxygen content. After samples are taken above and below the source of pollution, five chemicals are introduced immediately. These are then sent to the laboratory of the State Board of Health for tests as to the amount of oxygen. Chemical tables will be consulted showing amount of oxygen required in order to maintain the life of various fishes.

The taking of these samples will be in addition to the former system of obtaining a two-quart sample from above and below the pollution for examination as to any chemicals or deleterious substances they may contain.

## RECEIPTS AND EXPENDITURES

An analysis of the receipts and expenditures during the fiscal year follows:

<b>Receipts</b>			
Hunters' and Anglers' Licenses, County Clerks' Checks to State Treasurer, Chapter 152, Laws 1914 .....			\$303,319.20
Board's checks to State Treasurer:			
Chapter 125, Laws of 1922 (Woodcock licenses) .....		4,300.00	
Chapter 320, Laws of 1915 (Juvenile licenses) .....		236.00	
			\$307,855.20
Other Licenses:			
Food Fish .....	\$2,050.00		
Menhaden .....	3,275.00		
Pounds .....	6,980.00		
Breeders .....	2,670.00		
Carp .....	100.00	\$15,075.00	
			\$37,072.08
Fines and Penalties:			
Chapter 247, Laws 1911 .....	\$36,169.58		
Chapter 96, Laws 1922 (trespass.) .....	902.50		
			\$ 4,541.08
Farms and Hatchery Sales .....	\$2,380.35		
Sundries .....	1,616.73		
Deputy Badges .....	544.00		
			\$ 56,688.16
			\$364,543.36

<b>Expenditures</b>			
Personal Administration, Commissioners .....			\$1,344.45
Wardens' Salaries .....			77,860.00
Wardens' Expenses .....			9,807.10
Stocking and netting expenses .....			8,164.44
Office Expenses .....			13,009.02
Publicity .....			1,017.50
Printing, Stationery, etc. (office furniture—typewriters) .....			3,679.57
Hunting and fishing licenses and buttons .....			5,794.06
Legal Expenses (court costs and assistance in cases) .....			1,729.60
Maintenance of Cruiser .....			10,247.33
Gasoline and Oil for Autos, Boats, Farm and Hatchery .....			9,916.58
Tires and Tubes for Autos and Trucks .....			2,357.41
Maintenance, Autos and Boats .....			8,320.70
Purchase of Autos and Boats .....			13,479.38
Postage, Telephone, Telegraph and Insurance .....			3,882.80
Maintenance, Forked River Farm, Salaries, etc. ....			24,408.88
Equipment and improvements, Forked River Farm .....			5,613.06
Maintenance, Rockport Farm, Salaries, etc. ....			24,240.73
Equipment and improvements, Rockport Farm .....			1,774.28
Maintenance, Fish Hatchery, Salaries, etc. ....			84,795.34
Equipment and improvements, Hatchery .....			1,977.87
Maintenance, Shad Hatchery .....			892.85
Purchase of Game and Fish from Outside Sources .....			34,568.44
Miscellaneous Expenses .....			1,982.22
			\$350,863.61
Bills Outstanding .....			\$23,374.24

## RECEIPTS, LICENSES, FINES, ETC.

The amount received by the State Treasurer during the fiscal year on account of Hunters' and Anglers' License Act of April 9, 1914; also acts of April 14, 1915, juvenile licenses, and March 11, 1922, woodcock licenses, was \$307,855.20.

There were 2150 woodcock licenses issued at \$2.00 each, making total receipts therefrom \$4,300.00.

Licenses to steamers and other vessels to take menhaden with purse nets within the three mile limit of our coast during the fiscal year were \$3,275.00. For the calendar year ending December 31, 1930, there were 37 vessels licensed to take menhaden.

Licenses to vessels to take fish other than menhaden with purse seines and beam trawls at a distance oceanward beyond two miles from the coast line aggregated \$2,050.00, there being 41 licenses issued.

For the fiscal year there were issued 534 breeder's licenses at \$5.00 each, total \$2,670.00, to persons to keep in their possession English and Mongolian pheasants, mallard, black and wood ducks, raccoon, Canada geese, ruffed grouse, rabbits, squirrels, quail and deer in a wholly enclosed preserve.

The aggregate of fines collected for violation of the fish and game laws for the fiscal year amounted to \$36,169.58.

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 \$6,980.00. For the calendar year ending December 31, 1930, there were 135 licenses granted, 118 for the Atlantic Ocean and 17 for Sandy Hook Bay.

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 hunting license, only when accompanied by the holder of regular license above the age of 21 years, there were 236 licenses for the fiscal year, the receipts being \$236.00.

Under the law prohibiting aliens to be possessed of firearms, 23 guns were confiscated.

## CARS AND BOATS

We are operating 9 trucks, 38 Ford cars, 2 Chevrolet cars, and 4 Buick cars. During the year we bought 12 new Ford cars, 10 of which were replacements.

We also operated 17 power boats, 2 of which were new, 8 rowboats and two canoes.

## CENSUS OF FISH AND GAME

The act of 1931 increasing the resident license fee contains an important provision in that applicants for a license must report to the person issuing the license, the number of all fish, birds, animals and vermin killed by the applicant during the previous calendar year, and it is made the duty of the issuing agency to enter such information on the blank attached to the license to be issued, before issuing a license to an applicant.

The Board inaugurated the taking of census of fish and game in 1924. The reason for the mandatory clause is due to the fact that in the past the greater percentage of persons taking out licenses failed to give this information, even after being requested to do so. We regard this checking up on the bag of the sportsmen as very important, and other States require the same.

## GAME FOR THE BENEFIT OF LICENSEES

A feeble attempt was made to discredit the Commission on the charge that waters from which the public were excluded had been stocked by the Board.

The records of the Board are open as to our stocking, and we yearly publish a list of all waters stocked. Our employees are under the strictest orders under the pain of dismissal not to stock waters where the public cannot fish. The critics mentioned two lakes but the facts were that fish were put in these lakes at the request of the officials of Jersey City in return for permission given to the Board to net the Jersey City Reservoir at Boonton, from which a large quantity of fish was obtained and planted in many waters open to the public.

The Board made a searching investigation into a report that rabbits had been stocked on certain posted lands in Passaic County. From statements repeated by several persons, it looked at first as if two of our Wardens had been guilty of disobeying the order of the Board. The Board gave a hearing to persons who could testify to the reported stocking. The two Wardens involved presented affidavits from persons, who, it had been reported, were authority for the statements that the private estate had been stocked, the affidavits stating that the affiants had no knowledge of the Wardens stocking the estate and that they had not told any person that the Wardens stocked the estate. The Wardens made an emphatic denial of the charge. The Board was forced to conclude that there was no proof that the Wardens had stocked the estate, and that statements to that effect were based on heresy reports.

The Board clearly recognizes that the fish produced at the hatchery and game at the game farms, which establishments are sustained by license fees paid by hunters and fishermen, belong exclusively to any person who will take out a hunting and fishing license.

Some land and stream owners have taken advantage of the stocking of the State with fish and game by posting their properties. We have been unable to prevent this and our only remedy is to refuse to stock such lands. Ownership of lakes and properties is constantly changing.

## WARDENS' SERVICE

The tabulations showing 1419 arrests by the wardens and the collection of \$36,159.58 in penalties for prosecutions indicate that the warden force has been alert. It is pleasing to the Board to learn from many persons who have come in contact with members of the force that they are impressed with the character and ability of the men. It is the Board's constant effort to have only wardens who are in every way qualified for their work.

We believe the wardens generally re-act favorably to our idea of a force which shall notably show its excellence.

The Board has under consideration the matter of having the wardens wear a distinct uniform.

A letter was sent to all employees that they should keep their work free from political control, that they must not devote their time to promoting the interests of political candidates, and that they shall not hold any elective or appointive office where remuneration is attached.

Wm. C. Carslake was appointed warden for Burlington County and went on duty September 15.

Joseph K. Mathis was permanently appointed captain of the State Cruiser, his services commencing January 13.

Warden Roach was transferred from Burlington to Morris County, Warden Paul from Somerset to Middlesex County, and Warden Eggert from Middlesex to Somerset County.

A deputy warden, who had loaned his license and button to his brother, a deputy who was hunting with a friend who did not have a license, and a deputy who had been arrested and convicted of using indecent language while acting as deputy, were dismissed.

### PROSECUTIONS

During the fiscal year ending June 30th, there were 1419 prosecutions for violation of the fish and game laws, which resulted in 1404 convictions and only 14 acquittals, and one case pending, which is approximately 99% of convictions. In 131 cases, by reason of youth, old age, extreme poverty, or other extenuating circumstances, sentence was suspended on payment of costs. Thirty-nine cases were appealed to the Common Pleas Court. In default of the payment of penalty 39 offenders were committed to the county jail for periods of from ten to ninety days. Ninety hunters' and anglers' licenses were revoked after the offenders were convicted of violating the act. In four of these cases, it being the second offense for the offenders, they will not be entitled to any license for two years.

Twenty-three guns were confiscated from aliens.

The number of prosecutions for the past fiscal year was the greatest in the history of the Fish and Game Commission, being 64 in excess of last year when 1355 arrests were made.

The proportion of arrests made by each warden during the fiscal year and the total number of arrests in each district is as follows:

District in charge of Assistant Protector Kelley	457 1/3
District in charge of Assistant Protector Davison	405 1/3
District in charge of Assistant Protector Mathis	365
District in charge of Assistant Protector Cudney	165 1/3
Prosecutions by deputies and troopers	26
	<hr/>
	1419
Graham	144 3/10
Carson	114 1/2
Williams	98 5/6
Small	80
Hugg	73 1/6
Nolan	66 1/2

Carslake	59 3/4
Groves	59 4/6
Evernham	51 3/4
Lyell	51 1/4
F. J. Hall	48 1/6
Miller	43 1/6
Roach	40 1/2
Paul	38
Bakley	36 7/12
Mizell	33 29/30
Hill	32 2/3
Crowley	31 1/6
Ruth	29
Brooke	28 4/5
Dackermann	26 1/2
Eggert	25
G. I. Hall	22 3/10
Treloar	23 1/4
Saxton	22 1/6
Bernius	20 2/6
Lawrence	20
Larson	16 11/12
Baker	12 4/30
Phifer	11 2/6
Steel	7 5/6
Cox	7 1/12
Davison	6 1/4
Kelley	6
Mathis	1 1/2
Bailey	1 1/3
Jacobus	5/6
Cudney	1/2
Deputies and other Complainants	26

1419

The following shows the various offenses for which persons were arrested during the fiscal year:

Fishing, no license	263
Hunting after sunset	108
Firearms in woods	106
Procuring wrong license	104
Hunting, no license	97
Possession of protected birds	97
Dog running at large	56
Sunday gunning	55
Illegal possession of deer	50
Illegal deer hunting	48
Possession of illegal missile	48
Hunting with automatic gun	41
Possession of short fish	37
Possession of hen pheasant	36
Illegal net fishing	26
Alien firearms	24
Possession of fish out of season	18
Hunting by auto light	18
Loaning and altering buttons and licenses	15
Killing game illegally	15

Killing protected birds .....	14
Possession of short lobster .....	14
Illegal fishing .....	11
Giving false information to procure license .....	10
Illegal trapping .....	10
Illegal possession of game .....	9
Failure to report fox .....	9
Killing hen pheasant .....	7
Shooting from auto .....	7
Excess of bag limit .....	6
Stealing traps .....	6
Artificial bait .....	5
Shooting from motor boat .....	5
Spearing fish .....	5
Pennsylvanian fishing on Sunday .....	4
Polluting waters .....	4
Refusing to show license .....	4
Hunting duck illegally .....	3
Setting box traps .....	3
Operating beam trawl, no license .....	2
Hunting close season .....	2
Hunting before sunrise .....	2
Possession of live fox .....	2
Selling short fish .....	2
Resisting arrest .....	2
Operating fish pound, no license .....	2
Attempting to kill mud hen .....	1
Mutilating game .....	1
Drawing off water without permit .....	1
Impersonating game warden .....	1
Selling game .....	1
Disturbing muskrat lodge .....	1
Failure to report fish pound in 1929 .....	1

1419

**CONTROL OF DOGS**

A menace to game is dogs running at large, and where owners apparently wilfully permit their dogs to run, the Board does not hesitate to enforce the law. However, there are cases where the owners perhaps technically violated the law through ignorance, and the Board took the position that prosecution in such cases was not justified.

To meet the condition the wardens were supplied with a form of a notice to be served on persons who, perhaps, were not acquainted with the law, warning them that if there was repetition of the offense, prosecution would follow. A duplicate of said notice was ordered to be sent to the Board.

When the Board was giving study to the matter of a better control of dogs, it learned that the New Jersey Association of Township Committeemen had under consideration the same subject, and we furnished to the Association a synopsis of the Virginia law.

The Legislature passed a general act for the taxing of dogs, which provides that every person who keeps or harbors a dog above the age of six months in any of the taxing districts shall be taxed one dollar yearly for one dog, and for every additional dog above the age of six months the sum of two dollars; that there may

be annually levied when legally ordered a further dog tax, provided, however, that the act shall not apply to taxing districts wherein there are now in force or may hereafter be adopted municipal ordinances to prohibit, restrain, and regulate the running at large of dogs.

A bill introduced by Senator Edward P. Stout, of Hudson County, prohibiting the training of dogs during May, June, and July, failed to pass.

Our present fish and game laws provide that if any dog is found running at large in the woods or fields, except during the open season for killing of quail, etc., the owner, lessee or custodian of such dog shall be liable to a penalty of \$20 for each offense; that the occupant of any farm may permit his dog to run at large on the land which he occupies except during the open season for deer; that the owner, lessee, or custodian of a dog may go into the woods or fields with such dog, without firearms, for the purpose of exercising or training said dog, in daylight, at any time except during the open season for deer, that persons may hunt foxes with hounds and firearms in daylight from November 10th to April 30th, except during the open season for deer.

The general law of the State respecting dogs provides that dogs shall be registered and numbered by clerks of municipalities and dogs shall wear a collar with registration stamped thereon. It is the duty of designated officials to impound dogs found to be unregistered. Following the impounding a notice in writing is to be mailed to the nearest office of the Society for Prevention of Cruelty to Animals of the fact of impounding and that the dogs impounded will be destroyed unless claimed by said organization within three days from mailing of the notice.

**DELAWARE RIVER DIVERSION CASE**

The United States Supreme Court gave an opinion in the case of the State of New Jersey against the State and City of New York, defendants, and the State of Pennsylvania, Intervenor, to enjoin the defendants from diverting any waters from the Delaware River or its tributaries to the water shed of the Hudson River to increase the water supply of the City of New York. Our Board assisted in the preparation of fishing data for the case.

The opinion says that the taking of 600,000,000 gallons daily will not materially affect the river or sanitary conditions, or as a source of municipal water supply, or for industrial uses, or for agriculture or for fisheries of shad. However, the effect on the river for recreation and its reputation in that regard would be somewhat more serious, as will be the effect of increased salinity of the river upon the oyster fisheries.

The opinion continues that the 600,000,000 gallons is found to be greater than New Jersey ought to bear, but the damage can be removed by reducing the draft of New York to 440,000,000 gallons daily.

Before any diversion shall be made, an efficient plant for the treatment of sewage at Port Jervis, N. Y., shall be constructed.

The opinion also provides that if at any time the stage of the Delaware River falls below certain figures at Port Jervis or Trenton, water shall be released from one or more of the impounding reservoirs of New York City in sufficient volume

to restore the flow at Port Jervis and Trenton to figures fixed by the opinion. The Court retains jurisdiction of the suit for the purpose of modification of the decree, as it may deem at any time to be proper.

**Pollution and the Shad Industry.** Charles N. Burch, Special Master in the case, referring to the shad industry in the Delaware River said in his report:

"While, necessarily, there must be sufficient water in the river so that the shad can migrate upstream during the spawning season and also sufficient water in the river so that the shad, after the spawning season, can return to the sea, yet it does not appear that there is any absolute relation between the high flows and the heavy catches of shad.

"I am of the opinion that the pollution of the Delaware River has had a much more damaging effect on the shad industry than have the variations of the flow in the river from year to year. There are, no doubt, other causes for the decline in the number of shad migrating into the Delaware River as into other streams flowing into the Atlantic Ocean, but these other causes are of an obscure character which will have to be determined by a more extensive and intensive study by fish experts. The greater part of the pollution of the Delaware River, so far as shad is concerned, comes from Pennsylvania and New Jersey, and the correction of this pollution is beyond the scope of the instant case. However, there is, as already stated, substantial contribution of pollution from the State of New York and particularly from Port Jervis. The treatment of sewage and industrial waste at Port Jervis will leave the Delaware River in a relatively clean and sanitary condition where it enters the State of New Jersey, and it will then be a matter for New Jersey and Pennsylvania to correct and prevent undue pollution below Port Jervis. To me, as a layman, I can well understand how the migration of shad up the river in the spring would be materially reduced by reason of the polluted condition of the river below and at Philadelphia and Camden. At the time of the inspection trip the pollution of the river between Philadelphia and Camden was such that a distinctly disagreeable odor was noticed."

#### THE HIGH POINT BAR CASE

We took up with the Commerce and Navigation Committee and the Attorney General a report that the High Bar Gun Club was constructing a shooting box at a greater distance than one hundred feet from the shore of Barnegat Bay, which was in violation of the act making it unlawful for any person to place any construction in which such person may lie in wait to kill waterfowl at a distance of more than one hundred feet from ice, meadow, marsh, bank, etc. It was proposed to erect a causeway 450 feet from high water mark.

Protector James M. Stratton notified the representative of the High Bar Gun Club that instructions had been issued to our Wardens to arrest any person shooting from the structure.

Following a hearing held by the Commerce and Navigation Board, the representative of the High Bar Club was informed that the Club were trespassers and must remove all the structure which was at a greater distance than one hundred feet from the shore, from a mean high water line, said line to be agreed upon by the High Bar Gun Club's engineer, the engineer of the Commerce and Navigation Commission, and by H. M. Armstrong, a member of the Board of Fish and Game Commissioners.

#### MISCELLANEOUS

The Board requested members of Congress to support Concurrent Resolution 23, providing that the President of the United States be requested to issue each year a proclamation designating the first week in April as American Conservation Week. The resolution failed to pass, but its sponsor, the Educational Conservation Society of New York, believe that it will be adopted at the next session of Congress.

Commissioner H. M. Armstrong represented the Board at a meeting of representatives of the United States War Department and the New Jersey Board of Commerce and Navigation respecting the proposition for the opening and deepening of Barnegat Inlet, which the Board favored, as a more navigable inlet would be of assistance to the navigation of the Board's cruiser.

Miss Anne E. Sullivan, Assistant Secretary, represented the Board at a state wide conference respecting tree planting and reforestation held at New Brunswick. The conference desired the State Departments to become interested in the campaign of the American Tree Association in promoting the planting of memorial trees in honor of George Washington.

# GAME

## GAME DISTRIBUTION

During the past fiscal year, the Commission distributed the following: 30,668 pheasants, 20,661 rabbits and 722 quail; 17,214 of the pheasants were propagated and distributed from our own game farms, 5,363 raised by the public from eggs sent from our Farms, and 8,091 purchased from dealers in the State. The rabbits which were obtained from Missouri were the finest ever received by the Board and they came through with less mortality than heretofore. The contractor donated to the Board gratis 691 rabbits, which are included in the total above.

The Board has ordered, for September 1931 delivery, twelve weeks' old pheasants as follows: Argos Game Farm, Clinton, 3,000; Shropshire Game Farm, Stockton, 1,100; American Game Corporation, Chester, 1,000; Everett Davison, Belmar, 500; Edward Voller, Browns Mills, 500; Peter Celoria, Englishtown, 200, at a cost considerably less than in former years.

## GAME CONDITIONS IN 1930

Robert M. McKee, Secretary of the Bergen County Sportsmen's Fish and Game Protective Association, Branch No. 1, conveyed to the Board a resolution adopted by the Branch, sincerely commending the Board for the general good hunting conditions which prevailed in the wide-spread sections of the State which had been visited by their members, and particularly in Bergen County.

Protector James M. Stratton sent a questionnaire to the wardens respecting game conditions.

There are closed seasons on quail in Warren, Passaic, Bergen, Sussex, Morris, Essex, Hudson, Union, Somerset, and Hunterdon Counties until 1933, and on ruffed grouse in Essex, Union, Somerset, Hunterdon, Mercer, Middlesex, and Monmouth Counties until 1932.

The season was closed throughout the State for Hungarian partridge and wild turkey.

Principal points of the reports from the wardens follow:

No Hungarian partridges or wild turkeys were reported in any of the counties except: Burlington, 28 Hungarian partridges; Hunterdon, 18 Hungarian partridges; Passaic, 25 Hungarian partridges and 75 wild turkeys; Somerset, 150 Hungarian partridges; Warren, about 200 Hungarian partridges.

**Atlantic County.** Wardens Groves and Miller. Rabbits—Good supply, increase in killed, thinned out. Squirrels—Fair supply, decrease in killed, small number left. Pheasants—Fair supply, increase in killed, small number left. Quail and Ruffed Grouse—Poor supply, decrease in killed, small number left. Ducks—Good supply, increase in killed, large number left. Geese—Fair supply, decrease in killed, large number left. Brant—Fair supply, increase in killed, large number left. Rails—Good supply, increase in killed, large number left. Woodcock—Poor supply, decrease in killed, small number left. Raccoon—Fair supply, increase in killed, thinned out.

**Bergen County.** Wardens Small and Ruth. Rabbits, Squirrels and Pheasants—Good supply, increase in killed, small number left. Ruffed Grouse—Fair supply, usual amount killed, thinned out. Ducks—Good supply, usual amount killed, thinned out. Geese and Brant—None. Rails—Good supply, decrease in killed, small number left. Woodcock—Good supply, increase in killed, small number left. Raccoon—Fair supply, usual amount killed, small number left. Closed season on quail, poor supply.

**Burlington County.** Wardens Carson and Carslake. Rabbits—Fair supply, decrease in killed, thinned out. Squirrels—Fair supply, increase in killed, small number left. Pheasants—Fair supply, increase in killed, thinned out. Quail—Fair supply, increase in killed, more than ever left. Ruffed Grouse—Fair supply, decrease in killed, thinned out. Ducks—Fair supply, increase in killed, thinned out. Geese and Brant—Poor supply, decrease in killed, small number left. Rails—Good supply, increase in killed, thinned out. Woodcock—Good supply, increase in killed, more than ever left. Raccoon—Fair supply, increase in killed, small number left.

**Camden County.** Warden Brooke. Rabbits—Good supply, decrease in killed, large number left. Squirrels—Poor supply, decrease in killed, thinned out. Pheasants—Fair supply, increase in killed, small number left. Quail—Fair supply, decrease in killed, small number left. Ruffed Grouse—Poor supply, thinned out. Ducks—Fair supply. Geese—Poor supply. Rails—Good supply, increase in killed, small number left. Woodcock—Good supply, increase in killed, large number left. Raccoon—Fair supply, decrease in killed, small number left.

**Cape May County.** Warden Steel. Rabbits—Good supply, increase in killed more than ever left. Squirrels—Fair supply, decrease in killed, small number left. Pheasants—Good supply, increase in killed, small number left. Quail—Fair supply, increase in killed, large number left. Ruffed Grouse—None. Ducks, Geese and Mud Hens—Poor supply, decrease in killed, thinned out. Brant—None. Woodcock—Good supply, increase in killed, more than ever left. Raccoon—Poor supply, decrease in killed, thinned out.

**Cumberland County.** Wardens Phifer and Baker. Rabbits and Squirrels—Good supply, increase in killed, fair amount left. Pheasants—Fair supply, decrease in killed, thinned out. Quail—Good supply, increase in killed, more than ever left. Ruffed Grouse—Fair supply, increase in killed, more than ever left. Ducks and Geese—Good supply, increase in killed, more than ever left. Brant—Fair supply, decrease in killed, thinned out. Rails—Good supply, increase in killed, more than ever left. Woodcock—Fair supply, increase in killed, more than ever left. Raccoon—Fair supply, decrease in killed, thinned out.

**Essex County.** Warden Fred J. Hall. Rabbits and Squirrels—Good supply, increase in killed, large number left. Pheasants—Good supply, increase in killed, thinned out. Quail—None. Ruffed Grouse—None. Ducks—Fair supply, decrease in killed, small number left. Geese, Brant and Rails—None. Woodcock—Very good supply, increase in killed, more than ever left. Raccoon—Poor supply, decrease in killed, thinned out. Closed season on quail and grouse, no supply.

**Gloucester County.** Warden Graham. Rabbits, Squirrels and Pheasants—Fair supply, increase in killed, small number left. Quail—Fair supply, decrease in killed, small number left. Ruffed Grouse—None. Ducks—Good supply, increase in killed.

large number left. Geese and Brant—None. Rails and Woodcock—Good supply, increase in killed, large number left. Raccoon—Fair supply, decrease in killed, small number left.

**Hudson County.** Assistant Protector Kelley. Rabbits and Pheasants—Poor supply, decrease in killed, thinned out. Squirrels—None. Ruffed Grouse—None. Geese and Brant—None. Ducks—Good supply, increase in killed, small number left. Rails—Fair supply, decrease in killed, migrated. Woodcock—Good supply, increase in killed, migrated. Raccoon—None. Closed season on quail, no supply.

**Hunterdon County.** Warden Larson. Rabbits—Good supply, increase in killed, thinned out. Squirrels—Fair supply, increase in killed, small number left. Pheasants—Good supply, increase in killed, thinned out. Ducks, Geese, Brant and Rails—None. Woodcock—Poor supply, decrease in killed, small number left. Raccoon—Fair supply, increase in killed, thinned out. Closed season on quail and grouse; fair number of quail noted and fair number of grouse noted in northern end.

**Mercer County.** Warden Nolan. Rabbits and Squirrels—Fair supply, decrease in killed, thinned out. Pheasants—Good supply, increase in killed, small number left. Quail—Fair supply, increase in killed, small number left. Ducks and Geese—Poor supply, decrease in killed. Rails—Fair supply, decrease in killed. Woodcock—Good supply, increase in killed. Raccoon—Good supply, increase in killed, large number left. Brant—None. Closed season on grouse and none noted.

**Middlesex County.** Wardens Hugg and Paul. Rabbits—Good supply, increase in killed, small number left. Squirrels—Poor supply, increase in killed, thinned out. Pheasants—Fair supply, decrease in killed, small number left. Quail—Good supply, increase in killed, large number left. Ducks—Good supply, increase in killed. Geese and Brant—None. Rails—Poor supply. Woodcock—Good supply, increase in killed. Raccoon—Fair supply, increase in killed, thinned out. Closed season on grouse but very slowly increasing.

**Monmouth County.** Assistant Protector Davison and Warden Lyell. Rabbits—Fair supply, decrease in killed, small number left. Squirrels and pheasants—Good supply, increase in killed, large number left. Quail—Good supply, decrease in killed, large number left. Ducks, Geese, and Brant—Few in county. Rails—Good supply, increase in killed, migratory. Woodcock—Good supply, increase in killed, migratory. Raccoon—Good supply, increase in killed, large number left. Closed season on grouse, fair supply, many killed by fires.

**Morris County.** Wardens Lawrence, Roach, and Bernius. Rabbits and Squirrels—Good supply, increase in killed, large number left. Pheasants—Fair supply, increase in killed, small number left. Ruffed Grouse—Fair supply, decrease in killed, thinned out. Ducks—Fair supply, decrease in killed, large number left. Geese and Brant—Poor supply, decrease in killed. Rails—Poor supply, decrease in killed, thinned out. Woodcock—Fair supply, increase in killed, migratory. Raccoon—Good supply, increase in killed, thinned out. Closed season on quail, very few noticed.

**Ocean County.** Wardens Evernham, Crowley, and Saxton. Rabbits—Good supply, increase in killed, more than ever left. Squirrels—Good supply, increase in killed, large number left. Pheasants—Fair supply, increase in killed, thinned out.

Quail—Very good supply, increase in killed, large number left. Ruffed Grouse—Poor supply, increase in killed, thinned out. Ducks, Geese, and Brant—Very good supply, increase in killed, more than ever left. Rails—Fair supply, increase in killed, small number left. Woodcock—Poor supply, decrease in killed, thinned out. Raccoon—Good supply, increase in killed, large number left.

**Passaic County.** Warden Williams. Rabbits and Pheasants—Good supply, increase in killed, thinned out. Squirrels—Good supply, about the same number killed, thinned out. Ruffed Grouse—Fair supply, about the same number killed, more than ever left. Ducks and Geese—Poor supply, decrease in killed, thinned out. Brant and Rails—Poor supply. Woodcock—Good supply, increase in killed, more than ever left. Raccoon—Fair supply, about the same number killed, small number left. Closed season on quail, poor supply.

**Salem County.** Wardens Mizell and G. I. Hall. Rabbits—Good supply, decrease in killed, small number left. Squirrels—Good supply, increase in killed, large number left. Pheasants—Fair supply, decrease in killed, thinned out. Quail—Good supply, increase in killed, large number left. Ruffed Grouse—Poor supply, increase in killed, small number left. Ducks—Good supply, decrease in killed, large number left. Geese and Brant—Poor supply, decrease in killed, very small number left. Rails—Good supply, increase in killed, large number left. Woodcock—Good supply, increase in killed, large number left. Raccoon—Good supply, increase in killed, small number left.

**Somerset County.** Wardens Eggert and Hill. Rabbits and Squirrels—Good supply, increase in killed, small number left. Pheasants—Good supply, decrease in killed, thinned out. Ducks—Poor supply, decrease in killed, thinned out. Geese, Brant, and Rails—None. Woodcock—Good supply, increase in killed, small number left. Raccoon—Fair supply, decrease in killed, small number left. Closed season on quail and grouse, poor supply.

**Sussex County.** Wardens Treloar and Bakley. Rabbits—Good supply, increase in killed, thinned out. Squirrels—Fair supply, no great increase in killed, thinned out. Pheasants—Good supply, no great increase in killed, thinned out. Ruffed Grouse—Good supply, large number left. Ducks—Poor supply, about the same number killed. Geese and Brant—None. Rails—Very few. Woodcock—Supply very good throughout season. Raccoon—Good supply, no great increase in killed. Closed season on quail, nice supply in seven places.

**Union County.** Warden Dackermann. Rabbits—Good supply, increase in killed, thinned out. Squirrels—Poor supply, decrease in killed, thinned out. Pheasants—Fair supply, decrease in killed, thinned out. Ducks—Good supply, increase in killed, migratory. Geese—Fair supply, increase in killed, migratory. Brant and Rails—None. Woodcock—Good supply, increase in killed, small number left. Raccoon—Poor supply, decrease in killed, thinned out. Closed season on quail, five coveys in county. Closed season on grouse, very few.

**Warren County.** Assistant Protector Cudney and Warden Cox. Rabbits—Good supply, about the same number killed, fair amount left over. Squirrels—Good supply, increase in killed, more than ever left. Pheasants—Good supply, about the same number killed, thinned out. Ruffed Grouse—Good supply, decrease in killed,

more than ever left. Ducks—Poor supply, just a few killed, large number left. Geese, Brant, and Rails—None. Woodcock—Fair supply, slight increase in killed, small number left. Raccoon—Good supply, increase in killed, large number left. Closed season on quail, good supply.

### DEER

Under the law which permits the killing of deer trespassing on land under cultivation, twenty-two permits were issued, 14 deer being reported killed.

During the deer season, consisting of four days, from December 17th to 20th inclusive (December 21st being a Sunday and no hunting being permitted) there were 1484 buck deer legally killed and reported, and 116 does or bucks with horns less than three inches in length were found dead in the woods or taken from hunters who had killed them illegally.

The number of bucks killed this year is 153 more than were killed last year when hunting was permitted on all five days.

The carcasses of the deer found dead which were not fit for food purposes were buried by the wardens and the others were given to hospitals, almshouses and charitable institutions throughout the State.

The following is a list of the counties in which deer were killed:

County	Bucks Legally Killed	Does or Bucks with Horns Less than 3"
Atlantic	149	14
Bergen	27	4
Burlington	527	50
Camden	12	
Cape May	2	
Cumberland	49	3
Essex	14	
Gloucester	2	
Hunterdon	11	2
Mercer	6	1
Middlesex	1	
Monmouth	28	4
Morris	131	8
Ocean	279	22
Passaic	71	1
Somerset	21	2
Sussex	108	4
Warren	46	1
	<u>1,484</u>	<u>116</u>

### DEER KILLED OUTSIDE OF OPEN SEASON

Killed while trespassing	14
Killed by automobiles	109
Killed by railroad trains	15
Found dead	22
Shot illegally	2
Killed by unknown hunters	17
Killed by running into a fence	3
Killed by dogs	4
Died from disease	1
Fell off a cliff	1
Fell in a quarry hole	1
Drowned	4
	<u>193</u>

An interesting sidelight on habits of deer is shown in the fact that on May 30 at 9 o'clock in the morning two deer nearly exhausted were seen swimming in the Atlantic Ocean two miles from the coastline, opposite Deal, near the boat of Chris Nelson and Harry Hanson, who were lifting their lobster pots. The fishermen hauled them in, where they remained very quietly until they reached shore. Both were bucks weighing 125 pounds, with horns three or four inches long. Protector James M. Stratton, to whom the rescue was reported, put them in charge of a warden for liberation, and the animals were entirely recovered when released. These deer were evidently those seen on a lawn at Deal at 6 o'clock A. M., and they took refuge in the water to escape being chased by dogs.

### FORKED RIVER AND ROCKPORT GAME FARMS

Duncan Dunn, Game Farm Superintendent, in his 19th annual report for the fiscal year ending June 30, 1931, says:

**Forked River Farm.** We did the general farm work, repaired and disinfected equipment, cut the trees off of about five acres of land, where they had been killed by the forest fires, carted them to the saw mill for sawing for fire wood; pulled a lot of the cedar posts from the fence on the meadows where the wire had rusted off and carted them up to the farm for future use, and sent several loads up to the Rockport Farm for use in a new pen; plowed and harrowed 12 acres of new land and cleared all the brush and stumps off of same. Repaired 300 rearing coops, 200 frames, 200 hatching boxes and 100 shipping crates. Trimmed out a lot of the under brush in the woods around the farm and burned same for fire protection; cut 900 sods and put them in the hatching boxes; cut and carted 15 loads of cedar brush to our breeding pens to make hiding places for the pheasants. We plowed and seeded 8 acres of land with oats and grass seed and seeded two rearing fields with grass seed. Carted 22 loads of hay and 6 loads of oats to the barn.

Built a new pen 30' wide and 150' long, and covered it over the top with 2" mesh wire, and built a wooden shelter in the above pen 150' long and 4' wide. Painted the kitchen and two porches in the superintendent's residence, painted all the shipping boxes and stenciled names on them, put a new asbestos roof on the superintendent's residence and also new asbestos roofs on one dwelling house, the barn and wagon shed. Made the cellar larger in the gate lodge and put pipeless heater in same.

Built 25 new rearing coops, 150 new bottom boards and 12 new coops to be used as breeding coops for quail.

There were 75 owls, 50 hawks, 120 crows, 30 opossum, 8 weasels, 15 skunks, 50 cats, and approximately 2,000 rats killed.

**Rockport Farm.** In the general line of work it was about the same as at Forked River. There were a lot of old stone fences and stumps around all the fields which made harboring places for vermin; we spent about two months during the winter blasting these rocks and stumps and carting them down to a gully on the farm; there were about 350 loads in all. Plowed and seeded 12 acres in wheat and grass seed and 35 acres in oats and grass seed. Repaired 200 rearing coops, 150 shipping boxes, 100 hatching boxes and 75 frames. Cut 25 loads of wood in the mountain, and sawed it up for fire wood. Cut and carted 12 loads of cedar brush to our breeding pens, cut 850 sods and put them in the hatching boxes; built fences around two rearing fields, cut and carted 30 loads of hay and 15 loads of oats to the barns.

We built two new covered pens, one 500' long and 42' wide and the other 240' long and 42' wide; built two large sheds for scratching sheds for the chickens; put new concrete floor in the horse barn, painted and papered 4 rooms in the Superintendent's residence, painted all the shipping boxes and then stenciled the name on them; painted the new pens we built, put a new pipeless heater in the Kruger house and a new bath room and fixtures in the Martinis house.

There were 32 owls, 45 hawks, 50 cats, 125 crows, 25 weasels, 9 skunks, 15 foxes and about 200 rats killed during the year.

Exhibits were made at Flemington, Branchville, and Trenton fairs and the Asbury Park Poultry show.

During the year the following number of eggs were set, hatched and distributed in the State from both farms:

Eggs set at Forked River Farm	16,000	Young birds hatched	11,200
Eggs set at Rockport Farm	15,500	Young birds hatched	10,800
	<u>31,500</u>		<u>22,000</u>

Eggs distributed throughout the State:	
From Forked River Farm	19,352
From Rockport Farm	14,443
	<u>33,795</u>

The pheasant record is as follows:

Forked River Farm—	
Breeding birds on hand June 30, 1930	1,238
Mature birds raised	7,590
Birds purchased and cared for	500
Estimate of young birds on hand June 30, 1931	9,000
	<u>18,328</u>

Rockport Farm—	
Breeding birds on hand June 30, 1930	972
Mature birds raised	8,598
Birds purchased and cared for	600
Estimate of number of young birds on hand June 30, 1931	7,500
	<u>17,670</u>

Forked River Farm—	
Birds liberated	7,590
Purchased birds liberated	450
Breeding birds on hand June 30, 1931	1,128
Estimate of young birds on hand June 30, 1931	9,000
Birds died and escaped including purchased birds	160
	<u>18,328</u>

Rockport Farm—	
Birds liberated	8,598
Breeding birds on hand June 30, 1931	975
Purchased birds liberated	576
Estimate of young birds on hand June 30, 1931	7,500
Birds died	21
	<u>17,670</u>

**Quail.** Malcolm Dunn, Superintendent of the Forked River Farm, in a special report dated July 12, 1931, refers to the fifty pairs of quail, which were purchased in the South and sent to the farms.

He says the ones taken to Rockport started to go thin and die and were liberated on the Rockport Farm.

At Forked River 28 birds were lost during the winter, leaving 22 on hand this spring. Out of these 22 birds we were able to get 9 pairs for breeders, one pair did not lay at all, but from the other eight pairs we have gathered to date 250 eggs.

To date we have hatched 82 young quail and have 75 living and still have 150 eggs yet to hatch. In addition to the young birds we still have the 22 old quail on hand.

#### DISTRIBUTION OF PHEASANT EGGS

For many years past the Board supplied pheasant eggs to persons who would raise the birds to the age of seven weeks, provided that the birds were put out at that age under the supervision of a warden on land open to public hunting. By this system 5,363 pheasants were added during the year to the number which were raised at our Farms and which were purchased for distribution.

During the year of this report 30,346 eggs were supplied under the seven weeks system.

A new system to provide more pheasants for stocking and to increase interest in wild life was adopted late in May, 1931, the Board agreeing to furnish boys and girls pheasant eggs and purchase the young for one dollar each when the birds attain the age of ten weeks. The offer was later extended to include adults. Each applicant was to receive two settings, 36 eggs. A pamphlet giving instructions for raising and feeding was also furnished, and each applicant was to make a report to the Board following the closing of his operations. The applications were forwarded to the Wardens to furnish eggs to proper applicants.

The response to this offer was applications for 20,214 eggs, representing 551 applicants. We furnished 3,449 eggs. Persons not furnished with eggs were informed that they would be put on a preferential list for next season.

Under this offer persons who raise the pheasants cannot keep them in possession longer than the ten weeks.

It might be stated here that persons who desire to raise their own pheasants in a wholly enclosed preserve, together with certain other game, may obtain a breeder's license. We do not furnish eggs to such licensees. Under this license they have the right to sell game at all times if tagged in accordance with regulations.

At the request of the More Game Birds in America, Inc., we furnished them a list of persons to whom eggs were sent, and the corporation stated that they would be glad to help to instruct the raisers without cost to us. The corporation also issued a pamphlet entitled "Pheasant Breeding Manual."

#### QUAIL

By reason of the States prohibiting the exportation of Bob White quail, they cannot be supplied for stocking. Only hand reared quail are available and this supply is small.

We purchased from B. W. Coleman, Richmond, Va., 600 quail which were received in September alive and in good condition. Twenty-five pairs were sent to

each Game Farm, twenty-five pairs to the farm of Commissioner George S. McCarty, Newfield, who, for the Commission, has been making special study of raising quail, and the balance were distributed in Mercer, Monmouth and Middlesex Counties.

In Monmouth County, Assistant Protector Davison kept close watch on the releases and reports excellent results, which were due partly to the unusually open winter and the fact that birds were put on lands where the owners promised not to kill and prevent others from killing. All the coveys survived the winter. The coveys remained together until about May 15, 1931, when they paired off. The birds were smaller than our native quail.

In Middlesex County, Warden Hugg reported that one covey shifted from where it was liberated or had been exterminated by vermin. Two coveys sustained heavy shooting, one in heavy cover and one where the ground is heavily gunned over, and the number remaining is not known. The other coveys are still in the vicinity of location of release and have mingled with the State quail which were near by. In the absence of snows during the winter, no feeding was required.

In Mercer County, Warden Nolan reports that a few quail of this release were noticed in the spring at the places of liberation, and although he did not find quail at every place where they were released, he believes they survived the winter.

At the Rockport Farm the quail went thin, a number died, and the balance were liberated on the farm. At Forked River a number of birds were lost during the winter. In July this farm had hatched 82 young quail, had 75 living, 115 eggs yet to hatch, and 22 old quail on hand.

## U. S. MIGRATORY LAWS

Regulations issued by the U. S. Department of Agriculture, Bureau of Biological Survey, administering the migratory bird treaty act, gave notice of the following changes for 1931: The hour for the commencement of hunting on the opening day of the season will be 12 o'clock noon. The season for waterfowl (except snow geese in States bordering on the Atlantic Ocean, Ross geese, cackling geese, wood duck, eider ducks, and swans) and for coot, Wilson snipe or jacksnipe will be from October 16 to January 15, taking 16 days off the former season in January. Brant were included in the bag limit for geese, and only 4 geese and brant in the aggregate of all kinds may be taken in any one day, and no person may possess at any one time more than 8 geese (including brant) in the aggregate of all kinds. In the hunting of wild geese, not more than ten live goose decoys may be used or shot over at any one gunning stand, blind or floating device.

## WOODCOCK MIGRATION AT CAPE MAY

The American Game Association suggested the desirability of having part of Cape May Point set aside for a bird refuge in order that the woodcock population in North America might be given some protection. Woodcock in their southern migration fly across the Delaware Bay at Cape May, and they await a wind which will not drive them out to the Atlantic Ocean. It was charged that during this waiting period there was an unnecessary slaughter of woodcocks. President Burlington took up the matter with Commissioner J. R. Hensler, who has direct supervision

over Cape May, and with assistant Protector Howard Z. Mathis.

The President informed the American Game Association that their suggestion had been considered, that the Board in itself had no right to shut off any particular part of the State, such right could only be granted by the Legislature, that last year our wardens made a particular effort in patrolling during the woodcock flight to prevent the taking of more than the bag limit, that there were many legitimate woodcock hunters in the particular section, and that it would be unfair to deprive them of their sport. Nevertheless, the Board decided to increase the warden service during the flights next season.

## FEEDING BIRDS

Very little feeding of game birds was required during the winter because of the light snow. However, the wardens had been instructed in case of deep snows to erect shelters with the opening to the South with instructions for feed as follows: unthreshed grain or corn in shocks, screenings from mills or threshing machines, hayloft chaff, dry table scraps such as bread, toast or cornmeal, bundles of unthreshed grain to be tied to fence posts or trees or a board with spikes to hold ears of corn, the board leaning against a tree or fence. It was pointed out to the wardens that the feeding of shelled grain on loose snow is of little benefit as it rapidly sinks out of sight. Pits were directed to be shoveled on hard beaten roads or well-packed rights of way and beneath grapevine shelters, and brush lean-tos.

Inasmuch as nearly every bird which inhabits or migrates through New Jersey is of benefit to agriculturists, the farmer would greatly benefit himself in planting buckwheat, kaffir corn, oats, barley, and such seed. If there is such a stand, a few patches of these should not be cut, which will serve as cover and food during the winter. If the planting is along the edge of woods, a retreat for the birds is afforded in the woods when danger threatens in the open. Small patches are more desirable than large patches, as birds flocking to large patches would serve to attract predatory birds and animals.

## OFFENDING AIRPLANE

In November an airplane, of which only a partial description could be obtained, was chasing ducks on the surface of Barnegat Bay at Beach Haven, the aviator's action indicating that he was purposely diving into the ducks and also chasing them almost out of sight. We endeavored to obtain the identity of the plane from the various airports, and from the U. S. Government officials, but failed. At the Lakehurst Airport Protector Stratton was informed that they only had two planes, which ran between the Airport and Washington, and that their pilots had special orders to go over the mainland or over the ocean going north or south and when going east or west to go over the bridges and roads.

At our request the Federal authorities gave publicity in their publications to our law making it illegal for any person to pursue or shoot ducks from any device propelled in any manner through the air.

## VERMIN AND FOXES

We built 150 cat traps along the lines of the Government specifications, which were distributed to the wardens. We believe that we improved on the specifications

in providing for a wire top and bottom through which the cat can easily be killed while in the trap.

During the fiscal year 889 foxes were killed other than those killed by wardens.

Reports to Protector Stratton on predatory animals killed by the wardens follow: 638 cats, 139 hawks, 41 crows, 32 foxes, 31 weasels, 16 owls, 15 dogs, 23 skunks, 2 woodchucks, 2 snakes, 2 red squirrels. In addition there were destroyed at the game farms vermin numbering 2,849, which includes 2,200 rats.

Hunters in making their report of vermin taken in 1929 show that they disposed of 10,185 cats and 7,076 weasels.

## FISH

From all parts of the State reports came of excellent fresh water fishing which was the best in many years. This was due to the stocking of the waters by the Board, details of which will be found in "Stocking of New Jersey Waters" at the end of this report.

The operations of the Hatchery are noted in the following pages.

There was a total distribution of 114,312,273 fish by the State as follows:

From the State Fish Hatchery at Hackettstown .....	88,877,079
From the State Shad Hatchery, shad fry, yellow and white perch fry...	25,213,000
From Boonton and Orange Reservoirs, gate holes, and other sources ...	222,194

Grand total ..... 114,312,273

The United States Bureau of Fisheries distributed in the State during the year ending June 30, 1931, fish as follows:

100 catfish, 1,200 rainbow trout, 3,000 brook trout, 1,400 crappie, 7,870 large mouth black bass, 3,690 sunfish, 300,000 yellow perch, total, 317,260.

### HACKETTSTOWN HATCHERY

Charles O. Hayford, Superintendent of the Fish Hatchery at Hackettstown and in charge of the Shad Hatchery at Hancocks Bridge, in his nineteenth annual report for the fiscal year ending June 30, 1931, says:

The output of the Hackettstown Hatchery for the past fiscal year is shown by the following table:

	<i>Inches.</i>	<i>Raised July 1, 1930 to June 30, 1931</i>	<i>Disposed of</i>	<i>Estimated Number On Hand</i>
Brook Trout .....	2-3	9,000	9,000	
" " .....	3-4	323,850	23,850	300,000
" " .....	6-8	20,365	20,365	
" " .....	7-9	28,625	28,625	
" " .....	8-11	60,740	60,740	
" " .....	9-11	12,310	12,310	
" " .....	8-12	4,000		4,000
" " .....	12-15	982	982	
Brown Trout .....	2-3	420,000	20,000	400,000
" " .....	4-6	77,550	37,550	40,000
" " .....	6-9	62,075	42,075	20,000
" " .....	7-9	19,350	19,350	
" " .....	8-10	40,532	40,532	
" " .....	8-12	4,000	4,000	
" " .....	10-12	24,400	20,400	4,000
" " .....	10-14	9,835	9,835	
" " .....	14-18	47	47	
" " .....	16-20	417	417	
Rainbow Trout .....	1	350,000		350,000
" " .....	4-6	200,000		200,000
" " .....	7-9	500	500	
" " .....	8-10	63,587	63,587	
" " .....	8-12	4,000		4,000
" " .....	10-14	143,625	143,625	

	Inches	Raised July 1, 1930 to June 30, 1931	Disposed of	Estimated Number On Hand 75,000
Small Mouth Bass	1	75,000		
"	2-3	12,250	12,250	
"	3-4	15,550	15,550	
"	4-6	2,050	2,050	
"	10-14	20	20	
Large Mouth Bass	1	220,000	20,000	200,000
"	2-3	9,650	9,650	
"	3-4	42,350	42,350	
"	4-6	175	175	
"	12-16	194	194	
Catfish	fry	25,000		25,000
"	3-4	74,450	74,450	
"	4-6	150	150	
Bluegill Sunfish	fry	200,000		200,000
"	2-3	138,400	138,400	
"	4-6	3,300	3,300	
"	8-10	450	450	
Crappie	4-6	75	75	
Yellow Perch	fry	88,000,000	88,000,000	
"	4-6	200	200	
"	6-8	25	25	
		90,699,079	88,877,079	1,822,000
Output from Hancocks Bridge Hatchery, Salem County—				
Yellow Perch, fry		24,000,000	24,000,000	
White Perch, fry		450,000	450,000	
Shad, fry		763,000	763,000	
		25,213,000	25,213,000	
Total from both Hatcheries		115,912,079	114,090,079	1,822,000
In addition to the above:			222,194	
Various fish netted in State Reservoirs			114,312,273	
Total distribution				

The following tables show distribution of trout, bass, perch fry, bluegill sunfish, and catfish, during the past five years:

Trout over 6 inches		Trout under 6 inches	
1926-27	277,500	1926-27	523,600
1927-28	302,622	1927-28	345,900
1928-29	423,505	1928-29	310,600
1929-30	446,882	1929-30	203,300
1930-31	467,390	1930-31	90,400
	1,917,899		1,473,800
Bass Fingerlings		Yellow Perch Fry	
1926-27	98,750	1926-27	75,000,000
1927-28	190,300	1927-28	96,325,000
1928-29	285,300	1928-29	104,800,000
1929-30	131,000	1929-30	113,800,000
1930-31	102,025	1930-31	112,000,000
	807,375		501,925,000
Bluegill Sunfish Fingerlings		Catfish Fingerlings	
1926-27	388,500	1926-27	8,500
1927-28	607,300	1927-28	58,700
1928-29	376,475	1928-29	55,900
1929-30	391,950	1929-30	24,500
1930-31	141,700	1930-31	74,600
	1,905,925		222,200

**Shad Work.** Due to the unemployment situation, there was an increase in the number of the haul seiners in the Maurice River. We therefore obtained less eggs and were only able to distribute 763,000 shad fry.

**New Work.** During the past fiscal year the Commission built a fifty foot concrete dam at the new plant and dug out the two new trout ponds. This work permitted us to raise and plant 20,000 more legal size trout. We also opened up a new vein of spring water which increased the water supply about 10,000 gallons per hour. We will continue to open up these veins which should increase the water supply from 10,000 to 20,000 gallons per hour.

The Commission bought an automatic priming centrifugal pumping outfit. This pump permits us to pump all the mud and sediment from the bottoms of the ponds, which is a great saving over hand labor.

We will clean out the old supply reservoir and divide it into two ponds of one and two acres respectively.

The season of 1930 was the hardest season throughout the entire Eastern United States for fish culture work. We were very fortunate in having an all spring water supply. Heavy losses were avoided by making daily microscopic examinations in order to keep the fish in the best physical condition, and two or three men were on guard night and day in taking temperatures and noting conditions.

Dr. Paul R. Needham was placed here in June by the U. S. Bureau of Fisheries to cooperate with us in the development of pond fish culture. His work is going to prove very valuable. We have many experiments under way. It is very interesting to note the weekly growth of both the Large and Small Mouth Bass which are being fed different foods.

Dr. Geo. C. Embody, who has been the scientific advisor for the Board since 1914, contributed very valuable assistance during the past year in checking experiments which have been under way for a number of years. The most interesting and valuable one is the increased growth and egg yield of the selected brook trout breeders.

In 1919 the Board had practically decided to give up the propagation of brook trout unless more satisfactory results could be shown. Dr. Embody came to the hatchery and assisted in making a careful study of the entire situation. We decided that success could only be obtained through the development of an immune strain of trout.

Dr. Embody and myself made a careful examination of all the brook trout breeders and selected the best specimens with the result that during the last ten years we have increased our output of brook trout adults from 16,704 in 1920-21 to 123,022 in 1930-31.

Today this resistant strain of brook trout shows the fastest growth of any species of trout we are handling, and the least mortality after they attain a size of 3 to 4 inches in length.

The outstanding developments during the past five years may be enumerated as follows:

1. Continued increase in the rate of growth resulting in larger fingerlings and breeders.

2. Marked increase in the average number of eggs produced by each female at the first and second spawnings.

3. Experiments are now under way in an attempt to reduce the mortality in the egg period.

4. Although a high state of resistance to furunculosis and a somewhat less marked resistance to ootomitiiasis have been developed, there are other hatchery diseases caused by gyrodactylus, chyloodon and gill bacteria to which later generations seem quite as susceptible as other trout, but we are able to control these diseases by treatment.

The rate of growth of the selected brook trout is indicated by the size of breeders at the date of first spawning, that is November of the second year. Trout of this age are often designated as yearling breeders. If reckoned from the date of impregnation, they are two years old.

One of the most surprising developments of our selective breeding was the enormous increase in the average number of eggs produced per female. This was first noticed in the fifth generation of females maturing in 1930, when 25 produced 48,961 eggs, an average of 1,958 per female. This compares with an average of 272 in the first generation.

Just how great has been the financial gain, depends upon two other factors which have not yet been studied. These rapid growing, high yielding fish require a larger amount of food than ordinary trout. These trout are the same size at the age of 16 to 18 months that trout ordinarily are at the age of 24 to 28 months. A great many of these trout measured 12 to 13 inches and weighed one half to three quarters of a pound. Time is saved in hatchery development, because these fast growing fish can be put out sooner.

I attended the American Fisheries Convention at Toronto, Canada, and gained some valuable information. In cooperation with Dr. Embury, I contributed a paper on Selective Breeding of Brook Trout.

We made an exhibit at Trenton Fair of trout, bass, perch, pickerel, bluegill sunfish, catfish, etc. Thousands of persons attending the fair showed great interest in the exhibit.

I would recommend that the Board build ten new trout ponds in the upper end of the new rearing station, and use five of the ponds now in operation for the rearing of bass fingerlings.

I would also recommend that the Board lease the two ponds now owned by the Board of Education of Hackettstown.

I would recommend that the Board build ten new ponds for the raising of bass fingerlings and bass food. This work can economically be done by a steam shovel. Experiments have proven that bass fry can be raised to fingerlings 3 to 4 inches long in 8 to 10 weeks on an all aquatic insect diet. These insects can be easily propagated on a large scale.

We are indebted to Dr. H. S. Davis of the United States Bureau of Fisheries for his assistance in our Pathological and Biological work.

## TROUT CONDITIONS IN 1931

Reports from wardens showing gratifying conditions in fishing for trout in 1931 follow:

*Assistant Protector Cudney, Warren County:* There were a greater number and larger trout stocked both before the season opened and between April 15th and July 1st. While the actual difference in numbers between last year and this was only about 20,000 fish more, the fish being so much larger, it required over a hundred extra truck loads. The conditions both in regards to the streams and weather were almost ideal at the opening of the season, and the streams continued that way with the exception of a few days. There were a greater number of fishermen out on the first day than ever. The opening day came in the middle of the week but the streams were almost as heavily fished on the following Saturday and Sunday. The fishing continued very heavy all during the season. While there were a lot of fine catches and the limit was not unusual, some dissatisfaction was expressed due to a spirit of unrest because of the business depression and unemployment and that the fish did not bite as freely as might be expected. Our streams are in much better shape than for the past two years, and I believe the fish will have a good chance to carry over for next year.

*Assistant Protector Davison, Monmouth County:* Trout fishing conditions in District No. 3 have been unusually good this year. Weather conditions have been all that could be desired, and fishermen have had very good luck. More men have taken the bag limit this year than ever before, and all seem to be satisfied with the stocking we have done. I saw a number of rainbow trout weighing well over two pounds, taken from the Manasquan Brook, near Squankum. This proves that rainbows will remain in streams where there are no dams. We meet few fishermen on the streams after July first and as the stocking continues, we will have a very good supply left at the close of the season.

The one objectionable feature noted this year is the following of the trucks by sportsmen (so called), who catch the limit within a few minutes after the fish are planted. If these fish were permitted to scatter in their quest of food, they would provide sport for a greater number.

*Warden Larson, Hunterdon County:* The opening day cars were lined along every stream which had been stocked, and a good number of the fishermen took their limit by 10 o'clock in the morning. Trout fishing has been very good all season. The streams have been in good condition. It has not been uncommon to see 50 to 75 fishermen along the South Branch of the Raritan in some of the worst rain storms we have had this season, and trout taken. There will be a fair number of trout left over for next year.

*Warden Williams, Passaic County:* There were considerably more trout fishermen this year than any other year I have known. Many secured full bags before 9:00 A. M. on the Wanaque, which is well stocked. Fishermen as a whole were well pleased. Fair supply left. On the first day I counted 117 cars parked at The Copper Kitchen at Hewitt and 73 at Awosting, which are both located on the Wanaque. Three men fishing High Mountain Brook, in Midvale, had 37 trout and leaving for their home in Sussex County at 10:00 A. M. on the first day of the season.

*Warden Treloar, Sussex County:* The 1931 trout season in spite of the extreme drought of last year has been the best of any in my experience as a warden. I have never stocked any finer fish nor have I ever heard as many favorable comments on the size, condition and number of fish planted; the increased number of brook trout in particular called for much favorable comment. I can cite fishermen with the limit on numerous occasions, and others have told me that they have had more sport this year than ever before. An increased interest in the stocking was shown by the anglers generally. With the cooperation of Chief Forester Dunn a few miles of the Big Flat Brook in the Stokes State Forest has been more plentifully stocked, and has been fished much more heavily than in previous years.

*Warden Hugg, Middlesex County:* Every year the trout fishermen increase in Middlesex County, and this year there seemed to be a larger increase than usual. I think it was on account of so many being out of work. On the whole the season has been disappointing as the trout did not strike as they should until later than usual. There are several reasons for this, one is our brooks are full of suckers which spawn in April and May, and the trout feed largely on their eggs; another reason is there were a lot of fishermen on the streams that had never fished trout before, and they also increased the crowd which frightened the fish. The old fishermen seemed to take about as many as other years. Our streams were stocked better this year than ever before, and there are a lot of brown trout left for next year.

*Warden Lawrence, Morris County:* There were more people on the streams this year than last, and it has been an every day experience to find several fishermen with good catches and the limit. Also, we have had very few complaints from fishermen as to trout not being in the brooks. They said that they could see the fish but could not catch many. The good fishermen who fish instead of driving around in a car from one stream to another all day, looking for the stocking truck, have been very well satisfied, both with the size and amount of trout stocked this year. The enthusiastic fisherman is continuing late into the season and is very well pleased. It is my opinion that there will be plenty of trout left in the larger streams after the season closes.

*Warden F. J. Hall, Essex County:* The general interest in trout fishing throughout this district from my point of view has been greater than in past years. It seems the fishermen have taken more interest in the sport than usual. A number of bag limits and any number of small catches have been taken. The sportsmen have derived an unusual amount of pleasure and have praised the Commission in the highest of terms. The lakes and streams have been fished so hard that in my opinion there will be only a small supply left over at the end of the season.

*Warden Graham, Gloucester County:* The trout fishing in Gloucester County this year was not as good as it was last year. There were more fishermen than ever and lots of interest taken in fishing. There were very few that caught the bag limit and the fishermen were not very well pleased with the catch. The fishing continued until late in the season. There was a small supply left over. I think more trout should be planted in Big Lebanon and Little Lebanon each week, and not too early, because the trout seem to go down in the stream in the lakes.

*Warden Small, Bergen County:* With reference to trouting in Bergen County I have every reason to regard the season of 1931, as, by far, the most satisfactory in results to anglers of all classes, that I have experienced in the seventeen years I have been connected with the Department. The quality, size and quantity, of trout distributed elicited general praise in all sections. The experience of securing the lawful day's limit was enjoyed by many and few failed to show their enthusiasm by communicating the glad news to the warden. Interest in trout fishing has increased to the extent that it is like an epidemic, and has infected men, women and children indiscriminately. The splendid results achieved in the generous distribution of large brown trout is especially noteworthy, and many of these will survive the open season. The prize of the season in Bergen County was landed by William Ford, Englewood, measured 22 $\frac{1}{8}$  inches and weighed exactly 4 pounds 8 ounces. The most popular vehicle on the roads of New Jersey today is the Hatchery fish truck.

### RECLAMATION FISH WORK

Never before were so many fish taken during the year from reservoirs, canals, privately owned waters, gate holes, and in tidal waters, where netting of food fish is permitted by law, and transferred to inland waters. This did much to improve general angling conditions. The fish taken were chiefly adults, and were bass, pike, pickerel, white and yellow perch, sunfish, crappie, catfish, and bait fish. The work was done by our wardens.

In the netting of the fish in Mannington and Alloway Creeks the catch was all very large adults. The calico bass averaged from one half to two pounds and the yellow perch were all more than 8 inches in length. Fishermen who saw the transfer made many favorable comments, and several said that they would be glad to pay five dollars for a license to angle for such fine specimens.

The largest amount of fish ever taken from any body of fresh water in the State for distribution was netted at Split Rock Lake, a Jersey City reservoir, as follows: 7,379 black bass, 5,743 crappie, 11,210 perch, 10,745 pickerel, 10,805 sunfish, 33,500 bait fish. Of this lot 419 of the bass, 128 crappie and the bait fish were taken to the State Hatchery, the other fish being distributed in inland waters.

From a private pond at Runnemedede the Board purchased calico bass and crappie, and obtained without cost 17,000 bluegilled sunfish. The netting of these fish was on account of the low water in the lake during the summer. For the same reason Wanaque River and Campbell's Pond in the Orange Watershed were successfully netted.

Netting for fish for transfer to other waters was also conducted at Bethel Lake, a pond near White Lake, Old Sickler Sand Hole, Bass Lake, Delaware and Raritan Canal, Manasquan River, Cohansey River, Maurice River, Steep Run, Gate holes at Blackwood, Mullica Hill, Porch's Mill, Alloway Creek, Rancocas Creek, Hinchmann's Pond, Boonton Reservoir, the Delaware River at Fieldsboro and Delanco, and Park Pond.

The number of fish netted was as follows:

Small and Large Mouth Bass .....	13,906
Calico Bass .....	3,511
Pike .....	318
Perch .....	48,856
Crappie .....	12,603
Pickrel .....	11,842
Catfish .....	11,467
Bait Fish .....	63,500
Sunfish .....	46,672
Miscellaneous .....	9,519
	222,194

### POUNDS SUMMARY

Following is a summary of the pound fisheries report for the calendar year ending December 31, 1930:

Approximate value of all pounds .....	\$914,448.00
Proceeds derived from sale of fish .....	983,663.79
Number of pounds of fish caught and disposed of .....	24,756,902

Licenses issued:

Atlantic Ocean .....	118
Sandy Hook and Raritan Bay .....	17

135

Number of pounds operated .....	133
Number of men employed .....	484

### PATROL OF WATERS

The Atlantic Ocean, Sandy Hook and Raritan Bay, Barnegat Bay and the Delaware River and Bay were patrolled by our cruiser for the enforcement of the laws in these waters, and the wardens patrolled coastal and inland waters in bank skiffs.

The "Luray," which was a tender for the State Cruiser, was sent to Toms River for patrol work, and a new tender for the State Cruiser was built by the Mantoloking Boat and Engine Company at a cost of \$3,865.

### SHRIMP

Some complaint had been made as to the method of taking shrimp for bait with power boats in Barnegat Bay. Representatives of sixteen towns of Ocean County appointed a delegation to appear before the Board as to the complaint. It appeared from the delegation that the method of taking shrimp with power boats was in no manner injurious to fish life and had no effect on the supply of shrimp, and the Board decided that there would be no prosecution for the taking of shrimp in the usual way with power boats.

### WHITE AND YELLOW PERCH

The taking of white and yellow perch is permitted in open waters at all times of the year, except in the Delaware River proper between New Jersey and Pennsylvania, and in the tidal tributaries of the Delaware River between Birch Creek and Trenton Falls, in which areas the season is from June 15 to December 1. There is a concurrent uniform law for the Delaware River between the States of New Jersey and Pennsylvania, which can only be amended by similar legislation by both States. There was some agitation to amend the law so as to provide for the taking of white and yellow perch at all times in the river between the two States.

The matter was taken up with the Fish Commission of Pennsylvania, and O. M. Deibler, Commissioner of Fisheries, informed us that the matter had been considered in that State, that an investigation had shown that these species were fast disappearing in the river and they certainly should be protected at least for a few years more before being allowed to be taken with a net. Our Board concurred in the conclusions of the Pennsylvania Commission.

As to making any change in the law between Trenton Falls and Birch Creek, it has always been held desirable in order to prevent confusion to have the season in these tributaries the same as in the river proper.

### NEW JERSEY—DELAWARE BOUNDARY DISPUTE

The Attorney General has brought suit in the United States Supreme Court to ascertain the true boundary line between the State of New Jersey and the State of Delaware.

Our Board is very much interested in this case, inasmuch as for many years past there have been fierce disputes between the fishermen and oystermen of Delaware and New Jersey as to the respective territories of the States. There have been efforts made to settle the question for many years, but with no success.

New Jersey claims its title by virtue of the sovereignty of the Crown of England existing prior, and to which it succeeded as a result of the American Revolution and the Treaty of Paris, and by virtue of the common law of England existing at that time, which was adopted by New Jersey and Delaware upon attaining their independence.

### CONFLICTING FISHING INTERESTS

A notable instance of conflicting ideas in fish and game matters took shape in differences expressed during the Legislature respecting a bill introduced by Senator Charles C. Read of Cape May County to fix April 1 as the opening date for the netting of weakfish in the Delaware River and Bay. The previous Legislature had fixed the opening date as June 15. For many years prior to 1930 the opening date had been March 1.

The matter appeared to be a contest between the commercial fishermen, who desired April 1 as the opening date and the hand line fishermen, who wanted the opening date as June 15.

Each faction appeared before the Board at a different time, and at the hearing of the commercial fishermen, headed by George A. Redding of Wildwood, Professor

A. E. Parr, who had been assisting the United States Bureau of Fisheries in making studies of the spawning of weakfish in Delaware Bay, and who had been invited to appear before the Board, held that the spawning of fish in the bay in the main was a failure and that the bay also fails as a nursery for young weakfish, which subsequently enter the bay as immigrants during the first season of life.

During the hearing of the hand line fishermen, who were headed by A. J. Perkins, Chairman of the Fish and Game Committee of the Chamber of Commerce, Atlantic City, President Burlington stated that there was to be a public hearing in the matter by the Senate Committee, at which time he said there could be a threshing out of the entire subject.

The commercial fishermen contended that the Legislature of 1930 in fixing the date as June 15 acted under a misapprehension of the conditions and by reason of such opening date the net fishermen sustained a great loss in not being able to operate until June 15, and that no harm would result in fixing the opening date as April 1.

The hand line fishermen, who were representative of many fishing clubs, called attention to the thousands engaged in angling who were opposed to undue netting, and they favored the opening date of June 15, that the amount of money invested in boats, etc., for the hand line fishermen was comparable to the netting industry, that many of the netters were non-residents, and that the netters do not need more fish but better marketing conditions.

The bill changing the date to April 1 failed to pass the Senate.

### U. S. SURVEY OF SHORE FISHERIES

Investigation of the shore fisheries of New York and New Jersey by the United States Bureau of Fisheries was continued during the fiscal year ending June 30, 1931, under the direction of R. A. Nesbit and assistants. In New Jersey the work was carried on in cooperation with the Bingham Oceanographic Foundation of Yale University.

The results of the investigation in New Jersey to date are briefly as follows: Fluctuations in abundance of two important species, scup and butterfish were found to be due to variation in success of spawning from year to year. As the result of unusually successful reproduction in 1927, the 1929 pound net yield of these species rose to record values. As this increase in abundance occurred without restriction of the fishery, it appears certain that these species are not in need of protection.

Investigation of the weakfish has disclosed an interesting and complex situation. The commercial fishery does not take a fair cross section of the stock of fish, indicating that there are contingents, perhaps large contingents, of the population which are not drawn upon by the fishery. The virtually complete absence of yearling weakfish, and the relative scarcity of fish less than a year old in New Jersey waters suggests the interesting possibility that the weakfish stock in New Jersey is maintained, not by local spawning but by migration from nursery grounds located elsewhere. Results of studies of the spawning and nursery grounds in Delaware Bay lend support to this hypothesis. In 1929 and 1930 large numbers of weakfish eggs were found in Delaware Bay. No newly hatched fish were found although similar methods

of collection in Chesapeake Bay produced both eggs and newly hatched fish in abundance. Late in the summer moderate numbers of young weakfish were taken but they grew so slowly and attained such a small size at the end of the season as to indicate the probability that few if any survive. This hypothesis, if found to be correct, will be of great importance in formulating a conservation policy for the weakfish in New Jersey for if local reproduction makes no significant contribution to the stock of weakfish, protection of spawning and nursery areas is valueless.

Pending the results of fuller tests of this hypothesis by tagging experiments and extension of studies of spawning and nursery grounds to other localities in New Jersey, the Bureau does not recommend any additional restrictions of fishing for the three species referred to.

### POOR SEASON FOR SHAD

Protector J. M. Stratton obtained statistics of the shad fishing industry in the Delaware River and Bay carried on by residents of New Jersey or those operating from the New Jersey shore, for 1931, showing the number of boats and nets used, the number of men engaged, number of shad caught and the amount realized from the catch, also the value of boats and nets, together with a comparison with the year 1930.

His report says: The table shows a marked decrease, and it was probably the poorest season ever experienced by the shad fishermen.

A peculiar situation appears in the figures this year, showing an increase in the shad caught in the three counties the farthest up the river where commercial shad fishing is done, namely: Burlington, Mercer and Hunterdon Counties, and a decrease in the lower part of the river and bay.

For many years the fishermen in the upper counties claimed that by reason of the long nets operated in the lower part of the river and the upper part of the bay, the fish were prevented from going up the river.

In 1930 there were four nets operated in Hunterdon County, which caught 665 shad. This year five nets caught 1,211 shad.

Six nets caught 660 shad in Mercer County last year, while this year 11 nets caught 1,586.

458 shad were caught in 18 nets in Burlington County last year and this year 635 shad were caught in the same county with the same number of nets.

No shad nets were operated in Camden or Gloucester Counties this year.

In Salem County there were 20,441 shad caught in 1930 and only 4,764 caught this year.

Cumberland County shows a decrease from 39,800 caught last year to 27,100 taken this year.

In last year's report I called attention to the fact that there were more shad taken from the Maurice River in Cumberland County than in the entire Delaware Bay opposite that county.

The situation is repeated this year. There were taken from Maurice River this year 22,500 shad by 30 drifting gill nets 30 fathoms long, and 18 hauling seines 50 fathoms long, while in the entire Delaware Bay in Cumberland and Salem Counties, there were only 9,364 shad caught by 38 drifting gill nets 500 fathoms long, and 58 staked nets 25 fathoms long.

In connection with this situation, it might be noted that Maurice River is the only place in the southern counties where hauling seines are used for the taking of shad, and eggs are taken from shad caught in these nets and hatched at the State Shad Hatchery at Hancocks Bridge, and the fry planted in that river.

REPORT OF SHAD CAUGHT IN DELAWARE RIVER AND BAY

County	Boats		Nets		Men Engaged		Number of Shad Caught		Value of Shad Caught		Value of Boats and Nets	
	1930	1931	1930	1931	1930	1931	1930	1931	1930	1931	1930	1931
Cumberland...	67	47	67	116	162	100	39,800	27,100	\$35,100	\$21,475	\$28,445	\$12,750
Salem.....	26	28	26	28	52	56	20,441	4,764	13,822	5,192	20,800	19,600
Camden.....	2	—	2	—	4	—	50	—	50	—	250	—
Burlington...	11	18	11	18	29	40	458	635	458	1,270	1,345	2,795
Mercer.....	6	10	6	11	26	40	660	1,586	1,385	2,740	1,575	2,265
Hunterdon...	4	5	4	5	16	16	665	1,211	1,170	1,768	550	550
	116	108	116	178	289	252	62,074	35,296	\$51,985	\$32,445	\$52,965	\$37,960
*Increase.....				64								
*Decrease.....	6				33		26,728		\$19,490		\$14,755	

\*Increase and Decrease figured exclusive of Camden County where no shad were caught in 1931.

## POLLUTION CASES

The Board investigated all complaints received respecting pollution. In some no cause for action was found. Analyses of waters were made for us in several cases by the State Board of Health.

The B. F. Waldron & Son Company, operating a creamery at Califon, were ordered prosecuted for polluting the South Branch of the Raritan River. The Company paid a penalty of \$200.

Newark Milk Company, polluting Crosswicks Creek. Case appealed.

Alex Gould, polluting Stoney Brook. \$200 penalty.

Charles Gustafson, polluting Muddy Run, penalty of \$200; case appealed and appeal sustained.

We served on the Associated Dyeing and Printing Company, of Newton, a notice to abate their discharge of waste into the Paulins Kill River. Counsel of the Company appeared before the Board and stated that the Company was restricted in the disposal of the waste to the sewage plant of the town, which had long been the system for such disposal. Counsel pointed out that to enjoin the plant in this period of depression would be to throw three hundred persons out of employment. The Board obtained the promise of the Company for their installation of a disposal plant.

The Board greatly regretted the failure of the Legislature to pass a bill introduced by Senator E. Donald Sterner of Monmouth County, which was strongly supported by the municipalities along our coast, to prohibit the discharge of petroleum, acids, chemicals, etc., in the tidal waters of the State including the Atlantic Ocean within three nautical miles of the coast line. It is believed that the passage of this measure would do wonders for the fish life of our tidal waters, as it is well known how destructive is the discharge of oil, etc. The bill was in line with the suit brought by the State of New Jersey in the United States Supreme Court for an injunction restraining the State of New York dumping its garbage into the Ocean, great quantities of which have been cast upon beaches belonging to the State, creating a public nuisance. The Supreme Court issued an injunction and New York City has been given time to complete incinerators for the disposal of its garbage.

The State Board of Health, which has stringent laws respecting pollutions of potable waters, investigated 153 complaints and issued that number of notices to cease pollution. That Board also issued nine notices to municipalities or sewer companies to cease discharging sewage into the waters of the State or to improve sewage treatment works. There are now a total of 365 sewage disposal plants in the State and there are 7 plants under construction. There are 16 creamery and dairy waste treatment plants not included in the above.

Other pollution cases investigated by our Board were:

Metedeconk Brook, Lakewood, sewage disposal plant, no detrimental pollution.

David Baird's Pond, Camden, where fish had died, no source of pollution found.

An analysis showed that the water was no more polluted than any waters subject to surface run off in such locality.

O. K. Piece Dye Works, Passaic River, overflow due to an accident to the Company's outlet. The break was immediately repaired.

Diamond Flatware Company, Lambertville. A large number of small fish, mostly chubs and suckers, were killed due to the stoppage of the Company's disposal plant polluting a small stream emptying into the Delaware. After our investigation, the Company took up with State Board of Health the matter of an installation of the best filter to prevent further trouble.

Craft's Creek, Burlington County, conviction of Isadore and Morris Cohen, Newark Milk Company. Case appealed.

Our attention was called to a large amount of oil on the South Branch of the Raritan River in January. Investigation showed that there had been a leak in the oil system of the Taylor-Wharton Iron and Steel Company at High Bridge. It does not appear that any fish were killed by the oil, and the Company assured the Board that extra precautions would be taken to prevent a repetition of the escape of the oil.

Rockaway River, near Wharton. The Thomas Wharton Company, discoloration of water due to crushing more rock than usual on account of sinking the shaft to a greater depth. The Company diverted the discharge.

Delaware River at Washington Crossing bridge, washing from materials used in painting bridge; no detrimental pollution.

Assumpink Creek, discoloration due to cleaning out the buildings along the creek where the fire hose was used to remove the dirt; no detrimental pollution.

Stoney Brook, distillery polluting brook, R. D. No. 1, Pennington Road. No dead fish found.

Royce Brook, near Belle Mead, distillery, no evidence to sustain prosecution.

## APPEAL TO THE SUPREME COURT

The case against Fred Breslau, who was convicted before a recorder's court for having in possession 50 short lobsters, which case he appealed and secured dismissal in the Monmouth County Common Pleas Court, was taken to the New Jersey Supreme Court by the Attorney General on certiorari.

When the wardens discovered a man on Sandy Hook Bay with a lobster car drawn to the surface by means of a davey attached to his boat, the man, who gave his name as George Fisler, released the car and escaped to the shore while the wardens were grappling for the car. When a warrant was issued for the arrest of George Fisler, it was found that Mr. Fisler was not the person wanted. Making further inquiries, they learned that Fred Breslau was the owner of the boat, and he was later recognized as the offender. The complaint was then changed to read "George Fisler, name fictitious, name Fred Breslau." The Common Pleas Court in the appeal case held that complaint could not be amended even to the extent of substituting a proper name for a fictitious name which had been given. The Attorney General holds that the defendant should have been found guilty as the



## STOCKING OF NEW JERSEY WATERS

By the New Jersey Board of Fish and Game Commissioners  
For the Fiscal Year Ending June 30, 1931

Total Number of Fish Planted from All Sources—114,315,468

### KEY TO ABBREVIATIONS

FISH		FISH	
Bt. ....	Brook Trout	Pic. ....	Pickeral
Brnt. ....	Brown Trout	Pike .....	Pike
Rt. ....	Rainbow Trout	S. ....	Sunfish
Cb. ....	Calico Bass	B. ....	Baitfish
Lmb. ....	Large Mouth Bass	Cr. ....	Crappie
Smb. ....	Small Mouth Bass	Wper. ....	White Perch
Sb. ....	Striped Bass	Yper. ....	Yellow Perch
Bs. ....	Bluegill Sunfish	Shad .....	Shad
C. ....	Catfish	Misc. ....	Miscellaneous

#### Size

fg. ....	fingerlings
f. ....	fry
a. ....	adults

### ATLANTIC COUNTY

#### (Great Egg Harbor System)

Egg Harbor River—Penny Pot—400 Lmbfg.  
Indian Cabin Lake—Egg Harbor—600,000 Yperf.  
Lenape Lake—Mays Landing—200 Lmbfg, 1,600,000 Yperf.

#### (Mullica River System)

Hammonton Lake—Hammonton—600 Lmbfg, 550 Rta, 250 Bta, 1,000,000 Yperf.

### BERGEN COUNTY

#### (Hackensack River System)

Boiling Spring Brook—Old Tappan—250 Bta.  
Closter Brook—Closter—43 Bta, 25 Brnta, 150 Rta.  
Cooper's Pond—Northvale—400 Smbfg, 500 Bsf, 250 Cfg.  
Demarest Lake—Demarest—150 Rta.  
Dyers Brook—Northvale—250 Bta.  
Hackensack River—Oradell—733 Brnta, 125 Bta, 545 Rta, 263 Brntfg.  
Lekow Park Lake—Englewood—287 Ypera, 288 Sa.  
Lenox Park Lake—Englewood—1,357 Bta, 717 Rta, 841 Brnta, 1,200,000 Yperf, 1,500 Bsf, 750 Cfg.  
Musquasink Creek—Westwood—450 Rta.  
Pascack Creek—Woodcliff Lake—2,675 Bta, 2,666 Rta, 3,996 Brnta, 600 Btfg.  
West Pascack Creek—Woodcliff Lake—300 Btfg.  
Tellers Brook—Riverdale—275 Bta.  
Tenekill Creek—Closter—725 Rta, 108 Bta.

Washington Spring Brook—Cherry Hill—450 Rta.  
Willow Lake—Little Ferry—439 Bta, 2,084 Brnta, 1,301 Rta, 2,000 Bsf, 1,000 Cfg.  
Zabieskies Lake—Little Ferry—1,000 Bsf, 250 Cfg.

#### (Pascack Creek System)

Bear Creek—Woodcliff Lake—275 Bta, 300 Btfg.  
Electric Lake—Montvale—600 Sa, 800 Smbfg, 1,000 Bsf, 500 Cfg, 250 Pica, 600,000 Yperf, 62 Lmba, 63 Smba, 600 Ypera, 125 Cra.  
Montvale Brook—Montvale—900 Btfg.  
Woodcliff Lake—Montvale—500 Lmbfg, 200 Smbfg, 2,000 Bsf, 1,000 Cfg, 600,000 Yperf.

#### (Passaic River System)

Garfield City Lake—Garfield—8 Lmba, 7 Smba, 163 Ypera, 9 Pica, 162 Sa.  
Saddle River—Saddle River—5,512 Rta, 3,522 Brnta, 2,603 Bta, 862 Brntfg.  
Valentine Brook—Hawthorne—483 Rta, 133 Bta.

#### (Ramapo River System)

Pond Brook—Oakland—258 Rta, 133 Bta.

#### (Saddle River System)

New Lake—Waldwick—1,000 Bsf, 250 Cfg.  
Sprout Brook—Arcola—149 Bta, 275 Rta, 109 Brnta.  
Tallmans Brook—Saddle River—100 Brnta, 600 Brntfg.

### BURLINGTON COUNTY

#### (Delaware River System)

Bread and Cheese Run—Tabernacle—450 Rta, 400 Brnta.  
Kinkora Lake—Kinkora—200 Lmbfg.  
Moore's Bogs—Tabernacle—600 Cfg.  
Sylvan Lake—Burlington—900 Rta, 1,000 Brnta, 400 Lmbfg, 300 Ypera, 600 Cfg, 400,000 Yperf, 250 Sa, 200 Wpera, 25 Cba, 100 Lmba.

#### (Mullica River System)

Atsion Lake—Atsion—200 Lmbfg, 1,200 Cfg, 200,000 Yperf.  
Haines Pond—Atsion—600 Cfg.

#### (Rancocas Creek System)

Birmingham Creek—Birmingham—600 Cfg.  
Browns Mills Lake—Browns Mills—600 Lmbfg, 900 Cfg, 1,500 Bsf, 300 Ypera, 75 Pica.  
Cookstown Lake—Cookstown—100 Lmbfg, 600 Cfg.  
Durands Lake—Mt. Holly—600 Cfg, 300 Lmbfg, 500 Bsf, 200,000 Yperf.  
Hunter's Lodge Lake—Browns Mills—200,000 Yperf.  
Little Pine Lake—Browns Mills—200,000 Yperf, 250 Sa.  
Medford Creek—Medford—600 Cfg, 100 Lmbfg, 500 Sa.  
Medford Lake—Medford—100 Lmbfg, 400,000 Yperf.  
Mirror Lake—Browns Mills—400,000 Yperf, 500 Sa.  
Mt. Holly Creek—Mt. Holly—900 Cfg.  
Norcross Lake—Pemberton—200 Lmbfg, 600 Cfg, 500 Bsf, 400,000 Yperf, 250 Sa.  
Pemberton Creek—Pemberton—600 Cfg.  
Pemberton Lake—Pemberton—100 Lmbfg.  
Rancocas Creek—Above Mt. Holly—6 Cba, 150 Ypera.  
Rancocas Lake—Rancocas—500 Bsf, 200 Lmbfg, 600 Cfg, 500 Sa, 108 Ypera, 9 Pikea.  
Smithville Lake—Smithville—400 Lmbfg, 600 Cfg, 500 Bsf, 200,000 Yperf.

Tomlinson's Mill Lake—Marlton—600 Cfg, 100 Lmbfg.  
Vincentown Lake—Vincentown—600 Cfg, 100 Lmbfg, 200,000 Yperf, 250 Sa.  
Warricks Lake—Hartford—500 Sa.  
Wrightstown Pond—Wrightstown—100 Ypera.

**(Wading River System)**

Chatsworth Lake—Chatsworth—600 Cfg.  
Cotoxen Lake—Kirby's Mills—200 Lmbfg, 500 Bsf.

**CAMDEN COUNTY**

**(Cooper River System)**

Woods Pond—Borough of Gibbsboro—500 Lmbfg, 1,500 Bsf, 200,000 Yperf.

**(Delaware River System)**

Blackwood Lake—Blackwood—1,200 Cfg, 100 Lmbfg, 500 Bsf, 200,000 Yperf, 250 Sa.  
Crystal Lake—Westmont—400 Lmbfg, 900 Cfg, 500 Bsf.  
Evans Lake—Haddonfield—900 Cfg, 300 Lmbfg, 200,000 Yperf, 500 Sa.  
Gibbsboro Lake—Lucaston—100 Lmbfg, 500 Sa.  
Grenloch Lake—Grenloch—2,700 Cfg, 300 Lmbfg, 1,000 Bsf, 10 Pica, 1,288 Sa, 11 Cra, 400,000 Yperf, 4 Wpera, 2 Lmba, 2 Smba, 215 Ypera, 25 B.  
Kresson Lake—Kresson—600 Cfg, 400 Lmbfg, 200,000 Yperf, 500 Bsf, 500 Sa.  
Haddon Lake—Mt. Ephraim—100 Lmbfg, 200,000 Yperf.  
Hopkins Lake—Haddonfield—900 Cfg, 200,000 Yperf.  
Lucas Lake—Gibbsboro—200 Lmbfg, 1,000 Bsf, 400,000 Yperf.  
Mountwell Stream or Coopers Brook—Haddonfield—400 Rta.

**(Mullica River System)**

Atco Lake—Atco—600 Cfg, 200 Lmbfg, 200,000 Yperf.  
Spring Lake—Beebetown—100 Lmbfg.  
West Jersey Bogs—Atco—600 Cfg.

**(Timber Creek System)**

Big Lebanon Run—Turnersville—1,100 Brnta, 1,000 Rta, 1,425 Bta.  
Back Run—Berlin—150 Bta.  
Bottomley Lake—Clementon—600 Cfg, 200 Lmbfg, 200,000 Yperf.  
Browns Run—Turnersville—425 Bta.  
Clementon Lake—Clementon—900 Cfg, 500 Lmbfg, 1,000 Bsf, 400,000 Yperf, 1,000 Sa.  
Gardner Lake—Laurel Springs—200,000 Yperf, 1,500 Sa.  
Pages Lake—Turnersville—1,200 Cfg, 300 Pikea.  
Pillings Lake—Clementon—900 Cfg, 300 Lmbfg.  
Rattlesnake Run—Turnersville—100 Bta.  
Silver Lake—Clementon—100 Lmbfg, 600 Cfg.  
Trout Run—Near Clementon—100 Bta.

**CAPE MAY COUNTY**

County Almshouse Pond—Cape May Court House—200 Lmbfg, 800,000 Yperf.  
Dennis Creek Pond—Dennisville—800,000 Yperf.  
East Creek Lake—Eldora—200 Lmbfg.  
Ludlam's Lake—Dennisville—200 Lmbfg, 400,000 Yperf.  
Rio Grande Pond—Rio Grande—400,000 Yperf.

**CUMBERLAND COUNTY**

**(Cohansey Creek System)**

Cedar Lake—Cedarville—200,000 Yperf.

Cedarville Lake—Near Millville—200 Lmbfg.  
Clark's Lake—Bridgeton—200 Lmbfg, 400,000 Yperf.  
Elmer Lake—Bridgeton—300 Lmbfg, 200,000 Yperf.  
Tumbling Dam Lake—Bridgeton—900 Lmbfg, 400 Cfg, 1,500 Bsf, 800,000 Yperf, 50,000 Wperf, 150 Wpera, 1 Lmba, 523 Ypera, 212 Cra, 19 Pica, 225 B, 500 Sa.

**(Maurice River System)**

Beach Lake—Near Millville—200 Lmbfg.  
Cumberland Pond—Near Millville—300 Lmbfg, 200,000 Yperf.  
Frie's Pond—Near Millville—100 Lmbfg, 200,000 Yperf.  
Laurel Lake—Near Millville—400 Lmbfg, 3,500 Bsf, 400,000 Yperf, 2,000 Cfg.  
Leaming Lake—Near Millville—200 Lmbfg, 400,000 Yperf.  
Little Mill Lake—Millville—200 Lmbfg, 400,000 Yperf, 1,000 Wpera, 60 Cba, 63 Sba, 1 Smba, 1,415 Ypera, 3 Pikea, 200 Sa.  
Manantico Lake—East Vineland—200 Lmbfg.  
Rainbow Lake—Near Millville—100 Lmbfg.  
Union Lake—Millville—700 Lmbfg, 400 Cfg, 3,500 Bsf, 5 Pikea, 860 Sa, 2,000 Ypera, 800,000 Yperf, 1,085 Wpera, 100 Cba, 100 Sba, 1 Smba.

**ESSEX COUNTY**

**(Passaic River System)**

Branch Brook Park Lake—Branch Brook Park—500 Lmbfg, 500 Smbfg, 600 Rta, 250 Brnta, 600,000 Yperf, 1,500 Misc.  
Clarks Pond—Bloomfield—375 Rta, 75 Brnta.  
Notch Brook—Essex Park—700 Rta, 900 Bta, 75 Brnta.  
Oakes Pond—Bloomfield—375 Rta, 250 Brnta.  
Passaic River—Swinefield—31 Lmba, 32 Smba, 765 Ypera, 13 Pica, 766 Sa.  
Weequahic Park Lake—Newark—600,000 Yperf, 76 Lmba, 76 Smba, 300 Ypera, 2 Cra, 16 Pica, 300 Sa, 1,500 Misc, 1,000 Smbfg.

**(Rahway River System)**

So. Mt. Reservation—Bloomfield—4,700 Rta, 1,000 Bta, 905 Brnta.

**GLOUCESTER COUNTY**

**(Delaware River System)**

Leslies Lake—Mt. Royal—400,000 Yperf.  
Woodbury Heights Lake—Woodbury Heights—200 Lmbfg, 500 Sa.

**(Mantua Creek System)**

Alcyon Lake—Pitman—1,200 Lmbfg, 400 Cfg, 1,500 Bsf, 400,000 Yperf, 82 Cba, 150 Lmba, 320 Ca, 900 Sa.  
Cresse's Lake—Near Pitman—100 Lmbfg.  
Wenonah Lake—Wenonah—400 Lmbfg, 50 Rta, 150 Brnta.

**(Maurice River System)**

Fries Mill Lake—Clayton—200 Lmbfg.  
Iona Lake—Iona—800 Lmbfg, 400,000 Yperf, 1,500 Sa.  
Kandle Creek—Franklinville—275 Rta, 150 Brnta.  
Malaga Lake—Clayton—600 Lmbfg, 500 Bsf, 800,000 Yperf, 1,500 Sa.

**(Raccoon Creek System)**

Mullica Hill Lake—Mullica Hill—400 Cfg, 400,000 Yperf, 5 Wpera, 137 Sa, 2 Lmba, 1 Smba, 215 Ypera, 12 Cra, 9 Pica, 25 B, 600 Lmbfg.

**(Timber Creek System)**

Almonesson Lake—Almonesson—800 Lmbfg, 1,500 Bsf, 400,000 Yperf, 1,200 Sa.

Bell's Lake—Woodbury—300 Lmbfg, 1,000 Bsfg, 400,000 Yperf, 500 Sa.  
Little Lebanon Run—Near Turnersville—225 Rta.  
Turnersville Lake—Turnersville—1,000 Bsfg.

### HUDSON COUNTY

Hudson County Park Lake—Jersey City—2,100 Rta, 100 Bta, 156 Brnta.

### HUNTERDON COUNTY

#### (Delaware River System)

Everittstown Brook—Everittstown—300 Bta, 225 Rta.  
Lacatang Creek—Stockton—150 Rta, 160 Brnta, 500 Bta.  
Little York Brook—Little York—1,025 Rta, 550 Bta, 450 Btfg, 125 Brnta.  
Lopatcong Creek—Above Phillipsburg—250 Rta, 450 Btfg.  
Musconetcong River—Penwell to Asbury—375 Bta, 2,425 Rta, 6,555 Brnta.  
Sergeantsville Brook—Sergeantsville—500 Brnta.  
Spring Mills Brook—Spring Mills—350 Rta, 250 Bta.  
Wichechoke Run—Sergeantsville—450 Rta.

#### (Musconetcong River System)

Beaty's Brook—Penwell—225 Bta, 350 Rta, 825 Brnta, 1,600 Brntfg.

#### (Raritan River System)

Beaver Brook—Clinton—100 Bta, 100 Rta.  
Capepoulin Creek—Pittstown—375 Rta, 650 Bta, 200 Brnta, 450 Btfg.  
Clinton Lake—Clinton—175 Lmbfg, 75 Cfg, 88 Lmba, 87 Smba, 200 Ypera, 175 Cra, 200 Pica, 225 Sa.  
Cramers Brook—Califon—325 Bta.  
Cushetunk Lake—White House—600 Lmbfg, 1,600,000 Yperf, 195 Lmba, 55 Smba, 523 Ypera, 90 Cra, 25 Pica, 600 Ca, 522 Sa.  
Frog Hollow Brook—Califon—300 Brnta, 1,700 Brntfg.  
Nishisakawick Creek—Frenchtown—450 Rta.  
Phillower Brook—Califon—100 Brnta, 800 Brntfg.  
So. Br. Raritan River—Middle Valley to High Bridge—2,600 Bta, 8,400 Rta, 7,048 Brnta.  
Spruce Run—Glen Gardner, 2,150 Rta, 800 Bta, 850 Brnta.  
Solitude Lake—High Bridge—1,600,000 Yperf.  
Tetertown Brook—Califon—1,550 Bta, 200 Rta.

#### (Rockaway River System)

Cold or Skillman Brook—New Germantown—200 Rta, 450 Bta.  
Guenna Hollow Brook—Mountainville—150 Bta, 25 Rta.  
Hoovers Brook—Lebanon—300 Bta, 150 Rta, 256 Brnta.  
Hoovers Pond—Clinton—100 Bta, 200 Brnta, 400 Rta.  
No. Br. Rockaway River—New Germantown to White House—2,675 Rta, 2,080 Brnta, 1,700 Bta.  
So. Br. Rockaway River—Lebanon to White House—225 Bta, 750 Brnta, 2,325 Rta.  
Trib. So. Br. Rockaway River—Lebanon—400 Bta.  
Tietz Run—Mountainville—100 Bta.

#### (Spruce Run System)

Mulhockaway Creek—Van Syckles—150 Rta, 225 Brnta, 250 Bta, 450 Btfg.  
Sanitarium Brook—Glen Gardner—300 Brnta, 1,500 Brntfg.

### MERCER COUNTY

#### (Assanpink Creek System)

Lawrence Pond—Lawrence Station—100 Lmbfg, 600 Cfg.

#### (Crosswicks Creek System)

Gropp's Lake—Maple Shade—400 Lmbfg, 600 Cfg, 2,000 Bsfg, 400,000 Yperf.

#### (Delaware River System)

Groveville Pond—Groveville—1,000 Bsfg, 400,000 Yperf.  
Hills Lake—Ewingville—600 Cfg, 350 Bsfg, 400 Lmbfg.  
Whiteheads Pond—Hamilton Square—1,200 Cfg.

#### (Millstone River System)

Carnegie Lake—Princeton—800 Lmbfg, 2,050 Smbfg, 700 Smba, 900 Ypera, 2,400 Cra, 250 Pica, 1,000 Sa, 150 Misc, 410 Cba, 900 Lmba, 75 Cfg, 200 Bsfg, 1,600,000 Yperf, 100 Yperfg.  
Peddie Lake—Hightstown—800 Lmbfg, 600,000 Yperf.  
Stoney Brook—Pennington—2,600 Rta, 2,950 Brnta, 600 Bta, 450 Brntfg.

#### (Miry Run System)

Hutchinson's Pond—Robbinsville—300 Lmbfg, 600 Cfg, 2,000 Bsfg, 400,000 Yperf.  
Reeds Mill Pond—Mercerville—300 Cfg, 350 Bsfg.

### MIDDLESEX COUNTY

#### (Lawrence River System)

Milltown Lake—Milltown—400 Lmbfg.  
Oakey Brook—Franklin Park—250 Rta, 75 Bta.

#### (Manalapan River System)

Bloomfield Lake—Old Bridge—100 Lmbfg.  
Helmetta Pond—Helmetta—600 Cfg, 300 Ca.  
Jamesburg Lake—Jamesburg—700 Lmbfg, 900 Cfg, 800,000 Yperf, 125 Lmba, 50 Ypera, 100 Cra, 300 Ca.  
Jamesburg Brook—Jamesburg—200 Brnta.  
Manalapan River—Jamesburg—300 Bta, 800 Rta, 950 Brnta.  
Matchaponix Brook—Old Bridge—800 Brnta, 700 Rta.  
Spottswood Lake—Spottswood—200 Lmbfg, 600 Cfg.  
Wigwam Brook—Jamesburg—350 Bta.

#### (Millstone River System)

Brainard Lake—Cranbury—200 Lmbfg, 900 Cfg.  
Plainsboro Lake—Plainsboro—200 Lmbfg, 375 Ypera, 350 Cra.

#### (Raritan River System)

Ambrose Brook—Piscataway—50 Bta.  
Bonhampton Lake—Bonhampton—1,450 Rta, 300 Bta, 155 Brnta, 850 Cra, 400 Lmbfg, 1,200 Cfg, 400,000 Yperf, 150 Lmba, 3,832 Ypera.  
Farrington Lake—Near New Brunswick—1,700 Lmbfg, 600 Cfg, 31 Pica, 500 Sa, 100 Cra, 5,000 Bsfg, 600,000 Yperf, 160 Lmba, 35 Smba, 550 Ypera.  
Farrington Brook—Near New Brunswick—200 Rta.  
Fords Pond—Near Woodbridge—150 Bta.  
Lawrence Brook—New Brunswick—300 Rta, 75 Bta, 355 Brnta.  
Mill Brook—Bonhampton—450 Rta.  
New Brunswick Reservoir—New Brunswick—450 Rta.  
Nixon's Pond—Nixon—1,050 Rta, 6 Brnta, 400,000 Yperf.  
Perth Amboy Ice Pond—Perth Amboy—300 Cfg.  
Sandfield Pond—Sayresville—200 Brnta.  
Sayresville Pond—Sayresville—600 Cfg, 350 Bsfg, 100 Lmbfg.  
So. Amboy Ice Pond—So. Amboy—200 Lmbfg.  
Weston's Mill Lake—New Brunswick—600 Lmbfg, 600 Cfg, 400,000 Yperf, 35 Lmba, 35 Smba, 875 Ypera, 350 Cra, 30 Pica, 500 Sa.

## MONMOUTH COUNTY

### (Atlantic Ocean System)

Como Lake—Como—200 Lmbfg, 1,000 Bsf.  
Deal Lake—Allenhurst—200 Lmbfg, 1,000 Bsf.  
Manasquan River—Ardena—1,100 Brnta, 250 Bta, 300 Rta.  
Trib. Manasquan River—200 Brnta, 1,300 Brntfg.  
Nut Swamp Brook—Red Bank—200 Bta.  
Old Mill Pond—Villa Park—275 Rta, 100 Brnta, 200 Lmbfg, 75 Bta, 1,000 Ypera, 400,000 Yperf.  
Osborne's Pond—Bailey's Corner—100 Rta, 100 Brnta, 200 Lmbfg, 400,000 Yperf, 1,000 Ypera.  
Spring Lake—Spring Lake—150 Brnta, 400 Lmbfg.  
Sunset Lake—Asbury Park—200 Lmbfg.  
Takanasee Lake—Long Branch—100 Lmbfg.

### (Delaware River System)

Allentown or Connine Lake—Allentown—134 Brnta, 400 Lmbfg, 1,000 Bsf.  
Doctor's Creek—Red Valley to Allentown—948 Brnta.

### (Doctor's Creek System)

Imlaystown Lake—Imlaystown—133 Brnta, 400 Lmbfg, 1,000 Bsf.  
Ivanhoe or Lakaway Brook—Prosperptown—2,50 Bta.  
Prosperptown Lake—Prosperptown—200 Lmbfg.

### (Manalapan River System)

Debois Brook—Milhurst—450 Brnta.  
Englishtown Pond—Englishtown—225 Rta, 600 Cfg, 100 Lmbfg, 500 Bsf, 400,000 Yperf.  
Freehold or Topenemus Lake—Freehold—75 Bta, 625 Rta, 145 Lmba, 75 Cra, 400 Lmbfg, 600 Cfg, 1,000 Bsf, 400,000 Yperf, 1,000 Ypera.  
Orr's River—So. of Englishtown—350 Brnta.  
Topenemus Brook—Englishtown—475 Bta.

### (Metedeconk River System)

Haystack Brook—Near Herbertsville—250 Bta.  
So. Br. Metedeconk River—Lakewood—50 Rta, 400 Brnta.

### (Millstone River System)

Perrineville Lake—Perrineville—600 Cfg, 1,000 Bsf.

### (Raritan River System)

Black Mills or Milhurst Lake—Milhurst—375 Rta, 600 Lmbfg, 900 Cfg, 75 Cra, 140 Lmba, 1,000 Ypera.  
Lefferts Lake—Matawan—150 Bsf, 200 Lmba, 125 Cra.  
Manalapan River—Milhurst—32 Bta, 100 Rta, 1,400 Brnta.  
Trib. Manalapan River—Above Jamesburg—100 Brnta, 400 Brntfg.  
Pine Brook—Tinton Falls—383 Bta.  
Wemrock Brook—Englishtown—475 Bta.

### (Shark River System)

Hurley's Pond—Glendola—350 Rta, 400 Lmbfg, 400,000 Yperf, 1,000 Ypera.  
Shark River—Belmar—2,150 Bta.  
Big Brook—Marlboro—250 Bta.  
Buck Mills Pond—Colts Neck—150 Rta.  
Hockhocks River—Tinton Falls—384 Bta.  
Yellow or Lewis Brook—Tinton Falls—650 Bta.  
Snyder's Brook—Colts Neck—350 Bta.

Tintern Manor Lake—Lincroft—900 Cfg, 400 Lmbfg, 200 Lmba, 125 Cra.  
Willow Brook—Holmdel—250 Bta.

### (Shrewsbury River System)

Hat Factory Brook—Eatontown—133 Bta.  
Shadow Lake—Red Bank—300 Rta.

### (Swimming River System)

Randolph Brook—E. Freehold—100 Brnta, 400 Brntfg.

## MORRIS COUNTY

### (Delaware River System)

Electric Brook—Schooley's Mt.—500 Rta, 125 Bta, 100 Brnta.  
Electric Light Pond—Schooley's Mt.—400 Bta, 50 Rta, 3 Brnta.  
Gulick's Brook—Schooley's Mt.—250 Bta, 200 Rta.  
Hurd Brook—Hurdtown—100 Brnta, 400 Brntfg.  
Musconetcong Lake—Netcong—75 Bsa, 88 Lmba, 1,120 Smbfg, 350 Ypera, 12 Pica, 350 Sa, 100 Yperf, 88 Smba, 2,500 Cfg, 4,660 Lmbfg, 5,600 Bsf, 25 Crfg, 4,000,000 Yperf.  
Musconetcong River—Near Hackettstown—3,550 Rta, 1,400 Bta, 2,950 Brnta.  
Schooley's Mt. Brook—Schooley's Mt.—600 Bta, 200 Rta, 200 Brnta.  
Weldon Brook—Hurdtown—900 Rta, 475 Bta, 100 Brnta, 400 Brntfg.

### (Passaic River System)

Beaver or Harrigan Brook—Rockaway—1,150 Rta, 1,075 Bta, 200 Brnta, 400 Brntfg.  
Connett Brook—Brookside—2,222 Brntfg.  
Dismal Brook—Brookside—2,222 Brntfg.  
Fazan Lake—Boonton—38 Lmba, 37 Smba, 412 Ypera, 26 Pica, 200 Ca, 413 Sa.  
Florahn Park Lake—Florahn Park—75 Rta.  
Intervale Lake—Boonton—75 Lmba, 75 Smba, 250 Ypera, 150 Cra, 250 Pica, 200 Sa.  
Kakeout Brook—Butler—450 Rta, 200 Bta, 200 Brnta.  
Kampf Lake—Near Butler—8 Lmba, 8 Smba, 163 Ypera, 9 Pica, 162 Sa.  
Morris Plains Brook—Morris Plains—550 Rta.  
Rockaway River—Rockaway—3,750 Bta, 9,327 Rta, 3,815 Brnta.  
Seiber's Lake—Hibernia—62 Lmba, 63 Smba, 250 Ypera, 125 Cra, 250 Pica, 250 Sa.  
Stony Brook—Taylortown—375 Rta, 650 Bta.  
Washington Valley Brook—Morristown to Mendham—4,225 Rta, 900 Bta, 1,828 Brnta.

### (Raritan River System)

Black River—Milltown to Pottersville—2,750 Bta, 6,900 Rta, 5,480 Brnta.  
Ledgewood Brook—Ledgewood—200 Rta.  
Pierson's Brook—Near Parker—750 Btfg.  
So. Br. Raritan River—Budd Lake to Middle Valley—12,440 Brnta, 9,025 Rta, 4,700 Bta, 567 Brntfg.

### (No. Br. Raritan River System)

Burnett Brook—Ralston—2,925 Rta, 325 Bta, 1,477 Brnta, 2,223 Brntfg.  
Indian Brook—Ralston—2,350 Rta, 500 Bta, 450 Brnta, 2,222 Brntfg.  
Peapack Brook—Chester to Gladstone—1,175 Rta, 550 Brnta.

### (So. Br. Raritan River System)

Budd Lake Brook—Budd Lake—2,222 Brntfg, 1,550 Bta, 700 Rta, 500 Brnta.  
Budd Lake—Budd Lake—2,300 Cfg, 4,510 Lmbfg, 6,575 Bsf, 600 Cra, 500 Smbfg, 7,600,000 Yperf, 515 Lmba, 516 Smba, 1,740 Ypera, 1,295 Pica, 1,640 Sa, 1,100 Misc.  
Drakes Brook—Flanders—500 Rta, 250 Bta, 100 Brnta, 2,789 Brntfg.

Flanders Brook—Flanders—1,400 Rta, 355 Brnta, 200 Bta, 2,788 Brntfg.  
Turkey Brook—Mt. Olive—2,222 Brntfg.

**(Rockaway River System)**

Bear Pond—Lake Hopatcong—2,000 Bsf.  
Black Brook—Madison—225 Bta, 25 Rta.  
Cedar Lake—Denville—1,600,000 Yperf.  
Commerce Lake—Rockaway—362 Ypera, 363 Sa.  
Cook's Lake—Denville—800,000 Yperf, 6 Lmba, 6 Smba, 73 Ypera, 7 Pica, 72 Sa.  
Crooked Brook—Montville—675 Rta.  
Lake Espanong—Near Lake Hopatcong—325 Brnta.  
Estling Lake—Denville—800,000 Yperf, 615 Ypera, 616 Sa.  
Green Pond—New Foundland—5,000 Bsf, 1,000 Smbfg, 2,800,000 Yperf, 916 Sa, 197 Lmba, 195 Smba, 991 Ypera, 205 Cra, 538 Pica.  
Lake Hopatcong—Lake Hopatcong—1,800 Cfg, 9,500 Lmbfg, 41 Pica, 300 Ca, 350 Sa, 9,000 Bsf, 11,200,000 Yperf, 58 Lmba, 59 Smba, 350 Ypera.  
Hopewell Brook—Hopewell—450 Brnta.  
Indian Lake—Denville—400,000 Yperf.  
Lenore Lake—Mt. Tabor—62 Lmba, 63 Smba, 250 Ypera, 125 Cra, 250 Pica, 250 Sa.  
Longwood Lake—Longwood—500 Lmbfg, 137 Lmba, 138 Smba, 807 Ypera.  
Mill Brook—Dover—875 Rta, 250 Bta, 2,223 Brntfg.  
Moosepack Lake—Oak Ridge—1,600,000 Yperf, 35 Lmba, 35 Smba, 318 Ypera, 5 Pica, 317 Sa.  
Mt. Hope Lake—Mt. Hope—63 Lmba, 62 Smba, 250 Ypera, 125 Cra, 250 Pica, 250 Sa.  
Navy Pond—Dover—100 Bta, 200 Brnta.  
Parsippany River—Parsippany—200 Bta.  
Rock Ridge Lake—Denville—800,000 Yperf.  
Stickle's Brook—Rockaway—150 Bta, 875 Rta.

**(Whippany River System)**

Burnham Park Lake—Morristown—200 Smbfg.  
Pochantas Lake—Morristown—450 Rta, 300 Smbfg, 400,000 Yperf, 113 Ypera, 112 Sa.  
Pochantas Brook—Morristown—250 Bta, 250 Rta, 500 Brnta.  
Whippany River—Morristown—150 Rta.

**OCEAN COUNTY**

Barney Lake—Forked River—600,000 Yperf.  
Cassville Lake—Cassville—200 Lmbfg.  
Cedar Creek—Cedar Creek—800 Brnta.  
Colliers Mill Lake—Colliers Mill—1,000 Bsf, 300 Lmbfg.  
Jackson Mills Lake—Jackson Mills—700 Lmbfg, 1,350 Bsf, 100 Lmba, 1,400 Ypera, 100 Wpera, 50 Cra, 25 Pic.  
Lakewood Little Lake—Lakewood—400 Lmbfg.  
Manahawkin Lake—Manahawkin—500 Lmbfg, 2,000 Bsf, 600,000 Yperf.  
New Egypt Lake—New Egypt—300 Lmbfg, 300 Cfg, 100 Wpera, 900 Ypera.  
Telt Estlows Lake—Brookville—400,000 Yperf.  
Tuckerton Lake—Tuckerton—500 Lmbfg, 2,000 Bsf.  
West Creek—West Creek—1,000 Bsf.

**PASSAIC COUNTY**

**(Greenwood Lake System)**

Belcher's Creek—West Milford—70 Bta, 450 Rta.  
Cooley Brook—Greenwood Lake—259 Rta, 484 Bta.  
West Milford Brook—West Milford—375 Rta.

**(Passaic River System)**

Barbers Lake—Near Paterson—15 Lmba, 15 Smba, 250 Ypera, 250 Sa.  
Burnt Meadow Brook—Denmark—250 Bta.  
Memorial Lake—Clifton—35 Lmba, 35 Smba, 208 Yper, 4 Cra, 9 Pica, 207 Sa.  
Oldens Lake—Haledon—15 Lmba, 15 Smba, 250 Ypera, 250 Sa.  
Preakness Brook—Preakness—500 Brnta.  
Wanaque River—Greenwood Lake—1,574 Bta, 5,918 Rta, 5,403 Brnta.

**(Pompton River System)**

Pequannock River—Charlottesville—100 Bta, 550 Rta, 905 Brnta.  
Pompton River—Pompton Plains—500 Lmbfg, 2,500 Bsf.

**(Ramapo River System)**

Pompton Lake—Pompton—1,000 Lmbfg, 500 Smbfg, 750 Cfg, 10,500 Bsf, 555 Cra, 3,000,000 Yperf, 305 Lmba, 303 Smba, 685 Ypera, 1,114 Pica, 2,500 Ca, 1,770 Sa.

**(Wanaque River System)**

Cyclone Brook—Hewitt—325 Brnta, 1,625 Brntfg.  
Greenwood Lake—Greenwood Lake—1,000 Lmbfg, 8,000 Bsf, 890 Ypera, 425 Cra, 870 Pica, 890 Sa, 212 Smba, 1,200 Smbfg, 1,200 Cfg, 213 Lmba, 2,000,000 Yperf.  
High Mt. Brook—Pompton—1,057 Bta, 841 Rta.  
Mine Hole—Near Hewitt—100 Rta, 12 Smba.  
Post Brook—Pompton—925 Bta, 250 Rta.  
Sindle Brook—Hewitt—100 Brnta, 600 Brntfg.  
Twin Lakes—Above Pompton—800,000 Yperf, 87 Lmba, 450 Lmbfg, 88 Smba, 375 Ypera, 175 Cra, 400 Pica, 375 Sa.

**SALEM COUNTY**

**(Alloway Creek System)**

Alloway Creek—Alloway—500 Bsf.  
Alloway Lake—Alloway—500 Bsf, 200 Lmbfg, 400,000 Yperf, 100,000 Wperf, 32 Wpera, 290 Cba, 4 Lmba, 4 Smba, 113 Ypera, 138 Sa.  
Ballinger's Mill Lake—Aldine—100 Lmbfg, 400,000 Yperf.  
Camp Roosevelt Lake—Aldine—300 Lmbfg, 500 Bsf, 400,000 Yperf, 100,000 Wperf.  
Cobbs Lake—Alloway—400,000 Yperf.  
Diamond Lake—Alloway—400 Lmbfg, 89 Wpera, 1,980 Cba, 153 Lmba, 46 Smba, 96 Ypera, 1 Pike, 6 Pica, 671 B, 37 Sa, 14 Bsa.  
Dilks Lake—Alloway—100 Lmbfg.  
Sycamore Lake—Alloway—100 Lmbfg.

**(Cohansey Creek System)**

Bostwick's Lake—Mt. Holly—100 Lmbfg, 400 Cfg.

**(Maurice River System)**

Centreton Lake—Centreton—850 Lmbfg, 700 Cfg, 1,000 Bsf, 630 Bsa, 2 Ca, 200 Sa, 800,000 Yperf, 5 Wpera, 177 Cba, 1 Lmba, 1 Smba, 8 Ypera.  
Elmer Lake—Elmer—750 Lmbfg, 500 Bsf, 800,000 Yperf, 157 Cba, 28 Ypera, 100 Sa, 1,220 Bsa.  
Maurice River—Millville—100,000 Wperf, 763,000 Shadf.  
Rainbow Lake—Near Norma—650 Lmbfg, 400,000 Yperf, 500 Cfg, 100 Sa.  
Union Grove Lake—Near Centreton—650 Lmbfg, 500 Bsf, 700 Cfg, 800,000 Yperf, 200 Sa.  
Willow Grove Lake—Willow Grove—300 Lmbfg.

**(Salem River System)**

Avis Lake—Woodstown—100 Lmbfg, 400,000 Yperf, 7 Wpera, 45 Cba, 4 Ypera, 41 Ca, 210 B, 63 Sa.  
Davis Lake—Salem—1,000 Bsf, 200 Lmbfg, 400,000 Yperf, 25 Cba, 500 Sa.

Memorial Lake—Woodstown—400 Lmbfg, 400,000 Yperf, 100,000 Wperf, 51 Wpera, 46 Cba, 61 Ypera, 604 Ca.  
Woodstown Lake—Woodstown—1,000 Bsf, 500 Sa.

### SOMERSET COUNTY

#### (Millstone River System)

No. Pike Brook—Harlington—150 Rta, 170 Brnta.  
Rock Brook—Rock Mill—450 Rta, 125 Bta.

#### (Passaic River System)

Dead River—So. of Liberty Corner—2,000 Ypera.  
Indian Graves Brook—Bernardsville—225 Rta, 275 Brnta.  
Somerset Inn Brook—Bernardsville—900 Rta, 700 Bta.

#### (Raritan River System)

Black River—Pottersville—125 Bta, 1,125 Rta, 1,900 Brnta.  
Blackwells Mills—Blackwells Mills—75 Sa, 125 Wpera, 75 Lmba, 27 Cra, 25 Pica, 100 Ca.  
Middle Brook—Bound Brook—450 Rta.  
Millstone River—Griggstown—75 Sa, 125 Wpera, 75 Lmba, 28 Cra, 25 Pica, 100 Ca.  
Mine Brook—Far Hills—600 Rta.  
Peapack Brook—Gladstone—350 Rta.  
No. Br. Raritan River—Far Hills—125 Bta, 2,375 Rta, 1,500 Brnta.  
So. Br. Raritan River—Burnt Mills—50 Lmba, 200 Ypera, 25 Cra, 25 Pica, 100 Sa.

### SUSSEX COUNTY

#### (Delaware River System)

Big Flat Brook—Between Club and Flatbrookville—8,850 Bta, 8,075 Rta, 7,189 Brnta, 1,700 Btfg.  
Little Flat Brook—Layton—600 Bta, 975 Rta, 1,080 Brnta, 1,700 Btfg.  
Mill Brook—Montague Township—800 Bta.  
Millville or Shimers Brook—Millville—900 Rta.  
Musconetcong River—Stanhope—550 Bta, 300 Rta, 600 Brnta.  
Paulinskill River—Lafayette to Stillwater—3,200 Bta, 4,580 Rta, 5,015 Brnta.  
Trib. Paulinskill River—Middleville—800 Bta, 405 Brnta, 2,600 Brntfg.  
Pequest River—Brighton to Springdale—3,300 Bta, 3,325 Rta, 1,257 Brnta.  
Trib. Pequest River—Andover—300 Rta.

#### (Big Flat Brook System)

Snook Brook—Near Culvers—900 Btfg.  
Stoney Brook—Tuttles Corner—250 Bta, 150 Rta.  
Tuttles Corner Brook—Tuttles Corner—225 Rta.

#### (Hudson River System)

Wallkill River—Sparta to Franklin—1,575 Bta, 4,800 Rta, 1,155 Brnta.  
Hdw. Wallkill River—112 Rta, 1,050 Btfg.

#### (Musconetcong River System)

Cranberry Lake—Cranberry—1,100 Smbfg, 1,900 Cfg, 4,510 Lmbfg, 1,535 Ypera, 6,575 Bsf, 2,200,000 Yperf, 345 Lmba, 345 Smba, 600 Cra, 1,292 Pica, 200 Ca, 1,375 Sa, 1,500 Misc.  
Dragon Brook—Outlet Cranberry Lake—325 Bta, 325 Rta.

#### (Paulinskill River System)

Alms House Brook—Myrtle Grove—750 Bta, 250 Rta.  
Beaver Lake—Two Bridges—500 Smbfg, 2,500 Bsf, 1,000,000 Yperf, 500 Lmbfg.  
Culvers Lake—Culvers—1,600 Smbfg, 1,200 Cfg, 1,000 Lmbfg, 525 Sa, 21 Pica, 4,500 Bsf, 3,200,000 Yperf, 47 Lmba, 47 Smba, 525 Ypera.

Culvers Lake Brook—Culvers—200 Rta, 200 Brnta.  
Fairview Lake—Near Hardwick—1,100 Smbfg, 1,200 Cfg, 600 Lmbfg, 1,000,000 Yperf.

Margerum Brook—Stockholm—250 Brnta, 300 Btfg.  
Lake Owassa—Near Culvers—1,100 Smbfg, 1,200 Cfg, 2,000 Bsf, 104 Cra, 15 Pica, 603 Sa, 702 Ypera, 1,200 Lmbfg, 3,200,000 Yperf, 257 Lmba, 257 Smba.

Quicks Pond—No. of Swartswood—500 Lmbfg, 1,600,000 Yperf.  
Stillwater Spring Brook—Stillwater—1,200 Btfg.  
Big Swartswood Lake—Swartswood—1,600 Smbfg, 1,800 Cfg, 1,000 Lmbfg, 400 Ca, 7,000 Bsf, 3,000,000 Yperf, 385 Lmba, 386 Smba, 1,680 Sa, 1,680 Ypera, 608 Cra, 1,282 Pica.

Little Swartswood Lake—Swartswood—400 Smbfg, 900 Cfg, 400 Lmbfg, 2,000 Bsf, 1,400,000 Yperf.

Swartswood Lake Brook—Swartswood—425 Rta.  
Trout Brook—Middleville—450 Btfg.

#### (Pequest River System)

Andover Jc. Brook—Andover Jc.—200 Rta.  
Aubles Lake—Andover—50 Lmba, 50 Smba, 100 Ypera, 100 Cra, 100 Pica, 200 Ca, 100 Sa.  
Gardners Lake—Andover—40 Lmba, 40 Smba, 175 Ypera, 80 Cra, 190 Pica, 175 Sa.  
Goodales Lake—Andover—62 Lmba, 63 Smba, 400 Ypera, 13 Pica, 400 Sa.  
Iliff Lake—Near Andover—800,000 Yperf, 62 Lmba, 63 Smba, 250 Ypera, 125 Cra, 250 Pica, 250 Sa.

Kymers Brook—Andover—50 Rta, 203 Brnta.  
Lenape Brook—Andover—200 Bta.  
Lenape Lake—Andover—500 Smbfg, 800,000 Yperf, 62 Lmba, 63 Smba, 200 Ypera, 125 Cra, 300 Pica, 250 Sa.

Muck Meadow or Rose Brook—Andover—500 Bta, 550 Rta, 203 Brnta.  
New Wawayanda Lake—Andover Jc.—500 Smbfg, 2,000 Bsf, 1,200,000 Yperf.  
Tar Hill Brook—Tar Hill—500 Bta, 50 Rta.

#### (Pochuck Creek System)

Doublekill—Vernon—100 Rta, 400 Brnta.  
Warwick River—Break De Kays—300 Bta, 225 Rta, 225 Brnta.

#### (Rockaway River System)

Bear Pond—Lake Hopatcong—500 Lmbfg, 500 Smbfg, 400,000 Yperf.  
Hawthorne Lake—Ogdensburg—36 Lmba, 37 Smba, 400 Ypera, 7 Pica, 400 Sa.  
Lake Hopatcong—Lake Hopatcong—2,000 Smbfg, 500 Lmba, 500 Smba, 680 Ypera, 300 Cra, 620 Pica, 600 Sa, 1,000 Misc.

#### (Wallkill River System)

Beaver Run Brook—Beaver Run—325 Rta, 100 Brnta, 1,050 Btfg.  
Black or Pochuck Creek—McAfee—1,975 Bta, 925 Rta, 904 Brnta, 1,050 Btfg.  
Black Brook—Franklin—625 Bta, 1,313 Rta, 2,750 Btfg.  
Franklin Lake—Franklin—62 Lmba, 63 Smba, 250 Ypera, 125 Cra, 250 Pica, 250 Sa.  
Grinnell Lake—Monroe—500 Lmbfg, 500 Smbfg, 1,200,000 Yperf, 112 Lmba, 113 Smba, 650 Ypera, 125 Cra, 288 Pica, 650 Sa, 400 Misc.  
Clove Brook—Sussex—925 Rta, 500 Bta, 375 Brnta.  
Papakating River—Sussex—500 Bta, 1,375 Rta, 825 Brnta.  
Sparta Jc. Brook—Sparta—725 Rta, 200 Brnta, 1,050 Btfg.

### UNION COUNTY

#### (Rahway River System)

Ash Brook—Ashbrook—200 Bta, 450 Rta.  
Blue Brook—Summit—550 Bta, 25 Rta, 400 Brnta, 400 Brntfg.  
Bryant Lake—Near Summit—325 Ypera, 500 Ca, 325 Sa.

Echo Lake—Mountainside—800,000 Yperf, 937 Lmba, 938 Smba, 700 Ypera, 150 Pica, 684 Sa.  
Middlesex Water Works Lake—Rahway—50 Pica.  
Normahaggin Brook—Cranford—475 Bta, 750 Rta, 50 Brnta.  
Normahaggin Park Lake—Cranford—937 Lmba, 938 Smba, 285 Sa.  
Rahway River—Rahway—1,175 Bta, 1,600 Rta, 955 Brnta.  
Rahway River Park Lake—Rahway—937 Lmba, 938 Smba, 285 Sa.  
Reformatory Lake—Rahway—450 Rta.  
Surprise Lake—Summit—400,000 Yperf, 954 Lmba, 956 Smba, 250 Ypera, 535 Sa.

**(Raritan River System)**

Cedar Brook—Plainfield—900 Rta.  
Green Brook—Scotch Plains—550 Bta, 25 Rta, 400 Brnta, 400 Brntfg.  
Seeley's Pond—Scotch Plains—400 Bta, 600 Rta, 300 Brnta, 400,000 Yperf, 75 Lmba, 75 Smba, 250 Ypera, 150 Cra, 250 Pica, 200 Sa.

**WARREN COUNTY**

**(Delaware River System)**

Buckhorn Creek—Roxburg—450 Bta, 550 Rta.  
Delaware River—Belvidere to New York State Line—4,000 Smbfg.  
Dunfield Creek—Dunfield—1,575 Bta, 600 Rta, 510 Brnta.  
Lomison's Glen Brook—Summerfield—450 Bta, 150 Rta.  
Lopatcong Creek—Above Phillipsburg—650 Rta, 150 Brnta.  
Mt. Bethel Brook—Mt. Bethel—200 Bta, 400 Rta, 200 Brnta.  
Musconetcong River—Waterloo to Penwell—10,715 Bta, 14,755 Rta, 11,106 Brnta, 3,500 Btfg.  
Paulinskill River—Stillwater to Paulina—3,850 Bta, 5,450 Rta, 5,515 Brnta.  
Pequest River—Townsbury to Belvidere—8,325 Bta, 12,575 Rta, 200 Brnta, 2,500 Btfg.  
Pohatcong Creek—Mt. Bethel—300 Bta, 600 Rta, 150 Brnta.  
Pohandusing Brook—Belvidere—400 Rta.  
Silver Lake—Hope—1,000 Smbfg, 1,500 Cfg, 2,400,000 Yperf.  
Triple Brook—Hope—200 Rta.  
Van Campens or Mill Brook—Millbrook—1,500 Bta, 800 Rta, 950 Brnta, 2,600 Brntfg.

**(Musconetcong River System)**

Groondykes Mill Pond—Hackettstown—400 Brnta, 2,400 Brntfg.  
Guard Lock—Near Hackettstown—200 Smbfg, 7,200 Cfg, 615 Sa, 1,000 Sfg, 14 Lmba, 75 Bsa, 2,000,000 Yperf, 800 Misc, 641 Ypera.  
Hance Brook—Beatystown—200 Brnta, 1,300 Brntfg.  
Hatchery Pools—Hackettstown—322 Lmba, 222 Smba, 128 Cra, 63,500 B.  
Saxon Falls—Near Hackettstown—200 Bta, 3,000 Btfg.  
Springtown Run—Port Colden—400 Brnta, 2,100 Brntfg.  
Van Atta Run—Penwell—300 Brnta, 1,200 Brntfg.

**(Paulinskill River System)**

Blairs Springs—Blairstown—200 Brnta, 800 Brntfg.  
Blairs Creek or Slabtown—Blairstown—1,075 Bta, 1,750 Rta, 1,005 Brnta, 2,600 Brntfg.  
Brands Brook—Columbia—450 Brnta, 925 Bta.  
Cedar Lake—Blairstown—600,000 Yperf.  
Columbia Dam—Columbia—700 Smbfg, 1,500 Cfg, 1,200,000 Yperf.  
De Pew Brook—Hainesburg—100 Brnta, 400 Brntfg.  
Halsey Brook—Columbia—300 Bta, 200 Rta.  
Halsey Lake—Columbia—600,000 Yperf.  
Jacksonburg Brook—Jacksonburg—250 Bta, 650 Rta, 800 Brnta, 1,600 Brntfg.  
Kalarma Brook—Kalarma—400 Brnta, 2,600 Brntfg.

Susquehanna Lake—Blairstown—600,000 Yperf.  
White Lake—Marksboro—1,300 Smbfg, 1,500 Cfg, 1,200,000 Yperf, 18 Cba, 8 Lmba, 9 Smba, 170 Ypera, 60 Pica.  
White Lake Brook—Marksboro—200 Brnta, 800 Brntfg.

**(Pequest River System)**

Alphano Brook—Alphano—200 Bta.  
Bacon Run Brook—Petersburg—200 Bta.  
Bear Brook—Long Bridge—400 Bta, 950 Rta.  
Beaver Brook—Hope—2,725 Bta, 3,100 Rta.  
Buckaloo Swamp Brook—Mt. Herman—400 Rta.  
Furnace Brook—Oxford—200 Bta.  
Locust Lake—Mt. Herman—1,200,000 Yperf.  
Mt. Lake—Near Buttzville—1,500 Smbfg, 1,500 Cfg, 1,200,000 Yperf, 124 Lmba, 126 Smba, 512 Ypera, 132 Cra, 60 Pica, 713 Sa.  
Trout Brook—Near Shilo—250 Bta, 6,000 Btfg.

**(Pohatcong Creek System)**

Roaring Rock Brook—Brass Castle—200 Bta, 200 Rta.